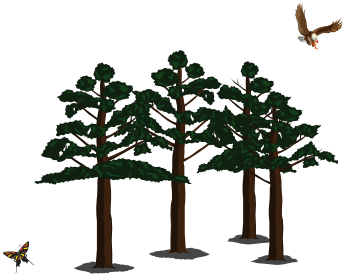
FEDERAL AVIATION ADMINISTRATION

AIRPORTS DIVISION

Environmental Assessment for Hangar 101 Demolition



Airport Name: Duluth International Airport Identifier: DLH

Project Title: Hangar 101 Demolition – Emergency Action

This Environmental Assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA official.

SHERI G. LARES Digitally signed by SHERI G. LARES
Date: 2022.06.23 16:02:16 -05'00'

Responsible FAA Official Date

Complete the following information:

Project Location
Airport Name: Duluth International Airport Identifier: DLH
Airport Address: 4701 Grinden Drive
City: Duluth County: St. Louis County State: Minnesota Zip: 55811

Airport Sponsor Information
Point of Contact: Mark Papko, A.A.E. | Director of Operations with Duluth Airport Authority
Address: 4701 Grinden Drive
City: Duluth State: Minnesota Zip: 55811
Telephone: 218-727-2968 Fax:
Email: mpapko@duluthairport.com

Evaluation Form Preparer Information
Point of Contact: Natalie White, PWS | Sr. Biologist
Company (if not the sponsor): Short Elliott Hendrickson Inc. (SEH)
Address: PO Box 229
City: Duluth State: Minnesota Zip: 55801-0229
Telephone: 218-279-3003 Fax:
Email: nwhite@sehinc.com

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1. Introduction/Background:
The Duluth Airport Authority (DAA), as the sponsor of the Duluth International Airport (DLH or Airport), proposed the demolition of the vacant and condemned Hangar 101 (Proposed Action). The location of DLH and Hangar 101 are depicted on **Figure 1**. The undertaking proposed was to demolish Hangar 101 due to health and safety concerns and the Federal Aviation Administration determined it was a Federal undertaking subject to review under Section 106 of the National Historic Preservation Act and required an Environmental Assessment (EA) to satisfy requirements of the National Environmental Policy Act (NEPA).

As planning and study for the potential demolition of Hangar 101 was ongoing, a wind storm on April 11, 2022 caused extensive damage and three (3) sides of Hangar 101 collapsed (see photos in **Appendix A**). The DAA identified concerns that the detachment of large debris presented an immediate health and safety concern for aircraft, adjacent buildings, and roadways. Hangar 101 also contained regulated materials including asbestos, which is in the debris material. There was also concern that the remaining portions of Hangar 101 were in imminent danger of collapsing. On April 22, the City of Duluth Office of Construction Services and Inspections Division (CSI) stated that the Hangar "has been in a state of extreme dilapidation for many years and was condemned in 2019. Severe weather and a recent wind event has caused the collapse of the building, leaving it structurally unsound, unsafe, and an inimical threat to community safety. The hanger should be torn down as soon as possible to avoid the risk of harm to the public" (see **Appendix A** for the letter from the City of Duluth Building Official/CSI Division Manager). On April 25, 2022, the FAA issued a Notification of Emergency Situation (see **Appendix B**). The undertaking identified under the emergency situation was the demolition of Hangar 101. The hangar demolition contract was awarded on May 18, and a Notice to Proceed given on May 23, 2022. The hangar was demolished on June 8, 2022.

This Environmental Assessment (EA) identifies and considers potential environmental impacts related to the Proposed Action and has been prepared pursuant to the requirements of Section 102(2) of the National Environmental Policy Act of 1969 (NEPA) and Section 509(b)(5) of the Airport and Airway Improvement Act of 1982, as amended. To meet those requirements, the EA has been prepared to in accordance with Federal Aviation Administration (FAA) Order 1050.1F, Environmental Impacts: Policies and Procedures, and FAA Order 10504B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions. Pursuant to FAA Order 1050.1F Paragraph 8-7, Emergency Actions, this NEPA document is being prepared in accordance with this Order and Council on Environmental Quality (CEQ) Regulations to identify and evaluate impacts from the proposed action. The proposed action identified under the emergency situation is the demolition of Hangar 101. The FAA, as the lead Federal Agency, will ensure compliance with NEPA for the Proposed Action. The Duluth Airport Authority has prepared this EA, in compliance with FAA Orders 1050.1F and 5050.4B to evaluate the potential environmental impacts of the proposed project.

DLH has a Master Plan developed to inform future planning and redevelopment in the Hangar area at the airport. As a result of an intensive reconnaissance study of buildings near the Hangar area, Hangar 101 was identified as eligible for listing on the National Register of Historic Places (NRHP) under Criterion C for architecture. Additionally, an Intensive Architectural History Survey was completed on Hangar 101 as part of the preliminary design of the Hangar demolition project. The results of this effort recommended that Hangar 101 is eligible for listing on the NRHP. The Minnesota State Historic Preservation Office (SHPO) concurred with the finding that Hangar 101 is eligible for listing on November 15, 2021 (see **Appendix C**). However, Hangar 101 was in severe disrepair beyond salvage and had become a safety and liability concern for the airport.

The two-story wings on the east, south, and west elevations have collapsed in several locations and the interior of the building is visible through these sections. The Hangar is currently fenced off from access and it is the only vacant and condemned Hangar at the Airport. The site where it is located consists of the former Commemorative Airforce Hangar with office space and adjacent parking lot. Historically, the subject property was a mixture of undeveloped grassland and forested land until the late 1940s. By 1952 site grading activities were visible. The construction of the existing building was completed by 1953. Today, the property is condemned and has been vacant since fall 2018. Recent high-wind weather activity caused more of the Hangar to collapse and additional debris to be blown off of the Hangar and into the nearby taxiway and runway posing safety hazards to air traffic at the Airport.

2. Project Description (List and clearly describe **ALL** components of project proposal including all connected actions). A**ttach a map or drawing of the area with the location(s) of the proposed action(s) identified:**

The Sponsor’s Proposed Action entails the demolition and removal of Hangar 101 and removal of regulated materials, under Emergency Action pursuant to FAA Order 1050.1F, Paragraph 8-7 (see Figure 2).
The major Federal Action includes:

1. **Determination of eligibility for federal assistance under the federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (49 USC 47101, et.seq).**
2. **Approval of an application for federal assistance for eligible components of the proposed project (emergency action) using federal funds from the AIP.**
3. **Unconditional Approval of the portion of the ALP that depicts the components of the proposed project (emergency action) pursuant to 49 USC Sections 40103(b), 44718, and 47101 (a)(16) and Title 14 CFR Parts 77 and 157.**

3. Project Purpose and Need:
The purpose of the Proposed Action is to demolish and remove Hangar 101. The Proposed Action is needed as the Hangar's dilapidated condition and recent extensive storm damage is jeopardizing public health and welfare and airfield and aviation safety at the Airport. Hangar 101 is a Department of Transportation Section 4(f) property and is eligible for inclusion on the National Register of Historic Places (NRHP) under Criterion C for architecture; however, overriding concerns for public health and welfare and airfield safety at the Airport have necessitated a hastened demolition and removal.

4. Describe the affected environment (existing conditions) and land use in the vicinity of project:
The affected environment, henceforth referred to as the project area, is Hangar 101 and its immediate surroundings. The project area is located within previously disturbed and developed Airport property (see **Figure 1**). Hangar 101 is dilapidated, vacant, and condemned. It is fenced off to restrict access as parts of the building have and are collapsing. The immediate surroundings of Hangar 101 consist of airfield facilities (taxilanes, hangars and aeronautical manufacturing facilities), pavement, maintained turf vegetation, and local roads (Airport Road).

5. Alternatives to the Project: Describe any other reasonable actions that may feasibly substitute for the proposed project, <u>and</u> include a description of the "No Action" alternative. If there are no feasible or reasonable alternatives to the proposed project, explain why (attach alternatives drawings as applicable)**:**

Alternatives
There are no feasible or reasonable alternatives to the proposed project, which is an emergency action. Further, since the action was determined to be an emergency, an avoidance alternative was considered not feasible nor prudent. Other alternatives included the rehabilitation of Hangar 101, and the relocation of Hangar 101; neither alternative was considered feasible or prudent due to the condition of the structure and determination by the building inspector as an imminent threat to community safety. Therefore, the Proposed Action is only evaluated in comparison to the No Action Alternative.

No Action Alternative
The No Action Alternative is considered for purposes of comparison. No Action would have left Hangar 101 in a state of dilapidation. The Hangar would have remained fenced off as it was condemned, and parts of the building had collapsed. Weather events would have continued to pose the risk of further degrading the structure and blowing debris, including regulated materials, from the Hangar onto the nearby taxiway and runway thereby posing serious safety hazards to the users of the Airport. The land which the Hangar occupied would have continued to remain vacant and

unusable. This alternative would have resulted in an adverse effect on Hangar 101 because the structure would have continued to degrade. This alternative would fail to address the overriding concerns for public health and welfare due to Hangar 101's dilapidated condition and does not meet the purpose and need.

Proposed Action Alternative

The Proposed Action is to demolish Hangar 101 and remove it from the Airport. This alternative, like the No Action Alternative, would result in an adverse effect on Hangar 101; however, it would also address overriding concerns for public health and welfare at the Airport due to Hangar 101's dilapidated condition and meets the project purpose and need.

Explanation

The Proposed Action was planned to be assessed in a standard-length Environmental Assessment (EA) and evaluated alongside multiple alternatives. These alternatives included the No Action Alternative, rehabilitating the Hangar, and relocating the Hangar. While the EA was being drafted, high-wind weather events further damaged Hangar 101 causing parts of it to collapse thereby increasing the hazard posed to public health and welfare. Furthermore, debris from the Hangar was blown onto the nearby taxilane jeopardizing public health and welfare as well as ongoing operation at the Airport. These events necessitated a hastened demolition and removal of Hangar 101 because the immediate and overriding concern for public health and welfare at the Airport precluded the practicability of any other alternatives. Further, alternative arrangements (preparation of a focused EA) for NEPA compliance were initiated by the FAA ADO, in consultation with AEE (FAA Environment and Energy Policy Division) and AGC-600 (FAA Legal Division) per FAA Order 1050.1F Paragraph 8-7 b; AEE also informed CEQ of the alternative arrangements although it is only required by CEQ for EIS projects[1]; therefore no comments were received.

The Proposed Action includes the demolition of Hangar 101, including the removal of the structure down to the concrete slab. After the demolition, the concrete slab will remain in place and will be utilized for aircraft parking. The Proposed Action includes construction of a temporary security fence, prior to demolition, to separate the construction area from the secure area of the airfield. After demolition of the hangar and all site restoration, a new security fence will be constructed around the hangar pad so that the aircraft parking area is within the secure area of the airfield.

Construction haul routes will exist along existing paved areas to the east, south and west of the hangar. Contractor storage will take place within the project construction limits. Cirrus Aircraft uses the access gate to the west side of the hangar to transition aircraft (under tug and marshalled) to and from the Finishing Center to the south of Airport Road. Construction impacts to Cirrus' operation will be managed through coordination to ensure continuous access for the business throughout the demolition project. See **Figure 2**.

[1] Emergencies and the National Environmental Policy Act Guidance, Council on Environmental Quality (September 14, 2020)

6. Environmental Consequences – Special Impact Categories (refer to the Instructions page and corresponding sections in 1050.1F, the 1050.1F Desk Reference, and the Desk Reference for Airports Actions for more information and direction. Note that when the 1050.1F Desk Reference and Desk Reference for Airports Actions provide conflicting guidance, the 1050.1F Desk Reference takes precedence. The analysis under each section must comply with the requirements and significance thresholds as described in the Desk Reference).

(A) AIR QUALITY

(1) Will the proposed project(s) cause or create a reasonably foreseeable emission increase? Prepare an air quality assessment and disclose the results. Discuss the applicable regulatory criterion and/or thresholds that will be applied to the results, the specific methodologies, data sources and assumptions used; including the supporting documentation and consultation with federal, state, tribal, or local air quality agencies.

No. The Proposed Action will not cause or create a reasonably foreseeable emission increase. Only a minor and temporary increase in emissions will occur from construction equipment during demolition activities.

(2) Are there any project components containing unusual circumstances, such as emissions sources in close proximity to areas where the public has access or other considerations that may warrant further analysis? If no, proceed to (3); if yes, an analysis of ambient pollutant concentrations may be necessary. Contact your local ADO regarding how to proceed with the analysis.

No. The project does not contain unusual circumstances. Access to Hangar 101 by the public is restricted, and traffic in the area is limited to Airport support functions.

(3) Is the proposed project(s) located in a nonattainment or maintenance area for the National Ambient Air Quality Standards (NAAQS) established under the Clean Air Act?

Yes. The City of Duluth is maintenance area for carbon monoxide (CO), which includes the project area.

4) Are all components of the proposed project, including all connected actions, listed as exempt or presumed to conform (See FRN, vol.72 no. 145, pg. 41565)? If yes, cite exemption and go to (B) Biological Resources. If no, go to (5).

Yes. The proposed project is listed as exempt under 40 CFR 93.153(d)(2) as a federal action in response to an emergency that involves overriding concerns for public health and welfare.

(5) Would the net emissions from the project result in exceedances of the applicable *de minimis* threshold (reference 1050.1F Desk Reference and the *Aviation Emissions and Air Quality Handbook* for guidance) of the criteria pollutant for which the county is in non-attainment or maintenance? If no, go to (B) Biological Resources. If yes, stop development of this form and prepare a standard Environmental Assessment.

Not applicable.

(B) BIOLOGICAL RESOURCES

Describe the potential of the proposed project to directly or indirectly impact fish, wildlife, and plant communities and/or the displacement of wildlife. Be sure to identify any state or federal species of concern (Candidate, Threatened or Endangered).

1) Are there any candidate, threatened, or endangered species listed in or near the project area?

No. The USFWS Information, Planning, and Consultation System (IPaC) identified six (6) species with potential to be affected by activities within or near the project area including northern long-eared bat (*Myotis septentrionalis*), Canada lynx (*Lynx canadensis*), red knot (*Calidris canutus rufus*), the gray wolf (*Canis lupus*), piping plover (*Charadrius melodus*), and monarch butterfly (*Danaus plexippus*) (see **Appendix D**). IPaC also identified mapped critical habitat for the Canada lynx within the project area. Suitable habitat for these species is not present within or adjacent to the project area as it consists of developed Airport property surrounded by facilities, roadways, parking lots, the airfield, and fencing to keep wildlife outside of the Airport. The project area does not include trees, which would be suitable for roosting by the northern long-eared bat. The Hangar is unlikely to serve as suitable habitat for the northern long-eared bat as it is not located near abundant food and water resources nor is open-air space for safe migration between winter and summer habitats present due to the Hangar's urban setting and ongoing operations at the Airport

SEH reviewed the Minnesota Department of Natural Resources (MNDNR) Natural Heritage Inventory System (NHIS) under License Agreement #1027 for element occurrences of state-protected biological resources within 1-mile of the project area. The review identified a historic record, from 1913, of the rusty patched bumblebee (*Bombus affinis*). According to the USFWS Rusty Patched Bumble Bee High Potential Zone Map, the project area is not located in a potential zone. Suitable habitat for the rusty patched bumble bee is not present within or adjacent to the project area.

(2) Will the action have any long-term or permanent loss of unlisted plants or wildlife species?

No. The Proposed Action will not have any long term or permanent loss of unlisted plants or wildlife species. The project area consists of developed Airport property surrounded by facilities, roadways, parking lots, the airfield, and fencing to keep wildlife outside of the Airport,

(3) Will the action adversely impact any species of concern or their habitat?

No. The Proposed Action will not adversely impact any species of concern or their habitat. The project area consists of developed Airport property surrounded by facilities, roadways, parking lots, the airfield, and fencing to keep wildlife outside of the Airport.

(4) Will the action result in substantial loss, reduction, degradation, disturbance, or fragmentation of native species habitats or populations?

No. The project area is comprised of developed Airport property within which demolition activities will be restricted. Natural habitat will not be converted as a result of this project. Therefore, no loss, reduction, degradation, disturbance, or fragmentation of native species habitats or populations will result from the Proposed Action.

(5) Will the action have adverse impacts on a species' reproduction rates or mortality rate or ability to sustain population levels?

No. Adverse impacts on a species' reproduction rates or mortality rate or ability to sustain population levels will not result from the Proposed Action.

(6) Are there any habitats, classified as critical by the federal or state agency with jurisdiction, impacted by the proposed project?

Yes. According to the USFWS IPaC, critical habitat for the federally-threatened Canada lynx (*Lynx canadensis*) is mapped across the project area.

(7) Would the proposed project affect species protected under the Migratory Bird Act? (If **Yes**, contact the local ADO).

The Proposed Action would have *no effect* on species protected under the Migratory Bird Act because suitable habitat to support migratory bird species is not present within the project area. DLH has developed a Wildlife Management Hazard Plan with practices to limit wildlife attractants. This includes maintaining turf vegetation to a height of 3-14 inches to limit foraging and nesting by migratory birds on Airport property.

If the answer to any of the above is "Yes", consult with the USWFS and appropriate state agencies and provide all correspondence and documentation.

Consultation with the USFWS was completed through IPaC; the results are included in **Appendix D**. Mapped critical habitat for the Canada lynx occurs across the project area; however, the project area is comprised of previously disturbed and developed land within Airport property that is not suitable habitat for the Canada lynx. Additionally, the Airport is fenced and the DAA follows its Wildlife Hazard Management Plan to mitigate wildlife from entering Airport property. The Proposed Action, as compared to the No Action Alternative, will neither destroy nor create suitable habitat for the Canada lynx. For these reasons, *no effect* to the Canada lynx is anticipated by the Proposed Action. The FAA Environmental Specialist made a no effect determination to all the ESA species identified above based on rationale provided on May 24, 2022.

(C) CLIMATE

(1) Would the proposed project or alternative(s) result in the increase or decrease of emissions of Greenhouse gases (GHG)? If neither, this should be briefly explained and no further analysis is required and proceed to (D) Coastal Resources.

Yes. The Proposed Action would result in a temporary and minor increase of emissions of GHG during demolition activities. The Proposed Action would not result in a change in the number of aircraft operations, fleet mix, runway use, or flight patterns compared to the No Action Alternative and, therefore, no changes in permanent GHG emissions would be associated with the Proposed Action.

(2) Will the proposed project or alternative(s) result in a net decrease in GHG emissions (as indicated by quantitative data or proxy measures such as reduction in fuel burn, delay, or flight operations)? A brief statement describing the factual basis for this conclusion is sufficient.

No. The Proposed Action would not result in a change in the number of aircraft operations, fleet mix, runway use, or flight patterns compared to the No Action Alternative and, therefore, no changes in permanent GHG emissions would be associated with the Proposed Action.

(3) Will the proposed project or alternative(s) result in an increase in GHG emissions? Emissions should be assessed either qualitatively or quantitatively as described in 1050.1F Desk Reference or Aviation Emissions and Air Quality Handbook.

The Proposed Action would result in a temporary and minor increase of emissions of GHG during demolition activities. No permanent changes will to GHG emissions would result from the Proposed Action when compared with the No Action Alternative.

(D) COASTAL RESOURCES

(1) Would the proposed project occur in a coastal zone, or affect the use of a coastal resource, as defined by your state's Coastal Zone Management Plan (CZMP)? Explain.

Yes. DLH is in Minnesota's Coastal Zone which is subject to the Coastal Zone Management Plan; however, the Proposed Action would not affect the use of a coastal resource.

(2) If Yes, is the project consistent with the State's CZMP? (If applicable, attach the sponsor's consistency certification and the state's concurrence of that certification).

The Proposed Action will have no foreseeable effect on land use or natural resources within the Coastal Zone. The Proposed Action conforms to the State's CZMP and will not affect the use of coastal resources.

(3) Is the location of the proposed project within the Coastal Barrier Resources System? (If **Yes**, and the project would receive federal funding, coordinate with the FWS and attach record of consultation).

No. DLH is located approximately nine (9) miles from the nearest Coastal Barrier Resource System.

(E) SECTION 4(f) RESOURCES

(1) Does the proposed project have an impact on any publicly owned land from a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or an historic site of national, state, or local significance? Specify if the use will be physical (an actual taking of the property) or constructive (i.e. activities, features, or attributes of the Section 4 (f) property are substantially impaired.) If the answer is "No," proceed to (F) Farmlands.

Yes. Section 4(f) applies to sites/properties that are Eligible for inclusion in the NHRP, such as Hangar 101. The Proposed Action and No Action Alternative would result in an *Adverse Effect* on Hangar 101 due to its removal. The form of "use" of the Section 4(f) property would constitute permanent incorporation.

(2) Is a *De Minimis* impact determination recommended? If "yes", please provide; supporting documentation that this impact will not substantially impair or adversely affect the activities, features, or attributes of the Section 4 (f) property; a Section 106 finding of "no adverse effect" if

historic properties are involved; any mitigation measures; a letter from the official with jurisdiction concurring with the recommended *de minimis* finding; and proof of public involvement. (See Section 5.3.3 of 1050.1F Desk Reference). If "No," stop development of this form and prepare a standard Environmental Assessment.

Proposed Action

The Proposed Action is to demolish Hangar 101 and remove it from the Airport. This results in an adverse effect on Hangar 101; however, it also addresses overriding concerns for public health and welfare at the Airport due to Hangar 101's dilapidated condition and meets the project purpose and need. The hangar has been in a state of extreme dilapidation for many years and was condemned for habitation in 2019. Severe weather and a recent wind event caused the collapse of the building, leaving it structurally unsound, unsafe, and an inimical threat to community safety. The hangar was torn down beginning June 8, 2022 to avoid the risk of harm to the public.

The demolition of Hangar 101 is an adverse effect on a Section 4(f) property, which could not be avoided because of immediate and overriding concern for public health and welfare at the Airport. The FAA cannot make a *de minimis* determination; therefore, the paragraphs below constitute the Section 4(f) evaluation:

Purpose and Need

The purpose of the Proposed Action is to demolish and remove Hangar 101. The Proposed Action is needed as the Hangar's dilapidated condition and recent extensive storm damage is jeopardizing public health and welfare and airfield and aviation safety at the Airport. Overriding concerns for public health and welfare and airfield safety at the Airport have necessitated a hastened demolition and removal.

Avoidance Alternatives

Since the action was determined to be an emergency, an avoidance alternative was considered not feasible nor prudent. Avoidance alternatives included the rehabilitation of Hangar 101, and the relocation of Hangar 101; neither were considered feasible or prudent due to the condition of the structure and determination by the building inspector as an imminent threat to community safety. The imminent threat to community safety constituted a severe problem of a magnitude that substantially outweighed the importance of protecting the 4(f) property. These alternatives would have resulted in unacceptable safety problems compared to the Proposed Action.

No Action Alternative

The No Action Alternative is considered for purposes of comparison. No Action would have left Hangar 101 in a state of dilapidation. The Hangar would have remained fenced off as it was condemned, and parts of the building had collapsed. Weather events would have continued to pose the risk of further degrading the structure and blowing debris, including regulated materials, from the Hangar onto the nearby taxiway and runway thereby posing serious safety hazards to the users of the Airport. The land which the Hangar occupied would have continued to remain vacant and unusable. This alternative would have resulted in an adverse effect on Hangar 101 because the structure would have continued to degrade. This alternative would fail to address the overriding concerns for public health and welfare due to Hangar 101's dilapidated condition and does not meet the purpose and need.

Least Overall Harm

The FAA found that there are no feasible or prudent alternatives that would avoid the use of the Section 4(f) property. Therefore, a least overall harm determination of the proposed action considered seven factors:

1. **The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property).** The adverse effect to Hangar 101 is proposed to be mitigated; SHPO has suggested appropriate mitigation as discussed in the Mitigation paragraph below.
2. **The relative severity of the remaining harm to the protected activities, features, or attributes that qualify each Section 4(f) property for protection**. Demolition of Hangar 101 is a permanent incorporation of the Section 4(f) resource. This may be somewhat alleviated by the dilapidated condition of Hangar 101 before demolition.
3. **The relative significance of each Section 4(f) property.** Hangar 101 was recommended as eligible for listing in the NRHP for its significance under Criterion C, in the area of Architecture. The Hangar was a rare example of a diminishing number of wooden Air Force designed hangars. The property was described as having "fair" integrity.
4. **The views of the Official with Jurisdiction over each Section 4(f) property**. As discussed in the Mitigation paragraph below, SHPO and ACHP have responded with suggested mitigation for the adverse effect to the Section 4(f) resource.
5. **The degree to which each alternative meets the purpose and need for the project.** The No Action Alternative and Avoidance Alternatives do not meet the purpose and need for the project, as they do not address immediate and overriding concerns for health and community safety. The Proposed Action demolished Hangar 101 as requested by the City of Duluth and met the need to alleviate immediate safety concerns caused by the building.
6. **After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f).** The Proposed Action (demolition of Hangar 101) is not anticipated to have any adverse impacts to resources not protected by Section 4(f).
7. **Substantial differences in costs among the alternatives**. The No Action Alternative would limit costs to maintenance/upkeep of exclusion fencing; however, this does not consider the potential cost of mitigating or repairing safety hazards which may have occurred if Hangar 101 was not demolished. Rehabilitation or relocation of Hangar 101 would have increased costs compared to demolition of the hangar.

The FAA finds that there is no feasible and prudent alternative that would avoid the use of Section 4(f) property and the project includes all possible planning to minimize harm resulting from the use.

Mitigation

The adverse effect of the Proposed Action on Hangar 101 will be mitigated through thorough documentation of the structure which will be made publicly available at the Airport. In an email response to FAA notification of the emergency situation and intent to demolish the hangar (**Appendix B),** the SHPO (the Official with Jurisdiction) indicated beneficial mitigation for the adverse effect could be posting information regarding the history of Hangar 101 on the airport's website. Also discussed between the SHPO and FAA, was the preparation of a display board that describes the history of Hangar 101 that could be highlighted in the Airport terminal building. ACHP responded that mitigation would be needed following demolition, to be documented in a Memorandum of Agreement (MOA). Appropriate mitigation will be established through an MOA between the SHPO, the ACHP, and FAA. The sponsor will also coordinate with the St. Louis County Historical Society, either formally as part of the MOA or informally as plans for mitigation are developed (see **Appendix C**). The FAA will also consult with the Department of Interior (DOI) for a 45 day review period related to the permanent incorporation of a 4(f) property.

(F) FARMLANDS
Does the project involve acquisition of farmland, or use of farmland, that would be converted to non-agricultural use and is protected by the Federal Farmland Protection Policy Act (FPPA)? (If **Yes**, attach record of coordination with the Natural Resources Conservation Service (NRCS), including form AD-1006.)

No. The project area is located within previously disturbed and developed Airport property. No farmland conversion will result from the Proposed Action. The Proposed Action would have no effect on resources protected by the Federal Farmland Protection Policy Act.

(G) HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION
(1) Would the proposed project involve the use of land that may contain hazardous materials or cause potential contamination from hazardous materials? (If Yes, attach record of consultation with appropriate agencies). Explain.

Hangar 101 is considered a Formerly Used Defense Site (FUDS). FUDS are properties the Department of Defense (DoD) once owned or used, but no longer controls. The Defense Environment Restoration Program (DERP) was established to address properties that have been contaminated by DoD activities including the clean-up of FUDS. The U.S. Army Corps of Engineers (USACE) is the manager of the DERP-FUDS program and since the late 1980s has conducted investigation and identified remedial actions for the area in and around Hangar 101 that will be implemented in the future. The Minnesota Pollution Control Agency (MPCA) is overseeing investigation of the site.

The United States Air Force (USAF) historically used Hangar 101 as the main aircraft maintenance facility during the startup of the Duluth Air Base in the 1950s and 60s. Solvent use for engine maintenance, parts washing, and painting is suspected in the building.

A Remedial Investigation (RI) completed in 2007 indicated that the former DoD operations in the area around Hangar 101 resulted in soil and groundwater contamination. Both petroleum related compounds and chlorinated solvents were identified. It is important to note investigation within the building footprint for Hangar 101 has not been conducted and it is unknown if impacted soil or groundwater are present below the building footprint.

Trichloroethylene (TCE) was detected in groundwater with concentrations up to 1,560 micrograms per liter (µg/L) west of Hangar 101. A leaking sanitary line discharging from Hangar 101 is the suspected source of the chlorinated solvents as borings closer to Hangar 101 showed no impacts from solvents. Groundwater was encountered at 7 to 10 feet below ground surface. Solvents were not found in soil.

Petroleum contaminated groundwater was identified on the northwest and west side of Hangar 101 with diesel range organics (DRO) concentrations up to 1,600 µg/L. DRO and VOC concentrations in soil exceeding their respective MPCA unregulated fill criteria and soil reference value (SRV) were identified in a single soil boring on northwest corner of Hangar 101 at a depth of 10 to 12 feet below ground surface near the groundwater interface.

As part of the Proposed Action, minimal excavation is anticipated and will be limited to the removal of concrete footings and the abandonment of subsurface utilities. The concrete floor slab for the

building is to remain in place. Contamination is not anticipated to be encountered during excavation activities; however, if contamination is encountered it will be appropriately managed in accordance with the MPCA's risk-based approach to cleanup as summarized in its guidance document entitled Brownfield Program Response Action Plans c-rem4-43. In addition, the contamination will be reported to the Minnesota duty officer.

If no action is taken, further degradation of the Hangar will occur with the potential to release asbestos and other hazardous materials to the environment.

(2) Would the operation and/or construction of the project generate significant amounts of solid waste? If **Yes**, are local disposal facilities capable of handling the additional volumes of waste resulting from the project? Explain.

Yes. The project will segregate and abate asbestos containing material (ACM) to the extent feasible, and then demolish Hangar 101. The demolition of Hangar 101 will generate hazardous and regulated waste, ACM, and demolition debris. In August 2021, SEH conducted an Asbestos Inspection and Regulated Waste Assessment of Hangar 101, which identified ACM and regulated waste within the building (see **Appendix E**). Prior to demolition, regulated and hazardous waste will be removed from the building in accordance with Minnesota Rules, chapter 7035 and recycled or disposed of at an appropriately permitted facility. A hazardous waste identification number will be obtained from the MPCA by filing a Notification of Regulated Waste Activity. A hazardous waste manifest will accompany each load of hazardous waste from the site to the disposal facility to document disposal and manifests will be retained until the manifest is entered into the United States Environmental Protection Agency (EPA) e-Manifest system.

ACM from the building will be properly removed and disposed of during the project. Prior to abatement, the contractor will file abatement notifications with the Minnesota Department of Health (MDH) and MPCA. Asbestos abatement will be conducted by a MDH licensed asbestos contractor in accordance with Minnesota Asbestos Abatement Act and Rules (Minnesota Statutes, chapter 326 and Minnesota Rules, chapter 4620. During abatement, ACM will be adequately wetted, wrapped or placed in containers, and labeled. ACM will be disposed of at a MPCA-approved solid waste facility permitted to accept ACM.

Following abatement, Hangar 101 will be razed and demolition debris will be disposed of at a MPCA permitted solid waste facility. To the extent feasible, the contractor will segregate waste for reuse or recycling during the demolition.

The project has received bids from demolition contractors. No concerns have been identified regarding landfills being able to accept material based on space constraints.

The No Action Alternative would not generate waste or limit landfill capacity; however, the No Action Alternative is not feasible because the City of Duluth has condemned the building and following recent wind damage has requested that it be torn down as soon as possible.

(3) Will the project produce an appreciable different quantity or type of hazardous waste? Will there be any potential impacts that could adversely affect human health or the environment?

The sponsor does not anticipate producing an appreciably different quantity or type of hazardous waste.

(H) HISTORIC, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

(1) Describe any impact the proposed project might have on any properties listed in, or eligible for inclusion in the National Register of Historic Places. (Include a record of your consultation and response with the State or Tribal Historic Preservation Officer (S/THPO)).

Yes, Hangar 101 is eligible for inclusion in the NRHP. SHPO concurred with this finding in the consultation letter that is included in **Appendix C**. The Proposed Action will *Adversely Effect* Hangar 101 via demolition. SHPO concurred with the finding that the demolition of Hangar 101 will have an *Adverse Effect* on the historic property. FAA Letter of Notification of Emergency Situation (**Appendix B**) was submitted to SHPO and the Advisory Council on Historic Preservation (ACHP) on April 25, 2022 and a notification was sent to the St. Louis County Historical Society on May 24. 2022 (**Appendix B**). SHPO's response, via email, was received on April 29, 2022 and is included in **Appendix B**. ACHP's response was received on May 3, 2022 and is included in **Appendix B**. SHPO indicated beneficial mitigation for the adverse effect could be posting information regarding the history of Hangar 101 on the airport's website. Also discussed between the SHPO and FAA, was the preparation of a display board that describes the history of Hangar 101 that could be highlighted in the Airport terminal building. ACHP responded that, based on the information provided, mitigation documented in a Memorandum of Agreement (MOA) would be needed. This could occur following demolition of the building due to the current safety concerns. Appropriate mitigation will be established through an MOA between SHPO, ACHP, and FAA. The sponsor will also coordinate with the St. Louis County Historical Society, either formally as part of the MOA or informally as plans for mitigation are developed (see **Appendix C**).

(2) Describe any impacts to archeological resources as a result of the proposed project. (Include a record of consultation with persons or organizations with relevant expertise, including the S/THPO, if applicable).

There is a low likelihood for intact archeological resources being present within the project's area of potential effect. SHPO concurred with that finding and that an archaeological survey was not warranted (**Appendix C**).

(I) LAND USE

(1) Would the proposed project result in other (besides noise) impacts that have land use ramifications, such as disruption of communities, relocation of residences or businesses, or impact natural resource areas? Explain.

No. The Proposed Action would occur within Airport property, which is consistent with exiting Airport land uses. The relocation of residences or businesses or disruption of established communities or planned development would not result from the Proposed Action.

(2) Would the proposed project be located near or create a wildlife hazard as defined in FAA Advisory Circular 150/5200-33, "Wildlife Hazards On and Near Airports"? Explain.

No. The Proposed Action would not create a wildlife hazard as defined in FAA Advisory Circular 150/5200-33C. The project area is previously disturbed and developed land that does not contain habitat/vegetation that would sustain or attract wildlife. The DAA would continue to maintain the proposed project area in accordance with the DLH Wildlife Hazard Management Plan.

(2) Include documentation to support sponsor's assurance under 49 U.S.C. § 47107 (a) (10), of the 1982 Airport Act, that appropriate actions will be taken, to the extent reasonable, to restrict land use to purposes compatible with normal airport operations.

The project area is within the secure area of the Airport and the sponsor intends to continue using it for aeronautical purposes. The No Action Alternative may be an incompatible land use as safety concerns would preclude the use of the area for aeronautical purposes.

(J) NATURAL RESOURCES AND ENERGY SUPPLY

What effect would the project have on natural resource and energy consumption? (Attach record of consultations with local public utilities or suppliers if appropriate)

The Proposed Action would not result in a significant effect on natural resources or energy supply. Demolition activities of the Proposed Action would temporarily increase energy consumption, i.e. fuel consumption. Operations of the Airport would not change under the Proposed Action as compared with the No Action Alternative.

(K) NOISE AND NOISE-COMPATIBLE LAND USE

Will the project increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe? (Use AEM as a screening tool and AEDT 2b as appropriate. See FAA Order 1050.1F Desk Reference, Chapter 11, or FAA Order 1050.1F, Appendix B, for further guidance). Please provide all information used to reach your conclusion. If yes, contact your local ADO.

No. The Proposed Action would not result in a change in the number of aircraft operations, fleet mix, runway use, or flight patterns as compared to the No Action Alternative. Therefore, the Proposed Action would not change noise exposure in the vicinity of the Airport. There will be a brief and localized increases in noise associated with demolition activities of the Proposed Action; however, these would occur within Airport property where the noise environment is dominated by aircraft operations.

(L) SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, and CHILDREN'S HEALTH and SAFETY RISKS

(1) Would the project cause an alteration in surface traffic patterns, or cause a noticeable increase in surface traffic congestion or decrease in Level of Service?

No. The Proposed Action will result in an alteration in surface traffic patterns. A temporary increase in vehicular trips to and from the project area will occur during the demolition activities of the Proposed Action. Works hours would be coordinated with the DAA to reduce the temporary impact on the surface traffic network around the Airport.

(2) Would the project cause induced, or secondary, socioeconomic impacts to surrounding communities, such as changes to business and economic activity in a community; impact public service demands; induce shifts in population movement and growth, etc.?

No. The Proposed Action would not affect surrounding communities. The demolition activities are restricted to Airport property and are temporary. The Proposed Action could create construction jobs. This could have a temporary positive impact on local economic activity, and would not negatively impact public service demands or cause population shifts.

(3) Would the project have a disproportionate impact on minority and/or low-income communities? Consider human health, social, economic, and environmental issues in your evaluation. Refer to DOT Order 5610.2(a) which provides the definition for the types of adverse impacts that should be considered when assessing impacts to environmental justice populations.

No. The Proposed Action will not result in disproportionate impacts on minority and/or low-income communities will not result. According to the Standard Report generated by the EPA EJScreen webtool (see **Appendix F**), the population within 1-mile of the Airport is 16% minority and 16% low income, and therefore do not comprise the majority of the population within 1-mile of the Airport. Demolition activities of the Proposed Action will be localized and temporary within previously developed Airport property. As compared to the No Action Alternative, the Proposed Action may equally benefit the populations around the Airport by removing a safety hazard from the Airport and thereby increasing the safety of aircraft operations at the Airport. The Proposed Action will not result in impacts to environmental categories that could have a disproportionate impact on minority and/or low-income communities, including air quality, noise, hazardous materials, water quality, or traffic.

(4) Would the project have the potential to lead to a disproportionate health or safety risk to children?

No. No schools or daycares are located within or adjacent to the project area of the Proposed Action. The closest school is the Hermantown High School, which is approximately 2.25 miles southwest of the project area. The closest daycare is the Building Blocks Learning Center, which is also approximately 1.25 miles southeast of the Hangar 101. The Proposed Action will not result in impacts to environmental categories that could have a disproportionate impact on children's environmental health and safety, including air quality, noise water quality, hazardous materials, or noise.

If the answer is "YES" to any of the above, please explain the nature and degree of the impact. Also provide a description of mitigation measures which would be considered to reduce any adverse impacts.

(M) VISUAL EFFECTS INCLUDING LIGHT EMISSIONS

(1) Would the project have the potential to create annoyance or interfere with normal activities from light emissions for nearby residents?

No. The Proposed Action would not have the potential to create annoyance or interfere with normal activities from light emissions for nearby residents. The activities of the Proposed Action will occur within Airport property where lighting currently exists. Any temporary lighting required for the

construction and demolition activities will be shielded and focus to avoid interference with aircraft operations and mitigate light spillover into the surrounding areas.

(2) Would the project have the potential to affect the visual character of nearby areas due to light emissions?

No. The Proposed Action would not have the potential to affect the visual character of nearby areas due to light emission. Permanent lighting structures will not be installed as part of the Proposed Action. Therefore, the visual character would not change as compared to the No Action Alternative.

(3) Would the project have the potential to block or obstruct views of visual resources?

No. The visual character of the project area of the Proposed Action consists of Airport land uses. As compared to the No Action Alternative, the Proposed Action would not block or obstruct views of any visual resources.

If the answer is "YES" to any of the above, please explain the nature and degree of the impact using graphic materials. Also provide a description of mitigation measures which would be considered to reduce any adverse impacts.

(N) WATER RESOURCES (INCLUDING WETLANDS, FLOODPLAINS, SURFACE WATERS, GROUNDWATER, AND WILD AND SCENIC RIVERS)

(1) WETLANDS

(a) Does the proposed project involve federal or state regulated wetlands or non-jurisdictional wetlands? (Contact USFWS or appropriate state natural resource agencies if protected resources are affected) (Wetlands must be delineated using methods in the US Army Corps of Engineers 1987 Wetland Delineation Manual. Delineations must be performed by a person certified in wetlands delineation Document coordination with the resource agencies).

No. The project area of the Proposed Action is comprised of previously developed land. It is predominantly comprised of impervious surfaces with smaller areas of maintained turf vegetation.

(b) If yes, does the project qualify for an Army Corps of Engineers General permit? (Document coordination with the Corps).

Not applicable. The Proposed Action would not affect wetlands.

(c) If there are wetlands impacts, are there feasible mitigation alternatives? Explain.

Not applicable. The Proposed Action would not affect wetlands.

(d) If there are wetlands impacts, describe the measures to be taken to comply with Executive Order 11990, Protection of Wetlands.

Not applicable. The Proposed Action would not affect wetlands.

(2) FLOODPLAINS
(a) Would the proposed project be located in, or would it encroach upon, any 100-year floodplains, as designated by the Federal Emergency Management Agency (FEMA)?

No. According to FEMA FIRM Panel #2704210020B, the Proposed Action is not located in and would not encroach upon any 100-year floodplains.

(b) If Yes, would the project cause notable adverse impacts on natural and beneficial floodplain values as defined in Paragraph 4.k of DOT Order 5620.2, *Floodplain Management and Protection*?

Not applicable. The Proposed Action is not located in and would not encroach upon any 100-year floodplains.

(c) If Yes, attach the corresponding FEMA Flood Insurance Rate Map (FIRM) and describe the measures to be taken to comply with Executive Order 11988, including the public notice requirements.

Not applicable. The Proposed Action is not located in and would not encroach upon any 100-year floodplains.

(3) SURFACE WATERS
(a) Would the project impact surface waters such that water quality standards set by Federal, state, local, or tribal regulatory agencies would be exceeded <u>or</u> would the project have the potential to contaminate a public drinking water supply such that public health may be adversely affected?

No. Surface waters are not present within the project area of the Proposed Action.

(b) Would the water quality impacts associated with the project cause concerns for applicable permitting agencies or require mitigation in order to obtain a permit?

No. The Proposed Action would not introduce additional impervious surface to the Airport. No significant change in stormwater runoff would occur as compared with the No Action Alternative.

If the answer to any of the above questions is “Yes”, consult with the USEPA or other appropriate Federal and/or state regulatory and permitting agencies and provide all agency correspondence.

(4) GROUNDWATER
(a) Would the project impact groundwater such that water quality standards set by Federal, state, local, or tribal regulatory agencies would be exceeded or would the project have the potential to contaminate an aquifer used for public water supply such that public health may be adversely affected?

No. The Proposed Action would not impact groundwater supply or groundwater recharge/discharge areas. No new groundwater wells are proposed by the Proposed Action. No significant impacts to groundwater are anticipated because of the Proposed Action as compared to the No Action Alternative.

(b) Would the groundwater impacts associated with the project cause concerns for applicable permitting agencies or require mitigation in order to obtain a permit?

No. The Proposed Action would not result in groundwater impacts.

(c) Is the project to be located over an EPA-designated Sole Source Aquifer?

No. The Proposed Action is not located over an EPA-designated Sole Source Aquifer. The nearest EPA-designated Sole Source Aquifer is located approximately 72 miles away from DLH at Mille Lacs Lake in Minnesota.

If the answer to any of the above questions is “Yes”, consult with the USEPA or other appropriate Federal and/or state regulatory and permitting agencies and provide all agency correspondence as an attachment to this form.

(5) WILD AND SCENIC RIVERS

Would the proposed project affect a river segment that is listed in the Wild and Scenic River System or Nationwide River Inventory (NRI)? (If Yes, coordinate with the jurisdictional agency and attach record of consultation).

No. The Proposed Action is not located within or near any river segments that are listed in the Wild and Scenic River System or the Nationwide River Inventory.

(O) CUMULATIVE IMPACTS

Discuss impacts from past, present, and reasonably foreseeable future projects both on and off the airport. Would the proposed project produce a cumulative effect on any of the environmental impact categories above? Consider projects that are connected and may have common timing and/or location. For purposes of this Form, generally use 3 years for past projects and 5 years for future foreseeable projects.

Projects at the Airport in the past three (3) years include ramp and apron pavement rehabilitation, taxiway reconstruction, and the final phase of a full depth runway reconstruction. These projects did not affect historical nor Section 4(f) resources with potential to contribute to cumulative effects on these resources. These projects had temporary construction effects which were mitigated by standard construction best management practices (BMPs), and do not have common timing with the Hangar 101 demolition.

In the future, it is anticipated that a hangar development area would be planned since there is an existing and forecasted demand for hangar sites. These hangars may be owned by DAA or privately owned. The addition of these hangars may increase the number of based aircraft at the airport; however, increases in aircraft operations is not expected to create a change the existing noise contours [see Existing (2020) Noise Exposure Map and the Future (2026) Noise Exposure Map in the Duluth International Airport Draft 14 CFR Part 150 Noise Compatibility Study, October 2021].

In addition, it is anticipated that following demolition and site restoration, existing airport tenants may lease the space where Hangar 101 was located for aircraft parking (primarily small single engine aircraft) on the remaining concrete slab. As described in Section (G) above, there is potential for contamination underneath the concrete slab on site. As part of the Proposed Action, minimal

excavation is anticipated and will be limited to the removal of concrete footings and the abandonment of subsurface utilities. Eventual removal of the slab, a foreseeable future project as part of a hangar development project, provides an opportunity for remediation of contamination which will be appropriately managed in accordance with the MPCA's risk-based approach to cleanup as summarized in its guidance document entitled Brownfield Program Response Action Plans c-rem4-43. Any unexpected contamination will be reported to the Minnesota duty officer. Any new future development of the area will result in an ALP change which is a trigger for FAA NEPA review at that time. These foreseeable future actions are currently not ripe for review since it is unknown when they will be implemented.

7. PERMITS

List all required permits for the proposed project. Has coordination with the appropriate agency commenced? What feedback has the appropriate agency offered in reference to the proposed project? What is the expected time frame for permit review and decision?

City of Duluth Commercial Wrecking Permit – submitted, approved
Minnesota Pollution Control Agency Demolition Notification – submitted

8. MITIGATION

Describe those mitigation measures to be taken to avoid creation of significant impacts to a particular resource as a result of the proposed project, and include a discussion of any impacts that cannot be mitigated.

Mitigation will be necessary for the *Adverse Effect* to Hangar 101 for Section 106 and Section 4(f) protections. Appropriate mitigation will be established with memorandum of agreement with SHPO and ACHP, which is anticipated to include documentation on the DAA website and information for public viewing at DLH.

9. PUBLIC INVOLVEMENT

Describe the public review process and any comments received. Include copies of Public Notices and proof of publication.

The Proposed Action has been discussed and reviewed at Duluth Airport Authority board meetings which are open to public attendance. The EA will be available for review by the general public, government agencies, and interested parties, and to DOI for comment on the impacts to a Section 4(f) resource, for 45 days. A Notice of Availability (NOA) of the EA and Section 4(f) evaluation will be published in the Duluth News Tribune on June 25th, 2022. The NOA will include instructions for reviewing the document and submitting comments. A copy of the NOA, distribution list, and proof of publication is provided in **Appendix G.** The public review period occurred from June 25th to August 9th, 2022.

10. LIST OF ATTACHMENTS

Figure 1 – Hangar 101 Location
Figure 2 – Hangar 101 Demolition
Figure 3 – Hangar 101 Development Foreseeable Actions
Appendix A – City of Duluth, Letter Requesting Emergency Demolition of Hangar 101
Appendix B – Federal Aviation Administration Letter of Notification of Emergency Situation and Responses

Appendix C – Section 106 Correspondence
Appendix D – USFWS Information, Planning and Consultation Results
Appendix E – Asbestos Inspection and Regulated Waste Assessment
Appendix F – EPA EJSCREEN Standard Report
Appendix G – Notice of Availability and Distribution List

Figures
Appendices

Project Title: Hangar 101 Demolition **Identifier: DLH**

11. PREPARER CERTIFICATION

I certify that the information I have provided above is, to the best of my knowledge, correct.

Natalie White — June 23, 2022
Signature — Date

Natalie White, PWS
Name

Sr. Biologist
Title

SEH (Consultant) — 218.279.3003
Affiliation — Phone #

12. AIRPORT SPONSOR CERTIFICATION

I certify that the information I have provided above is, to the best of my knowledge, correct. I also recognize and agree that no construction activity, including but not limited to site preparation, demolition, or land disturbance, shall proceed for the above proposed project(s) until FAA issues a final environmental decision for the proposed project(s), and until compliance with all other applicable FAA approval actions (e.g., ALP approval, airspace approval, grant approval) and special purpose laws has occurred.

Mark Papko — Digitally signed by Mark Papko Date: 2022.06.23 12:50:37 -05'00'
Signature — Date

Mark Papko, A.A.E.
Name

Director of Operations
Title

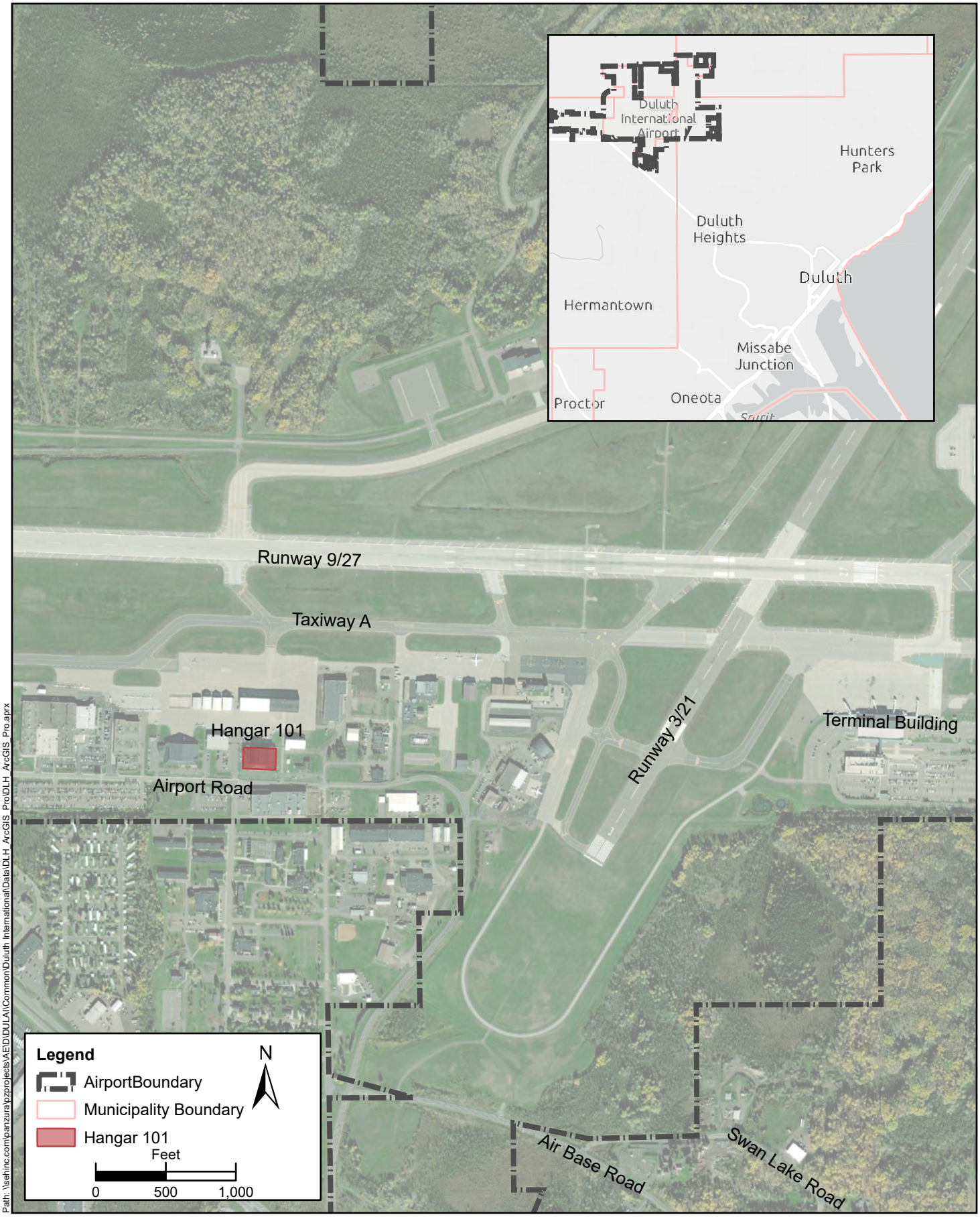
Duluth Airport Authority — 218-727-2968
Affiliation — Phone #

Hangar 101 Environmental Assessment

Figure 1

Duluth International Airport
Duluth, Minnesota

Hangar 101 Location
05/2022; DULAI 166056



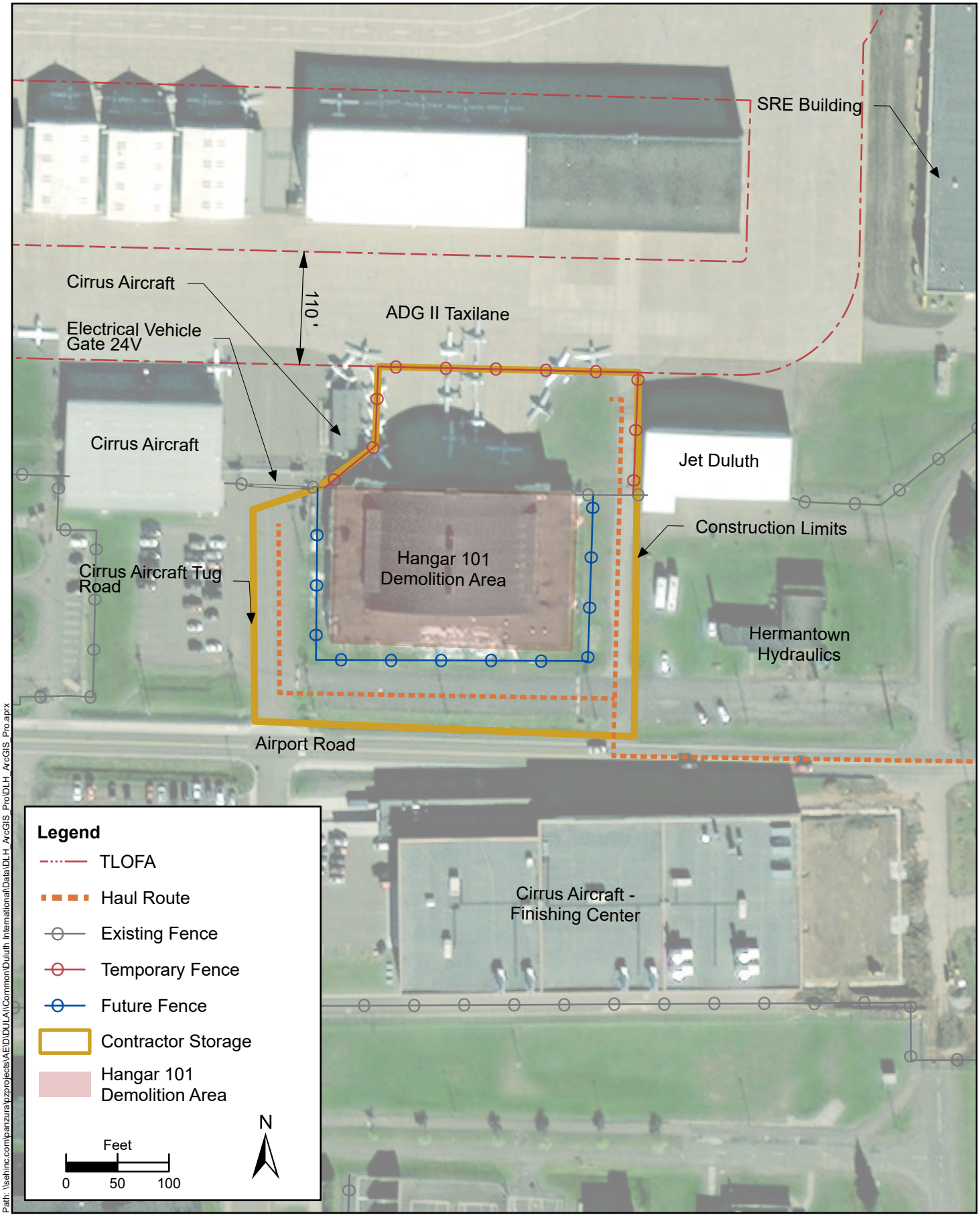
Path: \\sehinc.com\panzura\pzprojects\AE\DIDULAI\Common\Duluth International\Data\DLH_ArcGIS_Pro\DLH_ArcGIS_Pro.aprx

Hangar 101 Environmental Assessment

Figure 2

Duluth International Airport
Duluth, Minnesota

Hangar 101 Demolition
05/2022; DULAI 166056



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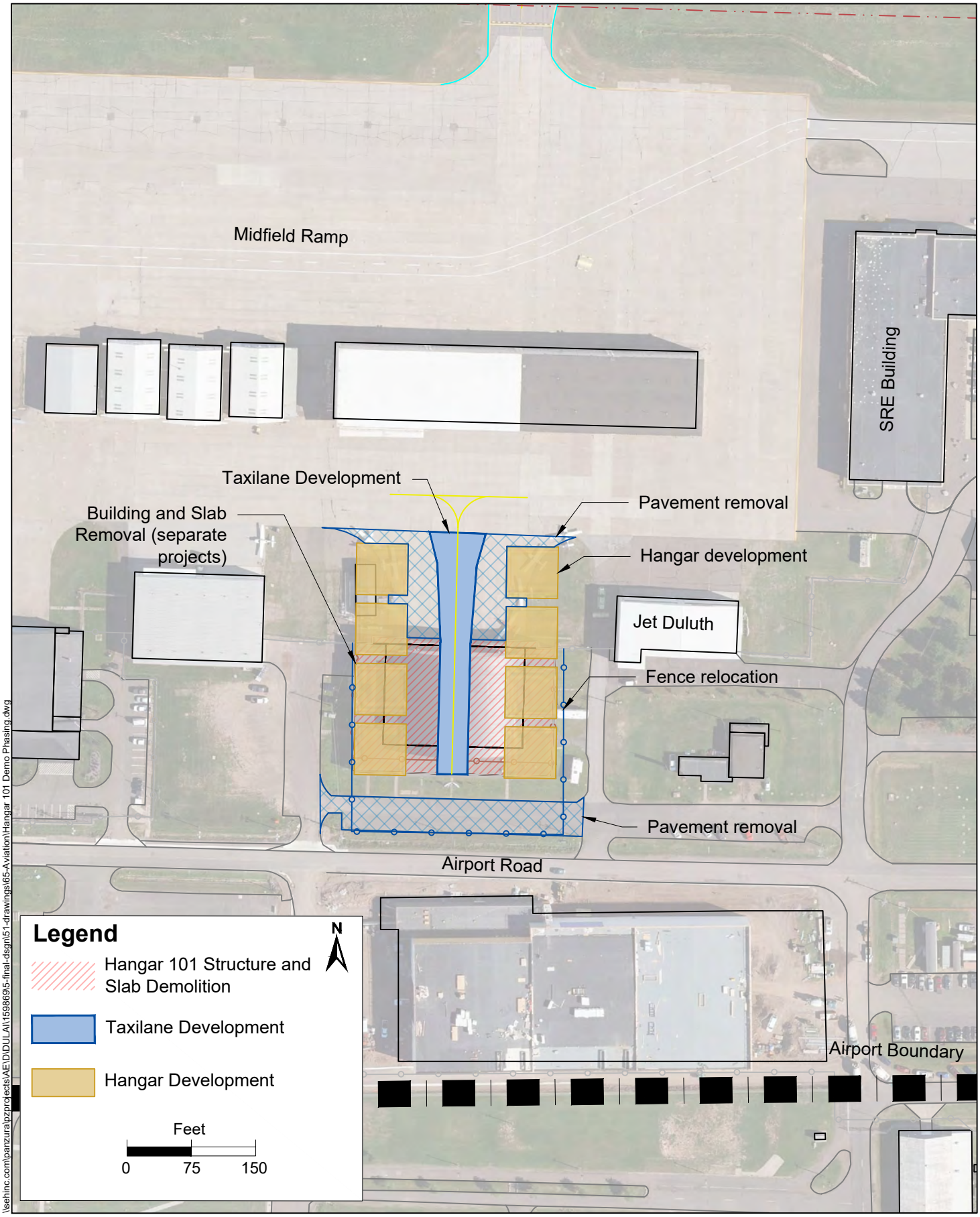
Hangar 101 Environmental Assessment

Figure 3

Duluth International Airport
Duluth, Minnesota

Foreseeable Actions - Hangar Development Area
05/2022; DULAI 166056



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Appendix A
City of Duluth, Letter Requesting Emergency Demolition of Hangar 101 - April 22, 2022

DULUTH INTERNATIONAL AIRPORT
Closer to everywhere.

April 22, 2022

RE: Duluth International Airport (DLH)
Hangar 101 Demolition Request
SEH No. DULAI 166056 14.00

Sheri Lares
Environmental Protection Specialist
Dakota Minnesota Airports District Office
2301 University Drive, Building 23B
Bismarck, ND 58504-7595

Dear Ms. Lares:

Hangar 101 at the Duluth International Airport (DLH) is in the building area south of Taxiway A and west of the airport SRE Building. Hangar 101 is no longer useable. The structure has deteriorated, and due to safety concerns and the state of the building, the hangar has been condemned.

As part of the DLH Master Plan process, DAA contracted and completed an architectural history survey. DAA and FAA coordinated the survey results with the Minnesota State Historic Preservation Office (SHPO). The SHPO has concurred with the FAA finding that Hangar 101 is eligible for listing on the National Register of Historic Places (NHRP). The DAA contracted with SEH to prepare a Federal Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA), to evaluate the potential environmental effects of demolition or rehabilitation of the structure. The EA process is expected to take up to 12 months.

As planning and study is ongoing, the building has continued to deteriorate. Significantly, in a high wind event the week of April 11, 2022, areas of the building annex on three (3) sides of the hangar collapsed (see attached photos). There was moderate damage to these areas prior to the weather event but since then has grown exponentially. Although the building is vacant and fenced to prevent entry, the detachment of large debris presents an immediate health and safety concern for adjacent buildings, roadways, and parked aircraft. The building also contains regulated materials including asbestos, which may be present in debris.

DAA believes that emergency demolition of Hangar 101 and proper disposal of its regulated materials is necessary for health and safety reasons. We commit to conduct any necessary documentation and follow-up environmental review and coordination with SHPO for project effects; however, given the emergency nature of the demolition of the unsafe structure, it is not prudent to wait for these steps prior to completing the demolition.

Thank you for considering our request for immediate demolition of the Hangar 101 structure.

Sincerely,

Mark Papko Digitally signed by Mark Papko
Date: 2022.04.22 10:38:41 -05'00'

Mark Papko, A.A.E.
Director of Operations
Duluth Airport Authority

c: Natalie White, SEH; Kaci Nowicki, SEH

x:\ae\d\dulai\166056\1-genl\14-corr\hangar 101 demolition request.docx

DULUTH INTERNATIONAL AIRPORT
Closer to everywhere.

Photo 1 – Hangar 101 on April 11, 2022

Photo 2 – Hangar 101 on April 21, 2022

Duluth International Airport
Sky Harbor Airport
4701 Grinden Drive
Duluth, MN 55811
Phone (218) 727-2968
Fax (218) 727-2960
daa@duluthairport.com
www.duluthairport.com

Photo 3 – Hangar 101 on April 21, 2022

Photo 4 – Hangar 101 on April 21, 2022

Appendix B
Federal Aviation Administration Letter of Notification of Emergency Situation

Appendix B1
Federal Aviation Administration Notification of Emergency Situation to the State Historic Preservation Office and the Advisory Council on Historic Preservation - April 25, 2022

- City of Duluth, Letter Requesting Emergency Demolition of Hangar 101 – April 22, 2022 (See Appendix A)
- Letter from the City of Duluth Building Official/CSI Division Manager – April 22, 2022

U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
Dakota-Minnesota Airports District Office
Bismarck Office
2301 University Drive, Building 23B
Bismarck, ND 58504

Federal Aviation Administration
Dakota-Minnesota Airports District Office
Minneapolis Office
6020 28th Avenue South, Suite 102
Minneapolis, MN 55450

April 25, 2022

Via email

Rachael Mangum, ACHP
Kelly Gragg-Johnson, MN SHPO

Duluth International Airport
St. Louis County
Duluth, Minnesota
SHPO Number: 2022-0198
Notification of Emergency Situation

The Duluth International Airport previously received a concurrence determination from the Minnesota State Historic Preservation Office on the eligibility of Hangar 101 (SHPO Number 2022-0198). The undertaking proposed was to demolish Hangar 101 due to health and safety concerns and the Federal Aviation Administration determined it was a Federal undertaking subject to review under Section 106 of the National Historic Preservation Act.

A recent wind storm on April 11th caused extensive damage and three (3) sides of Hangar 101 collapsed. The Duluth Airport Authority identified concerns that the detachment of large debris presents an immediate health and safety concern for aircraft, adjacent buildings, and roadways. Hangar 101 also contains regulated materials including asbestos, which may also be in the debris material. There is also concern that the remaining portions of Hangar 101 is in imminent danger of collapsing. ***Please refer to the attached letter from the Duluth Airport Authority.*** On April 22, the City of Duluth Office of Construction Services and Inspections Division (CSI) deemed Hangar 101 structurally unsound, unsafe, and is an inimical threat to community safety. ***Please refer to the attached letter from the City of Duluth Building Official/CSI Division Manager.***

The undertaking identified under the emergency situation is the demolition of Hangar 101. Therefore, pursuant to 36 CFR 800.12 (b) (2), this letter serves as a notification of the undertaking and an opportunity to comment on the undertaking within 7 days of notification.

Please note that pursuant to FAA Order 1050.1F Paragraph 8-7, Emergency Actions, a NEPA document will be prepared in accordance with this Order and CEQ Regulations when time permits. Also, the Architectural Historian who completed the Architectural History Survey will be onsite to review the area prior to removal of Hangar 101.

If you have any questions, comments, or concerns please contact me at sheri.lares@faa.gov

Sincerely,

SHERI G. LARES

Digitally signed by SHERI G. LARES
Date: 2022.04.25 08:38:20 -05'00'

Sheri G. Lares
Regional Tribal Consultation Official
Environmental Protection Specialist

Cc: Mark Papko, Duluth Airport Authority
Judith Walker, FAA Federal Preservation Officer

THE CITY OF DULUTH MINNESOTA
Construction Services & Inspections Division
Planning & Economic Development Department
Room 100
411 West First Street
Duluth, Minnesota 55802
218-730-5240
permittingservices@duluthmn.gov

Date: April 22, 2022 VIA EMAIL ONLY

To: Mark Papko, Duluth Airport Authority
mpapko@duluthairport.com

From: Wendy Rannenberg, Building Official/CSI Division Manager

CC: Jon Otis, Deputy Fire Chief
Lisa Consie, Interim Fire Marshal
Shawn Krijaz, Fire Chief

Re: Unsafe Structure
DLH Hangar – CDHH1910-009
4931 Airport Rd, Duluth

The hangar referenced above has been in a state of extreme dilapidation for many years and was condemned for habitation in 2019.

Severe weather and a recent wind event has caused the collapse of the building, leaving it structurally unsound, unsafe, and an inimical threat to community safety. The hangar should be torn down as soon as possible to avoid the risk of harm to the public.

Appendix B2
Federal Aviation Administration Notification of Emergency Situation to the St. Louis County Historical Society - May 24, 2022

- Federal Aviation Administration's Section 106 Finding - October 13, 2021 (See Appendix C1)
- State Historic Preservation Office's Letter of Concurrence with the FAA's Adverse Effect Finding - November 15, 2021 (See Appendix C2)

From:	Lares, Sheri (FAA)
To:	Natalie White
Subject:	FW: Notification: Duluth International Airport NEPA Emergency Procedures for National Register of Historic Places (NRHP) eligible Hangar 101 Demolition
Date:	Thursday, May 26, 2022 11:44:19 AM
Attachments:	Documentation of Section 106 Adverse Effect Finding for Hangar 101 Demolition at Duluth International Airport.msg SHPO Concurrence Adverse Effect.pdf

---

Please include this in the appendix. Please be sure to include the email and the two attachments embedded in the email.

thanks

From: Fitzpatrick, Joshua (FAA) <Joshua.Fitzpatrick@faa.gov>
Sent: Tuesday, May 24, 2022 1:15 PM
To: joanne@thehistorypeople.org
Cc: Lares, Sheri (FAA) <sheri.lares@faa.gov>
Subject: Notification: Duluth International Airport NEPA Emergency Procedures for National Register of Historic Places (NRHP) eligible Hangar 101 Demolition

Ms. Coombe:

Information below is related to demolition of an historic hangar at the Duluth International Airport.

Background
During the airport planning phase in fall 2021, the Duluth International Airport's (DLH) consultant conducted an architectural history survey and determined that Hangar 101 was deemed eligible under criterion c (architecture) for the National Register of Historic Places (NRHP). However, DLH determined Hangar 101 was in sever disrepair and a concern for health and safety and that demolition was the best course of action. The Federal Aviation Administration (FAA) Dakota-Minnesota Airports District Office (DMA-ADO) coordinated an adverse effect finding under the National Historic Preservation Act (NHPA) with the Minnesota State Historic Preservation Office (SHPO), of which SHPO concurred with the finding in fall 2021. Based on Hangar 101's NHPA adverse effect, the FAA and DLH are undertaking an Environmental Assessment (EA) to remove Hangar 101, but the EA has not officially begun.

Prior to beginning the EA, an April 2022 wind storm severely impacted the hangar. The Airport Manager and Fire Department consider the hangar removal now an emergency, and imminent concern for the safety of the public and aviation users since debris (including exposed asbestos) is scattered and loosely attached to portions of the structure. The structure is vacant and there is concern that it may collapse and transmit airborne asbestos.

The DMA-ADO and FAA Environment and Energy Division now consider immediate demolition of Hangar 101 as an emergency situation, under FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, paragraph 8-7, to protect the lives and safety of the public and should not be delayed in order to comply with the National Environmental Policy Act (NEPA) or NHPA. Alternative arrangements are being made to

begin the EA for demolition of Hangar 101, but the EA will be conducted after-the-fact where demolition will begin prior to the FAA's NEPA finding. Section 800.12 of NHPA, Emergency Situations, allow for emergency demolition of the hangar. The MN SHPO and Advisory Council on Historic Preservation (ACHP) were both alerted of the NHPA adverse effect and emergency situation and concur with immediate demolition.

This email serves as notification of this emergency situation to the St. Louis County Historical Society. We also are inviting the Historical Society to further consult on the project, if you so choose to do so.

Timeline

Demolition will begin May 18 and take approximately two weeks, depending on asbestos remediation. A condensed EA will begin in May 2022 with a NEPA finding slated for July 2022 signature.

Mitigation

The FAA and DLH will work with the MN SHPO, ACHP and potentially the St. Louis County Historical Society on a memorandum of agreement (MOA) during the EA for mitigation related to Hangar 101 demolition. MN SHPO has requested placarding and signage of the NRHP eligible hangar to at the airport as mitigation for the demolition. Information provided will commemorate the hangar and purposes it served for the airport and military.

Please let me know if you would like to be a consulting party on this MOA and project.

I have attached the SHPO communication and architectural history analysis of this property for your review and edification.

Thank you,

Josh Fitzpatrick
Environmental Protection Specialist
FAA Airports Planning and Environmental Division
(509) 306-0621
Joshua.fitzpatrick@faa.gov

Appendix B3
The State Historic Preservation Office's and Advisory Council on Historic Preservation's Responses to the Federal Aviation Administration's Notification of Emergency Situation

- The State Historic Preservation Office's Response – April 29, 2022
- The Advisory Council on Historic Preservation's Response – May 3, 2022

From: GraggJohnson, Kelly (ADM) <kelly.graggjohnson@state.mn.us>
Sent: Friday, April 29, 2022 4:13 PM
To: Lares, Sheri (FAA) <sheri.lares@faa.gov>
Cc: Fitzpatrick, Joshua (FAA) <Joshua.Fitzpatrick@faa.gov>; Beimers, Sarah (ADM) <sarah.beimers@state.mn.us>
Subject: RE: 2022-04-25 FAA Notification of Emergency Situation DLH

Hi Sheri,

It was nice talking with you today. Thank you for notifying our office of this emergency situation with Hangar 101 at the Duluth International Airport. We understand that it was extensively damaged during a recent storm and will need to be demolished as it is a threat to public safety.

As you know, we have been in consultation with your agency regarding the proposed demolition of the property and had agreed with your agency's determination that the property is eligible for listing in the National Register of Historic Places. We also concurred with your agency's finding that demolition would have an adverse effect on the historic property.

As discussed, we believe it would be beneficial to have information regarding the history of Hangar 101 on the airport's website as possible mitigation for the loss of the historic property. The documentation could include information from the recently completed property evaluation that was prepared by 106 Group. The documentation could also include historic photographs of the property, historic drawings/plans if they are available, and any newspaper articles, etc that may pertain to the historic property.

Please let me know if you have any questions. We look forward to continuing consultation as your agency is preparing the EA for this project.

Best Regards,

Kelly

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Kelly Gragg-Johnson (she/her) **I Environmental Review Program Specialist**
50 Sherburne Avenue, Suite 203
Saint Paul, Minnesota 55155
(651) 201-3285 I kelly.graggjohnson@state.mn.us

May 3, 2022

Sheri G. Lares
Environmental Protection Specialist
Dakota-Minnesota Airports District Office
Federal Aviation Administration
2301 University Drive
Building 23B
Bismarck, ND 58504

Ref: *Emergency Notification of Demolition of Hangar 101 at Duluth International Airport*
Duluth, St. Louis County, Minnesota
ACHP Project Number: 018263

Dear Ms. Lares:

On April 25, 2022, the Advisory Council on Historic Preservation (ACHP) received a notification from the Federal Aviation Administration (FAA) regarding the referenced emergency undertaking pursuant to 36 CFR § 800.12(b)(2) of the ACHP's regulations, "Protection of Historic Properties" (36 CFR Part 800), implementing Section 106 of the National Historic Preservation Act. Based upon the information provided, we understand that FAA proposes to demolish Hangar 101 at Duluth International Airport, following a high wind event in the week of April 11, 2022, that resulted in collapse of areas of the building annex on three (3) sides of the already deteriorated hangar. As the emergency undertaking has the potential to cause effects to historic properties, compliance with Section 106 of the National Historic Preservation Act, 54 USC § 306108 (NHPA), and its implementing regulations "Protection of Historic Properties" (36 CFR Part 800), is required.

Based upon additional information from the Minnesota State Historic Preservation Office (SHPO), we understand that the FAA initiated consultation in October 2021 for the proposed demolition of this same historic property, and made a finding of Adverse Effect. In a response letter dated November 15, 2021, the SHPO concurred with the FAA's finding of Adverse Effect and stated that the FAA should notify the ACHP of its finding. It is unclear what has occurred in the interim between concurrence with the effect finding and the recent wind damage as the ACHP does not have any record of this adverse effect notification and there does not appear to have been continued consultation to resolve adverse effects through the development of a Memorandum of Agreement (MOA). Based on the information provided, we believe that mitigation, documented in an MOA, is needed following demolition of the building due to the current safety concerns the FAA has identified.

We appreciate the notification and the opportunity to comment within the time available. Further, the ACHP requests that FAA provide us with comments received from the SHPO, interested federally recognized Indian tribes, and other consulting parties regarding this undertaking. As the undertaking is implemented, FAA should inform the ACHP and consulting parties if any historic properties were identified or affected during the undertaking's implementation.

If we may be of further assistance, please contact Ms. Rachael Mangum at (202) 517-0214 or by e-mail at rmangum@achp.gov and reference the ACHP Project Number above.

Sincerely,

Jaime Loichinger

Jaime Loichinger
Assistant Director
Federal Permitting, Licensing, and Assistance Section
Office of Federal Agency Programs

Appendix C
Section 106 Correspondence

Appendix C1
Documentation of Section 106 Adverse Effect Finding for Hangar 101 Demolition at Duluth International Airport

- Email of Documentation from the Federal Aviation Administration to the State Historic Preservation Office – October 13, 2021
- Cover Letter – October 13, 2021
- Federal Aviation Administration's Section 106 Finding - October 13, 2021
- Photos of Hangar 101
- Request for Project Review by the State Historic Preservation Office Form
- Project Exhibit and Area of Potential Effect
- Reconnaissance Architectural History Survey for the Duluth International Airport Master Plan Project – September, 2021
- Intensive Architectural History Survey of Hangar 101 for the Duluth International Airport Master Plan Project – September, 2021

Natalie White

From: Fitzpatrick, Joshua (FAA) <Joshua.Fitzpatrick@faa.gov>
Sent: Wednesday, October 13, 2021 12:43 PM
To: 'ENReviewSHPO@state.mn.us'; 'GraggJohnson, Kelly (ADM)'
Cc: Martin, Jacob (FAA); Kaci Nowicki; Natalie White
Subject: Documentation of Section 106 Adverse Effect Finding for Hangar 101 Demolition at Duluth International Airport
Attachments: Hangar 101 Section 106 Finding.pdf; hangar 101 photos.pdf; R-C_Form_SIMPLE_1_tcm36-327668.pdf; Project Exhibit and APE.pdf; Duluth Airport Recon Architectural History Report.pdf; Duluth Airport Hangar 101 Intensive Report.pdf; SHPO cover letter.pdf

Hi Kelly:

I have provided the attached cover letter, SHPO Review Form, section 106 finding, and supporting documentation for the Duluth International Airport's proposed Hangar 101 demolition project. We have determined that Hangar 101 is recommended as eligible for NRHP listing and the proposed demolition would be an adverse effect to the resource. Hangar 101 is in severe disrepair and has become a significant safety concern for the airport, which has resulted in their decision to propose demolition of this property. Alternative analyses revealed that upgrading the hangar was cost prohibitive and relocation would cause further deterioration and there was no real use of the hangar there anymore. With the safety concerns the airport decided the most appropriate path forward is the demolition proposal. That said, we are willing to work with the SHPO's office to provide mitigation of this resource, if needed, due to the adverse effect. My cell phone is below and please reach out with questions.

Please confirm receipt as the attached files are large.

Thank you,

Josh Fitzpatrick
(Acting) Regional Environmental Protection Specialist
FAA Dakota Minnesota Airports District Office
O: (612) 253-4639
C: (509) 306-0621
Joshua.fitzpatrick@faa.gov

U.S. Department
of Transportation
**Federal Aviation
Administration**

Dakota-Minnesota Airports District Office
Bismarck Office
2301 University Drive, Building 23B
Bismarck, ND 58504

Dakota-Minnesota Airports District Office
Minneapolis Office
6020 28th Avenue South, Suite 102
Minneapolis, MN 55450

October 13, 2021

Ms. Kelly Gragg-Johnson
State Historic Preservation Office
50 Sherburne Avenue
Suite 203
St. Paul, MN 55155

Re: Determination of Adverse Effect for the Duluth International Airport (DLH)
Proposed Hangar 101 Demolition Project

Dear Ms. Gragg-Johnson:

The Federal Aviation Administration (FAA) determined that a Section 106 finding of an adverse effect is applicable for the proposed DLH Hangar 101 Demolition Project. The FAA respectfully requests the Minnesota State Historic Preservation Office to provide written concurrence with the Section 106 determination of Adverse Effect and to work with the FAA and DLH to determine an appropriate mitigation path forward, if needed.

If you have any comments, questions, or concerns regarding the analyses and conclusions used to determine the potential effects of the proposed project on historic, cultural, and archaeological resources, or have any questions regarding the project, please do not hesitate to contact me.

Sincerely,

Josh Fitzpatrick
Environmental Protection Specialist
FAA – Dakota-Minnesota Airports District Office
O: 612-253-4639
C: 509-306-0621

Enclosure: Adverse Effect Finding and supporting documentation

FEDERAL AVIATION ADMINISTRATION (FAA) DOCUMENTATION OF SECTION 106 FINDING OF ADVERSE EFFECT TO AN ELIGIBLE HISTORIC PROPERTY SUBMITTED TO THE STATE HISTORIC PRESERVATION OFFICE (SHPO) PURSUANT TO 36 CFR Section 800.4(d)(1) for the DULUTH INTERNATIONAL AIRPORT HANGAR 101 DEMOLITION PROJECT

1. DESCRIPTION OF THE UNDERTAKING

The Duluth International Airport (DLH or airport) is working on a master plan to inform future planning and redevelopment in the hangar area at the airport. As a result of an intensive reconnaissance study of the surrounding buildings near the hangar area it was revealed that Hangar 101 is recommended as eligible for listing on the National Register of Historic Places (NRHP) under Criterion C for architecture. However, Hangar 101 is in severe disrepair beyond salvage and has become a safety and liability concern for the airport. The two-story wings on the east, south, and west elevations have collapsed in several locations and the interior of the building is visible through these sections (see attached Hangar 101 photos). The hangar is currently fenced off from any access for safety concerns. The proposed Project includes demolition of Hangar 101 due to health and safety concerns (Appendix A).

The airport has gone through a number of alternatives to review the possible future use of Hangar 101. The No Action alternative would not demolish nor update the structural integrity of Hangar 101. This alternative was dismissed as it would still result in an adverse effect to this potentially eligible property through further deterioration. Relocation and/or updates to the building as possible alternatives were also dismissed as costs to relocate and/or rebuild were prohibitive and it is not clear what the need for the hangar would be in the future. For comparison, renovating Hangar 101 to address safety issues and meet current standards would likely cost roughly 50% more than constructing a new building. As it stands, the hangar is an unsafe structure and, therefore the Airport Sponsor's proposed project includes demolition of Hangar 101. The hangar would be demolished and a vacant area would remain for the interim. The space may be utilized for airplane parking for the foreseeable future, but it is unknown what the long term use of the area will be.

2. AREA OF POTENTIAL EFFECT

The Area of Potential Effect (APE) is the area within which an undertaking may affect an historic property or cultural resource, either directly or indirectly. The architectural history APE includes all standing structures located adjacent to Hangar 101 and aligns with buildings across the entire project area. Please see Appendix A for maps associated with the APE. The first map shows the entire project area, then the second APE map focuses in on the hangar 101 area. The cultural resources APE aligns with the entire project area as well.

3. EFFORTS TO IDENTIFY HISTORIC PROPERTIES

During April through September 2021, 106 Group conducted a reconnaissance architectural history survey for the Duluth Airport Master Plan Project (Project). The survey was conducted to assist in development of a master plan to inform future planning and redevelopment in the hangar area at the airport. The reconnaissance architectural history survey consisted of historical research; a field survey to identify and document properties that are 45 years of age or older and have not previously been evaluated within the last 10 years within the APE; and an evaluation for potential eligibility for listing in the NRHP.

No architectural history survey has previously been conducted and no historic properties have previously been inventoried within the current recommended architectural history APE. During the reconnaissance architectural history survey, 106 Group identified 12 properties 45 years in age or older within the APE that had not previously been evaluated. One property within the recommended architectural history APE is less than 45 years of age, and therefore, does not meet the criteria for survey. No further architectural history work is recommended for 11 properties documented as part of this reconnaissance survey due to a lack of historical significance and/or a loss of integrity (Appendix B).

Initial research suggested that Hangar 101 (SL-DUL-3641) may be potentially eligible for listing in the NRHP, and therefore, an intensive architectural history survey was undertaken and reported separately (Appendix C). As part of this review, five additional properties have not been recommended for intensive level survey due to a lack of historical significance. Moreover, five additional properties are less than 45 years of age, and therefore, do not meet the criteria for survey (Appendix C).

Hangar 101 is a single-bay, arched-roof hangar that is flanked by two-story, flat-roof maintenance and office wings on the east, south, and west elevations. Hangar 101 is a rare example of a diminishing number of wooden Air Force designed hangars. As such, Hangar 101 has significance under NRHP Criterion C, in the area of Architecture, for its embodiment of typical period military airplane hangar construction, its unique wooden crescent truss method of construction used during a time period of heavy steel construction, and its likely association as an Air Force standard plan hangar. The recommended period of significance is circa 1952, when Hangar 101 and its wings were constructed. The recommended property boundary is the footprint of the hangar and the wings. See Appendix C property inventory forms and for complete description of Hangar 101.

The area has been heavily disturbed due to airport construction activities and has low likelihood for intact below ground cultural resources, therefore no cultural resource survey was undertaken for the APE.

4. BASIS FOR FINDING

Completion of the Reconnaissance level/architectural history surveys revealed that Hangar 101 is recommended as eligible for NRHP listing under Criterion C: Architecture.

Due to the proposed demolition of Hangar 101 as a result of safety concerns, the FAA has therefore determined that an *Adverse Effect* finding is appropriate for this project. The FAA respectfully requests that the SHPO provide written concurrence within 30 days of receipt of this Section 106 finding and for the SHPO to work with the FAA to identify possible mitigation opportunities, if needed.

ATTACHMENTS

Appendix A: Project Exhibit/APE

Appendix B: RECONNAISSANCE ARCHITECTURAL HISTORY SURVEY FOR THE DULUTH INTERNATIONAL AIRPORT MASTER PLAN PROJECT

Appendix C: INTENSIVE ARCHITECTURAL HISTORY SURVEY OF HANGAR 101 FOR THE DULUTH INTERNATIONAL AIRPORT MASTER PLAN PROJECT & INVENTORY FORMS

Josh Fitzpatrick
Environmental Protection Specialist
Federal Aviation Administration
Dakota-Minnesota Airport District Office

13-October 2021

Date

Photo 1 South side of Hangar 101, facing roughly northwest

Photo 2 East side of Hangar 101, facing west

Photo 3 Southwest corner of Hangar 101, facing northeast

Photo 4 North side of Hangar 101, facing south

Please mail the completed form and required material to:

State Historic Preservation Office
203 Administration Building
50 Sherburne Ave
St. Paul, MN 55155

DEPARTMENT OF ADMINISTRATION

Request for Project Review by the State Historic Preservation Office (SHPO)

(●) This is a new submittal
( ) This is additional information relating to SHPO Project #: _____

DATE: 10/13/2021

I. GENERAL PROJECT INFORMATION

Project Title: Duluth International Airport Hangar 101 Demolition and Adverse Effect

Project Address (or Location): 4701 Grinden Drive

City / Township (circle one): Duluth Zip: 55811 County: St. Louis

Legal Description: Township _____ Range _____E/W (circle one) Section _____ Quarter-section _____

II. PROJECT CONTACT INFORMATION

Project Contact Name: Josh Fitzpatrick Title: Environmental Protection Specialist

Company/Agency: Federal Aviation Administration (FAA)

Street Address: _____ Phone Number: (509) 306-0621

City: Minneapolis State: MN Zip: 55450 Email: joshua.fitzpatrick@faa.gov

III. FEDERAL AND/OR STATE INVOLVEMENT

Federal Agency (if applicable): FAA
(Agency providing funds, licenses, or permits)
Permit or Project Reference #: _____

State Agency (if applicable): _____
(Agency providing funds, licenses, or permits)
Permit or Project Reference #: _____

Local Agency (if applicable): _____

(Continued on Reverse Side)

Please refer to the **Instructions for Completing the Request for Project Review Form.** Submit one *Request for Project Review* form for each project. Project submittals will not be accepted via fax or e-mail. For questions regarding the SHPO review process, please visit our website or contact Kelly Gragg-Johnson, Environmental Review Specialist, at 651-201-3285 or kelly.graggjohnson@state.mn.us.

IV. PROJECT DESCRIPTION AND BOUNDARIES

A) REQUIRED FOR ALL PROJECTS

☑ Write a detailed description of the proposed project. (See attached.)

The Duluth International Airport (DLH or airport) is working on a master plan to inform future planning and redevelopment in the hangar area at the airport. As a result of an intensive reconnaissance study of the surrounding buildings near the hangar area it was revealed that Hangar 101 is recommended as eligible for listing on the National Register of Historic Places (NRHP) under Criterion C for architecture. However

☑ Attach a map of project location, with project area(s) clearly marked. Road names must be included and legible.

B) Architecture

Are there any buildings or structures within the project area? ◉ Yes ◯ No

If **No**, continue to the Archaeology section below. If **Yes**, submit all of the following information:

☑ List all buildings and structures within the project area and the year they were built. (See attached.)

see attached section 106 finding/documentation

☑ Photographs of ***each*** building and structure located within the project area, along with a photo key. Include streetscape images, if applicable. All photographs must be clear, crisp, focused, and taken at ground level. Aerial photos are insufficient.

☑ List known historic buildings or structures located within the project area (i.e., individual properties or districts which are listed in the National Register or which meet the criteria for listing in the National Register). (See attached.)

Hangar 101 is recommended as eligible for listing by the FAA on the NRHP

C) Archaeology

Does the proposed undertaking involve ground-disturbing activity? ◉ Yes ◯ No

If **No**, this form is complete. If **Yes**, submit all of the following information:

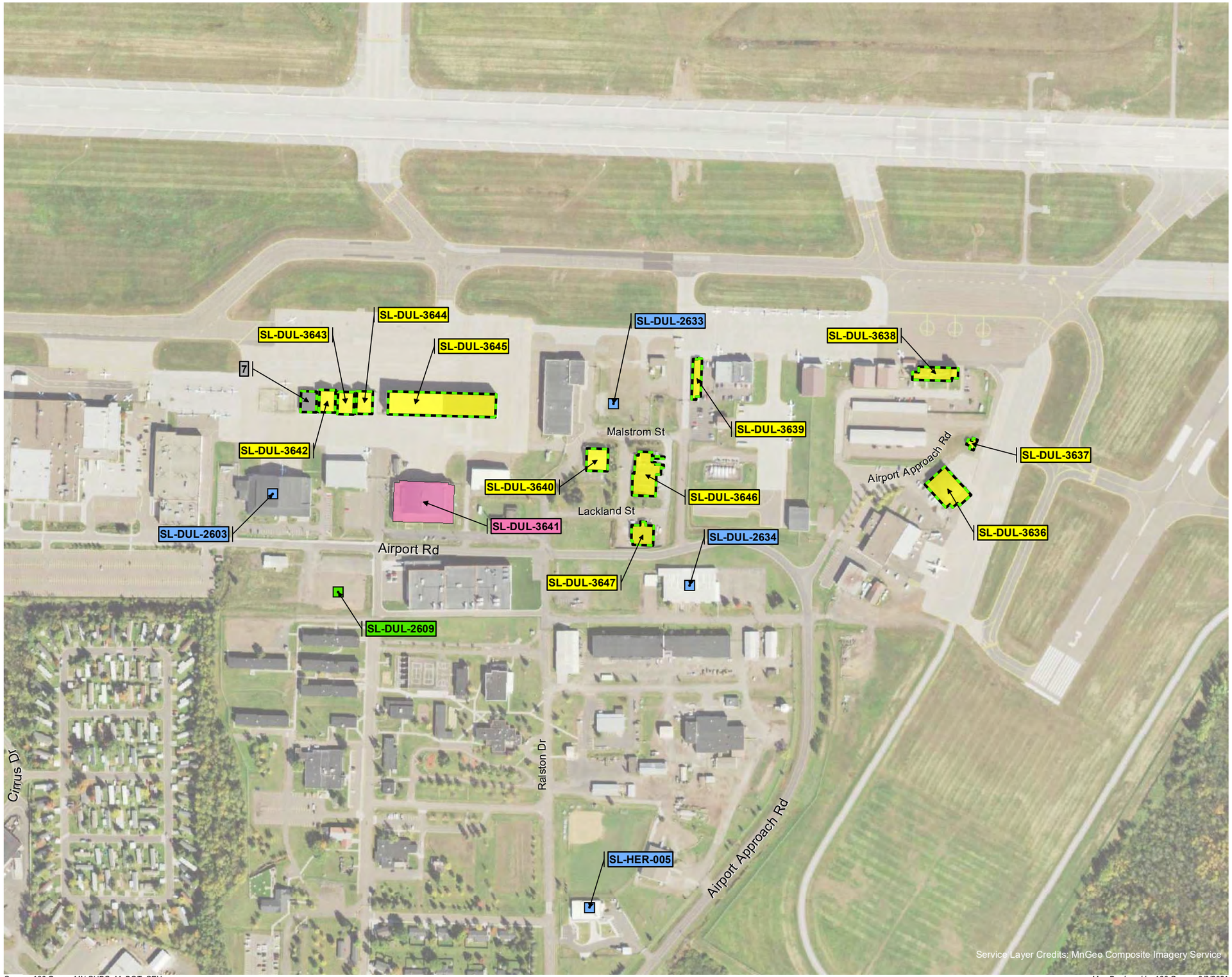
☑ Attach the relevant portion of a 1:24000-scale USGS topographic map (photocopied or computer generated) ***with the project boundary marked***.

☑ Description of current and previous land use and disturbances: (See attached.)

Used as hangar areas. Heavily graded over time.

☑ Any available information concerning known or suspected archaeological resources within the project area. (See attached.)

Hangar 101 is recommended as eligible for NRHP listing.



Source: 106 Group; MN SHPO; MnDOT; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project Reconnaissance Architectural History Survey

Duluth, St. Louis County, Minnesota

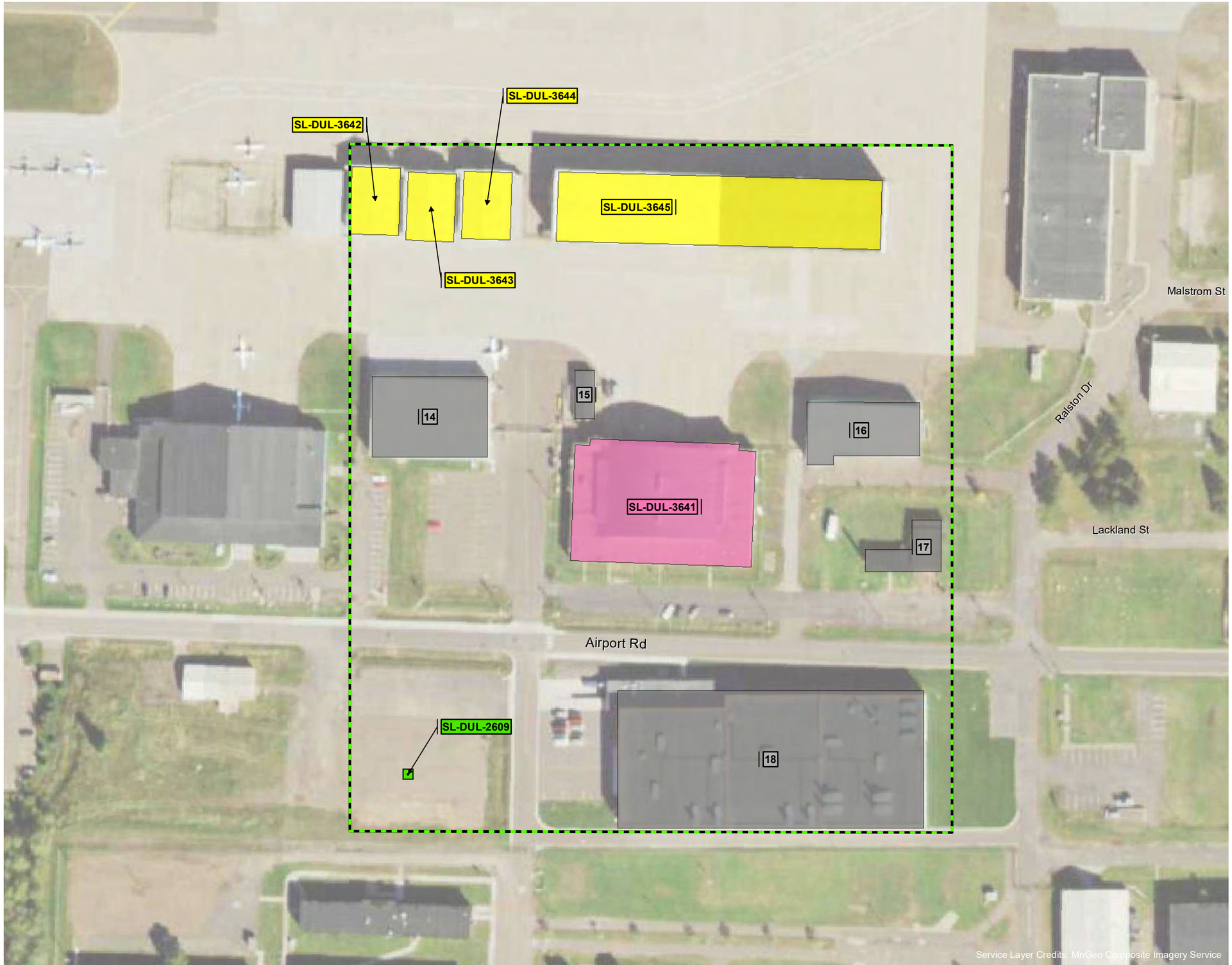
- Project Area / Architectural History APE
- Previously Inventoried Property
- No Longer Extant
- Not of Age
- Not Recommended for Intensive Survey
- Recommended Eligible

0 90 Meters
0 230 Feet
1:4,500

106GROUP

Project Location, APE, and Results

Figure 1



Source: 106 Group; MN SHPO; MnDOT; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project Intensive Architectural History Survey of Hangar 101

Duluth, St. Louis County, Minnesota

- Project Area / Architectural History APE
- No Longer Extant
- Not of Age
- Not Recommended for Intensive Survey
- Recommended Eligible

0 30 Meters

0 80 Feet

1:1,500

106GROUP

Project Location, APE, and Results

Figure 1

106GROUP

Connecting People + Place + Time

RECONNAISSANCE ARCHITECTURAL HISTORY SURVEY FOR THE DULUTH INTERNATIONAL AIRPORT MASTER PLAN PROJECT

Duluth, St. Louis County, Minnesota

September 2021

RECONNAISSANCE ARCHITECTURAL HISTORY SURVEY FOR THE DULUTH INTERNATIONAL AIRPORT MASTER PLAN PROJECT

Duluth, St. Louis County, Minnesota

SHPO File No. Pending
106 Group Project No. 2510

SUBMITTED TO:
SEH
3535 Vadnais Center Drive
St. Paul, MN 55106

SUBMITTED BY:
106 Group
1295 Bandana Blvd N. #335
St. Paul, MN 55108

PRINCIPAL INVESTIGATOR:
Saleh Miller, M.S.

REPORT AUTHORS:
Steve Gallo, PhD
Saleh Miller, M.S.
Kelli Andre Kellerhals, M.S.

September 2021

MANAGEMENT SUMMARY

During April through September 2021, 106 Group conducted a reconnaissance architectural history survey for the Duluth Airport Master Plan Project (Project). The survey was conducted to assist in development of a master plan to inform future planning and redevelopment in the hangar area at the Duluth International Airport. Future development at the airport will require approval from the Federal Aviation Administration (FAA) and, therefore, would need to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, as well as applicable state mandates governing cultural resources, including the Minnesota Field Archaeology Act and the Minnesota Historic Sites Act. This survey was conducted under contract for SEH. A concurrent intensive architectural history survey for this Project was conducted, with funding coming from a separate source and, therefore, a separate report was prepared (Miller et al. 2021).

The Project area is located in Sections 1 and 2, Township 50, Range 15W, Duluth, St. Louis County, Minnesota. An appropriate area of potential effect (APE) for architectural history accounts for any physical, auditory, atmospheric, or visual impacts to historic properties. This survey was conducted to inform future planning and redevelopment in the hangar area, and thus specifics of the redevelopment are currently unknown. Therefore, the recommended architectural history APE is the same as the Project area. The APE includes approximately 2.7 acres (1.1 hectares [ha]). The reconnaissance architectural history survey consisted of historical research; a field survey to identify and document properties that are 45 years of age or older and have not previously been evaluated within the last 10 years within the APE; and an evaluation for potential eligibility for listing in the National Register of Historic Places (NRHP). Saleh Miller, M.S., served as principal investigator for architectural history.

During the reconnaissance architectural history survey, 106 Group identified 12 properties 45 years in age or older within the APE that had not previously been evaluated. Initial research suggested that Hangar 101 (SL-DUL-3641) may be potentially eligible for listing in the NRHP, and therefore, an intensive architectural history survey was undertaken from August to September 2021. The intensive evaluation was reported separately (Miller et al. 2021). The remaining 11 properties are not recommended for further intensive survey due to a lack of historical significance and/or a loss of integrity.

"I certify that this investigation was conducted and documented according to the Secretary of the Interior's Standards and Guidelines and that the report is complete and accurate to the best of my knowledge."

September 10, 2021

Signature of Principal Investigator

Date

TABLE OF CONTENTS

LIST OF FIGURES

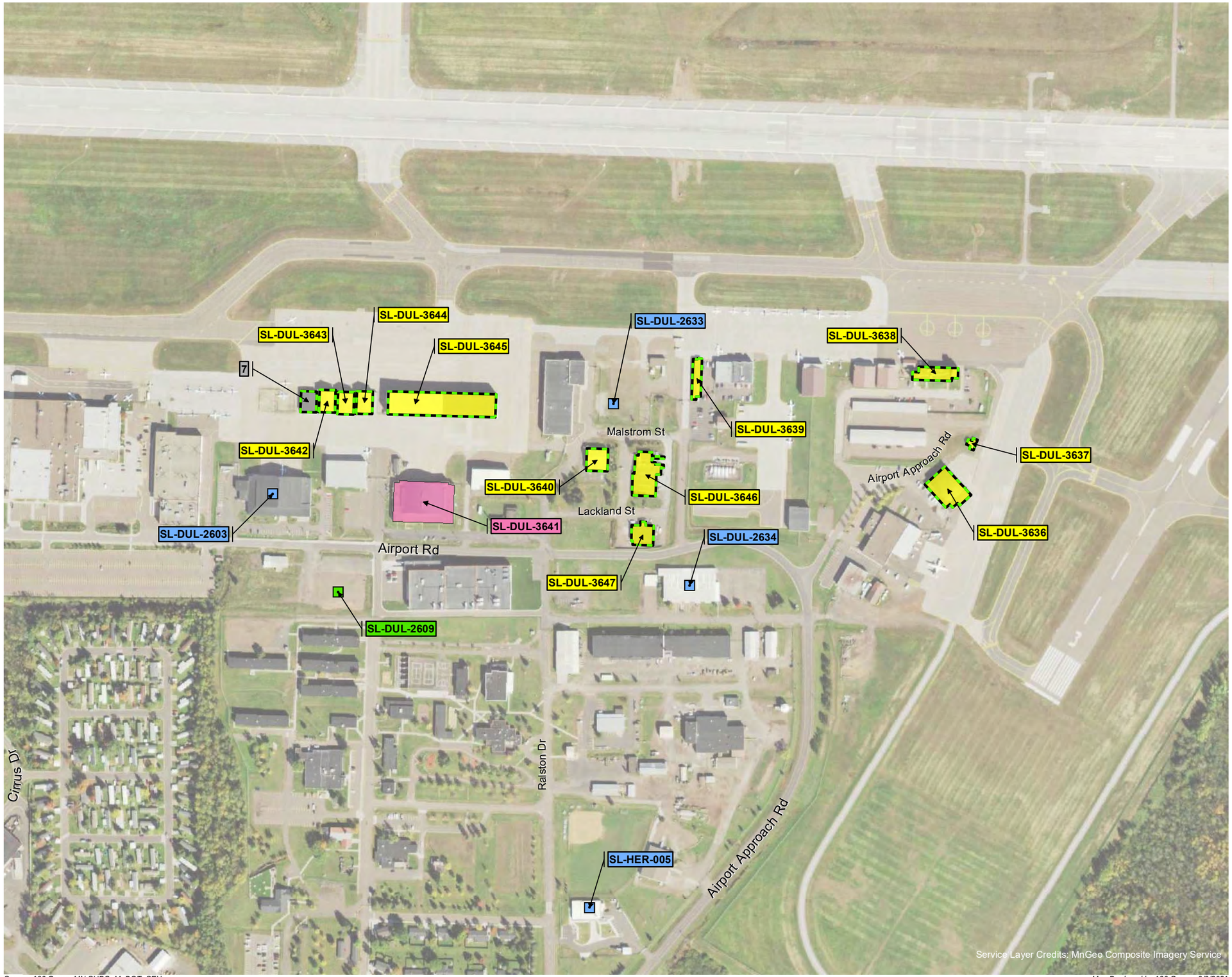
LIST OF TABLES

1.0 INTRODUCTION

During April through September 2021, 106 Group conducted a reconnaissance architectural history survey for the Duluth Airport Master Plan Project (Project). The survey was conducted to assist in development of a master plan to inform future planning and redevelopment in the hangar area at the Duluth International Airport. Future development at the airport will require approval from the Federal Aviation Administration (FAA) and, therefore, would need to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, as well as applicable state mandates governing cultural resources, including the Minnesota Field Archaeology Act and the Minnesota Historic Sites Act. This survey was conducted under contract for SEH. A concurrent intensive architectural history survey for this Project was conducted, with funding coming from a separate source and, therefore, a separate report was prepared (Miller et al. 2021).

The Project area is located in Sections 1 and 2, Township 50, Range 15W, Duluth, St. Louis County, Minnesota (Figure 1). An appropriate area of potential effect (APE) for architectural history accounts for any physical, auditory, atmospheric, or visual impacts to historic properties. This survey was conducted to inform future planning and redevelopment in the hangar area, and thus specifics of the redevelopment are currently unknown. Therefore, the recommended architectural history APE is the same as the Project area. The APE includes approximately 2.7 acres (1.1 hectares [ha]). The reconnaissance architectural history survey consisted of historical research; a field survey to identify and document properties that are 45 years of age or older and have not previously been evaluated within the last 10 years within the APE; and an evaluation for potential eligibility for listing in the National Register of Historic Places (NRHP). Saleh Miller, M.S., served as principal investigator for architectural history.

The following report describes Project methodology, previous investigations, historic contexts, results, and recommendations for the Project area. Inventory forms have been prepared and submitted separately to the Minnesota State Historic Preservation Office (SHPO). A list of Project personnel can be found in the Appendix A.



Source: 106 Group; MN SHPO; MnDOT; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project Reconnaissance Architectural History Survey

Duluth, St. Louis County, Minnesota

- Project Area / Architectural History APE
- Previously Inventoried Property
- No Longer Extant
- Not of Age
- Not Recommended for Intensive Survey
- Recommended Eligible

0 90 Meters
0 230 Feet
1:4,500

106GROUP

Project Location, APE, and Results

Figure 1

2.0 METHODS

2.1 Objectives

The primary objective of the architectural history survey was to determine whether any properties within the study area that are 45 years in age or older and have not previously been evaluated within the last 10 years are potentially eligible for listing in the NRHP. All work was conducted in accordance with the SHPO *Historic and Architectural Survey Manual* (SHPO 2017) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983).

2.2 Area of Potential Effect

The APE for architectural history accounts for any direct (physical) or indirect (auditory, atmospheric, or visual) effects to historic properties. This survey was conducted to inform future planning and redevelopment in the hangar area, and thus specifics of the redevelopment are currently unknown. Therefore, the recommended architectural history APE is the same as the Project area.

2.3 Background Research

In May, staff from 106 Group conducted background research remotely at SHPO for information on previously inventoried properties and on surveys previously conducted within the recommended architectural history APE.[1] Research included a review of aerial photographs; historic maps; tax assessor records; newspaper articles; and histories of the Duluth airport, Air National Guard unit, and Duluth Air Force Base.

2.4 Field Methods

The reconnaissance architectural history survey of the Project area was conducted on May 25, 2021. Erin Que, M.A., and Steve Gallo, PhD, conducted the fieldwork (see Appendix A for a list of Project personnel). Properties identified for survey are located within the APE, are 45 years of age or older, and have not previously been evaluated within the last 10 years. During the reconnaissance survey, field notes and digital photographs were taken of each property identified for survey.

2.5 Inventory Form

A Minnesota Individual Property Inventory Form was prepared for each surveyed property for submittal to SHPO for its review.

[1] For background research regarding known historic properties and previously conducted cultural resource surveys, we rely primarily on the information on file at SHPO. 106 Group cannot guarantee the accuracy and reliability of the data provided.

2.6 Evaluation

Upon completion of the fieldwork, the potential eligibility of each property for listing in the NRHP was assessed based on the property's significance and integrity. The NRHP criteria, summarized below, were used to help assess the potential significance of each property:

- Criterion A – association with the events that have made a significant contribution to the broad patterns of our history;
- Criterion B – association with the lives of persons significant in our past;
- Criterion C – embodiment of the distinctive characteristics of a type, period, or method of construction; representation of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D – potential to yield information important to prehistory or history (NPS 1997 [1995]).

The NPS has identified seven aspects of integrity to be considered when evaluating the ability of a property to convey its potential significance: location, design, setting, materials, workmanship, feeling, and association. The integrity of these properties was assessed in regard to these seven aspects (NPS 1997 [1995]).

3.0 LITERATURE REVIEW

3.1 Previous Architectural History Studies

No architectural history survey has previously been conducted and no historic properties have previously been inventoried within the current recommended architectural history APE. However, because this survey is being conducted to support the development of a master plan to inform future planning and redevelopment in the hangar area at the Duluth International Airport, previous studies conducted within the vicinity of the Project area have been notated here (see Figure 1; Table 1).

In 2006, 106 Group conducted a cultural resources survey of the Duluth Air National Guard Base (Bradley et al. 2006). This survey documented all properties at the Duluth International Airport that were owned or leased by the 148th Figther Wing of the Minnesota Air National Guard in 2006, including five buildings that are located within the vicinity of the Project area (Figure 1; Table 1).

Additionally, as part of the concurrent intensive architectural history evaluation of Hangar 101 (SL-DUL-3641), the property has been recommended as eligible for listing in the NRHP (Miller et al. 2001) (Figure 1; Table 1).

Table 1. Previously NRHP-Listed, Eligible, or Inventoried Architectural History Properties Within the APE

Inventory No.	Property Name	Address	NRHP Status
SL-DUL-2603	Maintenance Hangar / Building 103	4960 Malstrom Street	Not Eligible
SL-DUL-2609	Commissary / Building 206	4970 Airport Road	No longer extant
SL-DUL-2633	Armament and Electronics Shop / Building 304	304 Malstrom Street	Not Eligible
SL-DUL-2634	Warehouse / Building 311	xxx Airport Road	Not Eligible
SL-DUL-3641	Hangar 101	4931 Airport Road	Recommended Eligible
SL-HER-005	Precision Measurement Equipment Laboratory / Building 385	4437 Airport Approach Road	Not Eligible

3.2 Property-Specific Historic Context

For the purpose of this architectural history survey, and the concurrent intensive architectural history survey for the Duluth International Airport Master Plan Project (Miller et al. 2021), the following property-specific historic context was developed: “History of the Duluth International Airport, 1929 – present.”

3.2.1 History of the Duluth International Airport, 1929 – present

The Duluth International Airport (DIA) is a city-owned, public airport that is jointly used as a civil and military airport. It is located six miles northwest of downtown Duluth, Minnesota.

3.2.1.1 Establishment of DIA & Air Mail Service

DIA was originally established as the William-Johnson Municipal Airport (WJMA), which played a significant role in the early history of Minnesota-based Northwest Airlines, a major United States (U.S.) airline that was founded in 1926 and merged with Delta Airlines in 2008 (Sandvik 1986:93; Steenland 2008). Commercial flight in the U.S. was severely limited in the 1920s due to a combination of slow aircraft and preexisting railway networks that gave the public little incentive to travel by air. Consequently, early air transportation in the U.S. was almost exclusively devoted to airmail deliveries directly run by the federal government. The effort to establish a national airmail network was boosted and augmented in 1925 when Congress passed the Air Mail Act, which authorized the Postmaster General to determine airmail routes, contract with private carriers, and pay them a subsidy. This caused the United States Postal Service (USPS) to seek bids from private companies to transport mail over their Contract Air Mail routes (CAMs) from late 1925 to early 1926. Northwest Airlines (called Northwest Airways, Inc., at the time) was awarded a contract for CAM #9, which ran from Chicago to the Twin Cities via Milwaukee and La Crosse. Such a contract was a vital means of keeping Northwest Airlines financially viable at a time when no airline could make a profit by carrying passengers alone (Sandvik 1986:89-95).

With CAM #9 secured, Northwest Airlines sought to expand its services for both airmail and passengers. For the remainder of the decade, the airline added more routes throughout the region. It became an early international airline in 1928 when it began weekly services between the Twin Cities and Winnipeg via Fargo (though the Fargo-Winnipeg service was suspended after three months due to opposition from the Canadian government). Services were also added to Green Bay, Fond du Lac, Oshkosh, Neenah-Menasha, and Appleton, Wisconsin that year. Flights to Rochester, Minnesota, began in 1929. While passenger numbers were slowly increasing during this period, profit was still derived from airmail contracts. As a result, these services carried passengers and mail cargo simultaneously (Northwest Airlines History Center 2021).

Duluth's civic leaders sought to stimulate the city's economy by establishing an airmail route to the city. While the city's economy was robust in the 1880s and 1890s from the shipping boom, it began to show signs of slowing by the 1920s (Eubank 1991:1-2). Community leaders of the era not only considered it a point of civic pride to be included in the USPS airmail routes, but there was a strong conviction among the commercial class that the new form of transportation would stimulate business much as the railways had (Sandvik 1986:89). The thought process was no different in Duluth. When the city began holding public meetings on the idea of issuing up to $200,000 in bonds to establish a municipal airport in 1928, the plan quickly gained the support of the Duluth Chamber of Commerce as well as over 100 of the city's leading businessmen (Associated Press 5 June 1928:9; The Minneapolis Star 15 June 1928:7). The city purchased 640 acres of property from St. Louis County to establish a municipal airport in 1929 and held a public celebration to mark the completion of an aircraft hangar and administrative building on the site in 1930 (RS&H 2015:33; Associated Press 14 April 1930:13; The Minneapolis Tribune 14 September 1930:11). The airport featured three 2,650-foot turf runways. The runways were identified as Runway 3-21; Runway 9-27; and Runway 13-31. Runway 9-27 ran east-west, Runway 3-31 ran north-northeast to south-southwest, and Runway 13-31 ran northwest to southeast. All three runways intersected in the southeast quadrant of the airport (RS&H 2015:33). The three turf runways were paved and extended in

1942, with each runway measuring 4,000 feet long by 150 feet wide. Runways 9-27 and Runway 3-21 were extended by the U.S. Army Corps of Engineers in 1945, to 5,660 feet long (RS&H 2015:33).

The opening of DIA did not invigorate Duluth's economy as civic leaders had hoped, although it proved beneficial to Northwest Airlines. The city's economic growth stagnated along with the rest of the country during the Great Depression of the 1930s and was only revitalized by the production demands of World War II (Eubank 1991:2, 32). The USPS awarded Northwest Airlines a new airmail contract for a route between the Twin Cities and Duluth, in addition to one between Fargo and Bismarck, in May of 1931 (The Minneapolis Tribune 12 May 1931:21). Passenger services were offered on the Twin Cities-Duluth route at the same time. The airline initially intended to land on Lake Superior, purchasing two 8-passenger Sikorsky S-38 amphibian aircraft to service the route, but they switched the vehicles for a Hamilton model and began landing at DIA in December of 1931 when ice on the lake made water landings impractical and unsafe (Northwest Airlines History Center 2021; The Minneapolis Tribune 12 May 1931:21). Northwest's services to Duluth lasted until 1933, when the federal government took control of all airmail routes amidst suspicions of corruption. The airline was able to regain most of its routes the following year, but Duluth was not among them. Duluth remained without any airmail services as late as August of 1935 (Northwest Airlines History Center 2021; Associated Press 28 August 1935:2). Northwest Airlines did not resume passenger service to the airport until 1940, when three 10-passenger planes carrying public and company officials took off from Minneapolis and landed in Duluth within an hour. They were greeted by a large crowd that had gathered to celebrate the route's inauguration (RS&H 2015:33; The Minneapolis Tribune 2 June 1940:31).

Despite the discontinuation of the Twin Cities-Duluth airmail route after only two years, it was nonetheless a critical component of Northwest Airline's financial success. It was one of several regional airmail routes that provided the company with the revenue needed to steadily expand its services westward and survive the economic tumult of the Great Depression. As a result, Northwest Airlines was able to strengthen its dominant position within the airline industry in the decade prior to World War II and thrive throughout the remainder of the twentieth century (Sandvik 1986:98).

3.2.1.2 DIA and Cold War Defense

The DIA played a notable role in the defense of the U.S., particularly during the Cold War period, through the establishment of both an Air National Guard unit as well as a U.S. Duluth Air Force Base at the DIA.

In 1948, an Air National Guard (ANG) unit was established in Duluth through the reactivation of the 179th Fighter Squadron, which was part of the 133rd Fighter Group that was headquartered in St. Paul. World War II veterans were recruited to join the new ANG unit in Duluth (Bradley et al. 2006:13). The ANG headquarters are located in the northeast quadrant of the airport, on the east side of Runway 3-21. The creation of the ANG unit coincided with the build-up of air defense capabilities at the beginning of the Cold War. At its inception, the 179th Fighter Squadron's main mission was to intercept bombers that might fly through Duluth and to identify unknown aircraft in the region near the U.S./Canada border. As Cold War tensions rose, the ports in Duluth were identified as resources that needed the highest priority for protection, as Duluth was the vital head of shipping on the Great Lakes (Bradley et al. 2006:18).

Permanent facilities were built for the ANG between 1948 and 1951, and included taxiways, a main hangar, a heating plant, a sewage disposal facility, a water tank, the squadron operations and headquarters building, and more (Bradley et al. 2006:13-14). Air defense facilities and operations were scaled back in Minnesota in the 1970s, however, the ANG still operates to this day out of the DIA and is serviced by the 148th Fighter Wing of the Minnesota Air National Guard.

The U.S. Air Force also contributed to the development of the DIA. After World War II ended, the U.S. Air Force constructed permanent and semi-permanent buildings on the airport grounds, in the south/southwest area of the airport, south of Runway 9-27, and played a key role in the development of much of this area of the airport grounds. In August of 1950, Air Force officials considered the Williamson-Johnson Airport at Duluth as a location for a Fighter Squadron. Soon after the ANG unit at Duluth was called to active service, in 1951 the Central Air Defense Force of the Aerospace Defense Command (ADC) took jurisdiction over the airport at Duluth. At that time, the Air Force also had control of the Duluth ANG facilities while that unit was federalized. The Air Force began to develop a base in the area, located south of the main runway at the airport. The first facilities for the Air Base, constructed during 1951 and 1952, included a hangar, temporary shacks next to the hangar, a motor service building, a crash and rescue station, and a heating plant. Within another year, a ground control approach and instrument landing system, aircraft hangars, exchange building, ammunition storage area, runway and taxiway extensions and improvements, mess facility, administration buildings, readiness building, and communication and utility systems were completed. A new base headquarters building was completed in 1954. A family housing facility was added to the base in 1956 (Bradley et al. 2006:20).

The Duluth Air Base was expanded in 1957 with the development of the Semi-Automatic Ground Environment (SAGE) facility, which was located west of the main portion of the base. The SAGE facility increased the base's role in the air defense mission and was responsible for monitoring a large area of the northern U.S. and Canada. The Duluth Air Base also was home to units who worked on strategic national defense operations like the North American Aerospace Defense (NORAD), in partnership with the Royal Canadian Air Force, and the Duluth Air Defense Sector (DUADS), which became operational in 1959 (Bradley et al. 2006:21). For much of the Cold War, Air Force Fighter Interceptor Squadrons (FIS) stood at alert on bases in Duluth and Minneapolis, ready to protect the U.S. from attack from foreign enemies (Bradley et al. 2006:20). During the Cold War, the Duluth Air Base had missions that were related to, but separate from, those of the Air National Guard. The main mission of the units stationed at the Duluth Air Base was air defense.

Through reorganization and reassignment of defense missions, the Duluth Air Base was deactivated in 1981 by the Unites States Air Force (Bradley et al. 2006:21). The ANG inherited portions of the Duluth Air Base and much of the area was converted into a Federal Prison Camp, which is still operational. The southwest quadrant of the airport is now the core area for general aviation, air cargo, and special aviation service organizations (RS&H:41-42).

3.2.1.3 Present-day DIA

In 1951, an air traffic control tower was erected and the original passenger terminal was constructed southwest of the intersection of Runways 3-21 and 9-27 in 1954. The airport was renamed DIA in 1961.

In 1974, a 52,400-square-foot passenger terminal building and U.S. customs facility was constructed to the southeast of the runway intersection, east of the terminal constructed in 1954. Consequently, Runway 13-31 was shortened to 2,578 feet to accommodate building construction, then subsequently converted into a taxiway, and eventually closed in 1980. The former terminal building, located southwest of the runway intersection, was converted for use as offices for general aviation, and for use by the FAA and the U.S. Weather Bureau. In 1989, the three-story 1974 passenger terminal building was remodeled to form a single enclosure totaling 106,000 square feet (RS&H 2015:33).

After September 11, 2001, new federal security requirements deemed the passenger terminal functionally obsolete as the tails of parked airplanes extended too close to the runway airspace surfaces. Construction began on a new terminal in 2010, which opened in 2013, and included the replacement passenger terminal, an expanded apron, and new auto circulation and vehicle parking facilities. The new terminal was named the *James L. Oberstar Terminal* after late U.S. Representative Jim Oberstar, who represented the congressional district the airport lies within from 1975-2011 (RS&H 2015:33).

The DIA is Minnesota's third busiest airport, after Minneapolis-St. Paul International Airport (MSP) in Minneapolis, and Rochester International Airport in Rochester. Three airlines service the airport: Delta Airlines, United Airlines, and Sun Country Airlines, however, the largest sources of air traffic comes from general aviation, which is civilian aircraft not associated with commercial air transport. The Duluth Air National Guard Base is still located at the airport, as well as airplane manufacturer Cirrus, which makes single-engine light aircrafts.

4.0 RESULTS

Staff from 106 Group conducted a reconnaissance architectural history survey of the recommended study area on May 25, 2021. Saleh Miller, M.S., served as principal investigator (see Appendix A for a list of Project personnel).

During the reconnaissance architectural history survey, 106 Group identified 12 properties 45 years in age or older within the APE that had not previously been evaluated. Initial research suggested that Hangar 101 (SL-DUL-3641) may be potentially eligible for listing in the NRHP, and therefore, an intensive architectural history survey was undertaken and reported separately (Miller et al. 2021). The remaining 11 properties are not recommended for further intensive survey due to a lack of historical significance and/or a loss of integrity (Figure 1; Table 2). One property within the recommended architectural history APE is less than 45 years of age, and therefore, does not meet the criteria for survey (Figure 1; Table 3).

Table 2. Properties Not Recommended for Further Intensive Survey

Inventory No.	Property Name	Address	Date	Thumbnail
SL-DUL-3636	Hangar 622	4525 Airport Approach Road	c. 1930	
SL-DUL-3637	Hangar	4525 Airport Approach Road	c. 1975	
SL-DUL-3638	Building 616 / FAA Air Traffic Control Tower	4525 Airport Approach Road	1951	

Inventory No.	Property Name	Address	Date	Thumbnail
SL-DUL-3639	Hangar 608	4525 Airport Approach Road	c. 1970	
SL-DUL-3640	Building 306	4550 Stebner Road	c. 1960	
SL-DUL-3642	Hangar 107	4525 Airport Approach Road	1960	
SL-DUL-3643	Hangar 106	4525 Airport Approach Road	c. 1960	
SL-DUL-3644	Hangar 105 / EAA 272	4525 Airport Approach Road	c. 1960	
SL-DUL-3645	Hangar 104	4926 Malstrom Steet	c. 1960	

Inventory No.	Property Name	Address	Date	Thumbnail
SL-DUL-3646	Building 305 / Hydro Solutions of Duluth	4845 Lackland Street	c. 1960	
SL-DUL-3647	Building 308 / Duluth Composite Squadron, Civil Air Patrol	4848 Lackland Street	1960	

Table 3. Properties Not of Age in the APE

Field No.	Property Name	Address	Date[2]	Thumbnail
7	Hangar 108	4525 Airport Approach Road	2001	

[2] Build dates were based on St. Louis County Assessor's data and aerial photographs.

5.0 RECOMMENDATIONS

During the reconnaissance architectural history survey, 106 Group identified 12 properties 45 years in age or older within the APE that had not previously been evaluated. Initial research suggested that Hangar 101 (SL-DUL-3641) may be potentially eligible for listing in the NRHP, and therefore, an intensive architectural history survey was undertaken and reported separately (Miller et al. 2021). The remaining 11 properties are not recommended for further intensive survey due to a lack of historical significance and/or a loss of integrity. No further architectural history work is recommended for the 11 properties documented as part of this reconnaissance survey.

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APPENDIX A: PROJECT PERSONNEL

LIST OF PERSONNEL

Project Manager	Saleh Miller, M.S.
Principal Investigator	Saleh Miller, M.S.
Historians	Kelli Andre Kellerhals, M.S. Steve Gallo, PhD Saleh Miller, M.S. Erin Que, M.A.
Graphics and GIS	Molly McDonald, MGIS

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 622

Other Names:

Inventory No: SL-DUL-3636

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.337873

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	1		SE	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561789.82158	5187472.55156

Urban:

Subdivision: DULUTH CITY OF

Block(s):

Lot(s):

Property Identification Number (PIN): 010-2747-00120

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 622

Inventory No: SL-DUL-3636

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Brick

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☐ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1930

Other Significant Construction Dates: c. 1940, c. 1945 *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerials & Newspaper Article

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Hangar 622 is located at the Duluth International Airport (DIA), sited northeast of Airport Road on the southwest side of the airport. This two-story rectangular hangar rests on a concrete foundation, has brick walls, and has a barrel-vaulted roof with metal coping. The northeast elevation features six large, steel panel doors with windows that have been covered with a combination of wood and tar paper. The original sixteen-light windows are visible in sections where the tar paper has been removed. There are two single-leaf doors with four lights within the southeastern- and northwestern-most panel doors. The southeastern elevation features a two-story brick wing with a flat roof and metal coping. This wing features a single-leaf steel door, a single leaf door that has been covered with wood, nine-light steel windows, and a rectangular brick chimney where the northwest corner of its roof meets the barrel-vaulted roof of the main hangar. The southwestern elevation features three fifteen-light steel windows with awning insets, three windows that have been infilled with concrete blocks, and four brick pilasters with concrete caps that separate the windows into pairs. The northwestern elevation features what appear to be four large bay windows that have been infilled with concrete block. Five brick pilasters with concrete caps separate each infilled window. There is a two-story brick addition with a flat roof and metal coping on the southeast elevation of the main hangar that was constructed circa 1940 (McKenzie 1930; MNHS c. 1940; University of Minnesota [UofM] 1939, 1948). It has a single-leaf steel door and a single-leaf wood door with four lights, both located under a metal awning, on its southeast elevation. There is also a single-leaf steel door with side lights and transom located under a metal awning on its northeastern elevation. The first story of the addition features a combination of one- two- and three-light aluminum fixed window, as well as aluminum awning windows. The second story features a combination twelve- and nine-light steel windows with awning insets that are original to the building. There is also a one-story brick addition with a flat roof on the southwest elevation of the main hangar that was constructed circa 1945 (UofM 1939, 1948). It features three single-leaf steel doors, double-hung aluminum windows, nine-light steel windows, and twenty-light steel windows.

Integrity:
This property retains excellent integrity of location. The integrity of the setting has been significantly compromised by extension and paving of runways as well as the addition of many buildings in its vicinity since its initial construction. The integrity of the design has been slightly compromised by 1940s era additions on the southeast and southwest elevations. The integrity of materials and workmanship has been compromised by the loss of historic windows, the addition of more modern fenestration, and the covering of the hangar doors with tarpaper and wood. The integrity of feeling and association are poor due to the fact that the building is no longer used to store aircraft and the development of the surrounding area minimizes the central role it played in the foundation of DIA. Overall, the building retains fair integrity.

Statement of Significance

Property History:
Hangar 622 was built between 1929, when the City of Duluth purchased 640 acres of property from St. Louis County to establish the William-Johnson Municipal Airport (WJMA), and 1939, when the structure is first visible in aerial photographs (RS&H 2015:33; UofM 1939). This makes it one of the first permanent buildings constructed on the airfield. Contemporary newspaper reports note that the public dedication of the WJMA on September 13, 1930, centered on the completion of a city-owned hangar and administration building (Associated Press 1930; Star Tribune 1930). Given that Hangar 622, with “DULUTH” emblazoned on its roof to identify the airfield for pilots, is one of only two buildings visible in the 1939 aerial, it can confidently be assumed that it is original city-owned hangar completed in 1930 (UofM 1939). This hangar served as the central hub of private, public, and commercial flight at WJMA during the early years of its existence. It was used by the United States Postal Service (USPS), after it established an airmail route through Duluth in 1930, and Northwest Airlines, once it began service to Duluth in 1940, to store and service aircraft. It was also the cornerstone upon which subsequent development of their airfield was made. Paved taxiways were placed directly to the north of the hangar between 1939 and 1948. It was the only large hangar on the airfield

when the original turf runways were paved in 1942 and later extended in 1945. It remained the most prominent hangar until the Minnesota Air National Guard constructed its permanent facilities east of the field in 1948 (UofM 1939; UofM 1948; Nationwide Environmental Title Research, LLC [NETR] 1952; RS&H 2015: 33). The United States Air Force likely used the hangar when it took control of DIA in 1951, as much of its activity was focused in the southern portion of the airport (Bradley 2006: 20). The Hangar is currently leased to FedEx and used as a sorting facility (RS&H 2015:52).

Hangar 622 displays the characteristics of rectangular, single-unit hangars that were commonly built on airfields across the United States during the 1920s and 1930s, when commercial flight was becoming more prevalent. These hangars were designed to be multi-purpose, providing ample space to both store and repair small aircraft under a single roof as well as separate storage space for maintenance equipment (Sherman 1930:769-771). In Hangar 622, this can be seen by the two-story section on the southeast elevation that is connected to the large barrel roof hangar. Historic photographs and aerial photographs show that the original hangar was modified by a two-story addition on the southeast elevation constructed around 1940 as well as a single-story addition on the southwest elevation constructed circa 1945 (McKenzie 1930; MNHS c. 1940; UofM 1939; UofM 1948).

Significance:
Hangar 622 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). The property was one of the first buildings constructed at WJMA, serving as its only large hangar as late as 1948. While this makes the structure foundational to the history of DIA's development, it did not play a significant role in the history of aviation in the region or the nation. The hangar was likely used by the USPS in support of its Duluth airmail route, but this was not part of the main transcontinental airmail route and, therefore, was not a significant element of that service's history. Likewise, Hangar 622 likely provided support services for Northwest Airlines when they began service at the airport in 1940, however it did not play a major role in the development of regional commercial air travel. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

This property does not have distinctive characteristics of an architectural style, does not embody a specific time period, and does not serve as the highest or best example of a method of construction. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

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Property Photograph(s)

SL-DUL-3636 - 5/25/2021 - Northeast Elevation, Facing Southwest

SL-DUL-3636 - 5/25/2021 - Northeast & Northwest Elevations, Facing West-Southwest

SL-DUL-3636 - 5/25/2021 - Northeast & Southeast Elevations, Facing South

SL-DUL-3636 - 5/25/2021 - Southwest Elevation, Facing Northeast

SL-DUL-3636 - 5/25/2021 - Southwest & Northwest Elevations, Facing North

SL-DUL-3636 - 9/9/2021 - c. 1940 Photo of Hangar 622, Facing Southwest (MNHS c. 1940)

Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3636

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar

Other Names: Malachi

Inventory No: SL-DUL-3637

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.025989

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	1		SE	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561817.739062	5187524.4756

Urban:

Subdivision: DULUTH CITY OF

Block(s):

Lot(s):

Property Identification Number (PIN): 010-2747-00120

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar

Inventory No: SL-DUL-3637

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1975

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

This hangar is located at the Duluth International Airport (DIA), sited northeast of Airport Road on the southwest side of the airport. This one-story, T-shaped hangar rests on a wood plank foundation, is clad in standing seam metal, and has a flat roof that is covered in standing seam metal. The southeast elevation features three steel canopy hangar doors. Additional fenestration includes a single-leaf steel door on the northeast elevation.

Integrity:
This property retains excellent integrity of location and setting. The integrity of feeling is good, as it is still used to house small aircraft, but the absence of military aircraft/buildings in the vicinity minimizes the integrity of association because this building was constructed while the United States Air Force operated the airport for national defense purposes during the Cold War. The integrity of the design, materials, and workmanship is good; it is likely that the single-leaf steel door on the northeast elevation is a modern replacement. Overall, this property retains good integrity.

Statement of Significance

Property History:
The hangar was built between 1972 and 1981, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; University of Minnesota [UofM] 1972; UofM 1981). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows that the hangar had been built prior to the deactivation of the Duluth Air Base in September of 1981, and therefore, it was likely constructed circa 1975 (Bradley 2006:21).

Significance:
This hangar was evaluated within the “History of the Duluth International Airport, 1929-present” historic context prepared by the 106 Group (Gallo et al. 2021). Based on its construction date, this building was likely constructed by the United States Air Force during DIA’s use for national defense during the Cold War era. The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through SAGE. While SAGE was a critical element of Cold War-era national defense and relied on an ever-ready fighter squadron stationed at the base, it is unlikely that this building housed any strategic defense equipment associated with the program due to its late construction date and relatively small scale, it was likely used as an aircraft storage facility. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

This property does not have distinctive characteristics of an architectural style, does not embody a specific time period, and does not serve as the highest or best example of a method of construction. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

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RS&H
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1981 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3637 - 5/25/2021 - East & South Elevations, Facing Northwest

SL-DUL-3637 - 5/25/2021 - East & North Elevations, Facing Southwest

Minnesota Individual Property Inventory Form

Historic Name: Hangar

Inventory No: SL-DUL-3637

Associated MN Multiple Property Form (Name and Inventory No):

Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3637

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Building 616

Other Names: FAA Air Traffic Control Tower

Inventory No: SL-DUL-3638

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.18792

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	1		SE	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561774.342047	5187606.51828

Urban:

Subdivision: DULUTH CITY OF

Block(s):

Lot(s):

Property Identification Number (PIN): 010-2747-00120

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Building 616

Inventory No: SL-DUL-3638

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: Brutalism

Architectural Style (if other):

Exterior Material: Brick

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: 1951

Other Significant Construction Dates: c. 1975 *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Building 616 is located at the Duluth International Airport (DIA), sited northeast of Airport Road on the southwest side of the airport. This two-story rectangular building rests on a concrete foundation, is clad in a combination of brick on the first story and concrete with pilasters on the second story, and has a flat roof with metal coping. The central portion of the building features characteristics of the Brutalist style.

The north-facing façade features large, fixed wood windows; one-over-one, double hung, wood windows; wood awning windows; fixed vinyl windows; metal casement windows; a single-leaf steel door with bolts; a single-leaf steel door with one light; a single-leaf vinyl door with nine lights; a single-leaf steel door; and a single-stall wood garage door. The south elevation features a single-leaf steel and glass door with side lights beneath an aluminum awning; large, fixed steel windows; fixed aluminum windows with faux muntins; one-over-one, double-hung, aluminum windows; and a single-leaf vinyl door with nine lights beneath an aluminum awning. The area surrounding the vinyl door has been infilled with wood siding. There is a brick chimney on the interior of the west end of the roof.

There is a three-story wing on the east elevation that is clad in standing-seam metal and has a flat roof ringed by a metal railing. This wing houses an air traffic control tower. Fenestration on this wing includes large plate glass windows; one-over-one, double-hung, aluminum windows; fixed wood windows; and a single-leaf steel door with one light. There is a three-story brick addition on the west elevation that was built between 1972 and 1981. This addition has a flat roof with metal coping. Fenestration on this addition is limited to a single-leaf steel door on its east-facing elevation the provides roof access and several vents on its west and north elevations.

Integrity:
This property retains excellent integrity of location. The integrity of the setting has been slightly compromised by the addition of new buildings to the west and south between 1991 and 2008. The integrity of materials and workmanship is fair due to the addition of modern aluminum and vinyl doors and windows, as well as infill wood siding around a single-leaf door on the south elevation. The integrity of design is good, but it has been slightly compromised by the addition built on its west elevation between 1972 and 1981. The integrity of feeling is excellent, due to its continued use as an air traffic control tower. The absence of military aircraft/buildings in the vicinity minimizes the integrity of association because this building was constructed while the United States Air Force operated the airport for national defense purposes during the Cold War. Overall, this property retains good integrity.

Statement of Significance

Property History:
The property was built in 1951, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; University of Minnesota [UofM] 1948; Nationwide Environmental Title Research, LLC [NETR] 1952). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows an addition was built on the west end of the building between 1972 and 1981 (UofM 1972; UofM 1981).

In the DIA 2015 Master Plan, this building's purpose is described as containing the Federal Aviation Administration (FAA) Air Traffic Control Tower, offices, and classrooms. It was likely originally used for air traffic control purposes by the Air Force and DIA. The DIA 2015 Master Plan also notes that the building served as the airport's passenger terminal until a new one was constructed southeast of the runway intersection in 1974, at which point Building 616

was converted into office space. The building is currently occupied by the FAA Air Traffic Control Tower and the FAA Weather Observer, while other portions are leased to Lake Superior College's Center for Advanced Aviation for classroom space or remain vacant (RS&H 2015:33, 51, 176).

The central portion of this building features characteristics of the Brutalist style. Brutalism arose in Britain in the early 1950s in response to Modernist architecture. Brutalist architects attempted to create a new, honest design aesthetic based on the exposure of a building's components, including frame (concrete or steel), sheathing (often brick), and mechanical systems. The style is characterized by heavy massing and scale that evoke a sense of permanence, and highly sculptural blocky shapes often stacked in various ways to create unbalanced elevations. Common design elements include broad wall surfaces with windows treated as deep penetrations between concrete forms, vertical slots juxtaposed with broad linear forms, and use of openings as holes. Exterior surfaces are typically exposed concrete, left rough to show the wooden formwork, although brick and stucco may also be used. Pipes, vents, ducts, and other mechanical elements are often left exposed. Brutalism was most often applied to institutional or public buildings, and in the United States was popular from the 1950s through the 1980s (Walker 2011:30).

Significance:
Building 616 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). The property was likely constructed by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through the SAGE. While SAGE was a critical element of Cold War-era national defense, it is unlikely that this property housed any strategic defense equipment associated with the program. Instead, it was likely used for routine air traffic control purposes by both the Air Force and DIA. . Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

The central portion of this building features some characteristics of the Brutalist style that arose in the early 1950s, including windows between concrete forms and vertical slots juxtaposed with broad linear forms. However, this building is not exemplary of the style. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

Aaron, Jayne
2011 Historical and Architectural Overview of Aircraft Hangars of the Reserves and National Guard Installations from World War I through the Cold War. Electronic document, https://denix.osd.mil/cr/historic/cold-war/reserve-and-national-guard-aircraft-hangars/report/, accessed May 27, 2021.

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2016 Duluth, MN SAGE Direction Center. Electronic document, https://ss.sites.mtu.edu/mhugl/2016/10/16/duluth-mn-sage-direction-center/, accessed May 27, 2021.

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1978 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

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Walker, Amy E.
2011 Field Guide for High Style and Vernacular Architecture in Indiana. On file at the Indiana Division of Historic Preservation and Archaeology, Department of Natural Resources, Indianapolis, Indiana.

Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3638 - 5/25/2021 - West Elevation & Control Tower, Facing Northwest

SL-DUL-3638 - 5/25/2021 - East Elevation of Control Tower, Facing South

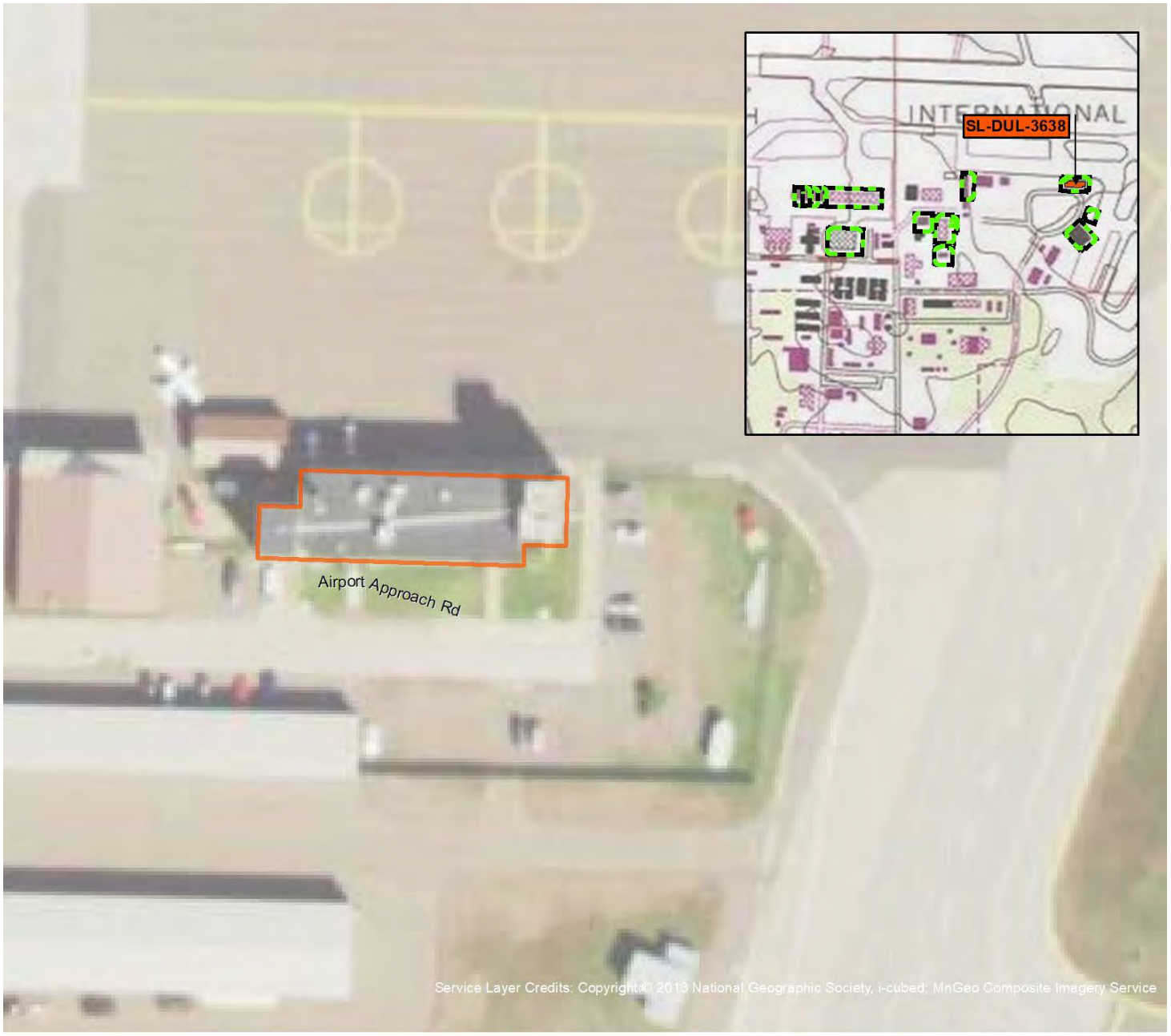
SL-DUL-3638 - 5/25/2021 - West & South Elevations, Facing Northeast

Minnesota Individual Property Inventory Form

Historic Name: Building 616

Inventory No: SL-DUL-3638

Associated MN Multiple Property Form (Name and Inventory No):



Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3638

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 608

Other Names: Monaco Air Duluth

Inventory No: SL-DUL-3639

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.121252

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	1		SW	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561493.742787	5187598.86403

Urban:

Subdivision: DULUTH CITY OF

Block(s):

Lot(s):

Property Identification Number (PIN): 010-2747-00110

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 608

Inventory No: SL-DUL-3639

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1970

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Hangar 608 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This long one-story rectangular hangar does not have a visible foundation, has walls clad in a mixture of standing seam metal and corrugated metal, and has a low-pitched gable roof that is covered in corrugated metal. The east elevation features a single leaf vinyl door with a single light, two bi-folding steel hangar doors, and two single leaf steel doors. Additional fenestration includes metal casement windows, vinyl picture windows, single leaf steel doors, and three bi-folding steel hangar doors.

Integrity:
This property retains excellent integrity of location. The integrity of the setting has been compromised by the loss of historic structures to the east as well as the addition of several parking lots to the east and south (University of Minnesota [UofM] 1972; Nationwide Environmental Title Research, LLC [NETR] 2003). The integrity of feeling and association is good. The integrity of design, materials, and workmanship have been compromised by the addition of modern windows, and the demolition of the southern half of the original structure. Overall, this property retains poor integrity.

Statement of Significance

Property History:
The property was built between 1961 and 1972, likely circa 1970, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; UofM 1961; UofM 1972). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows that the southern half of the original structure was demolished between 2003 and 2008 (NETR 2003; NETR 2008).

In the DIA 2015 Master Plan, this building's purpose is classified as a "T-hangar" and was likely originally used as a storage hangar for small aircraft by the Air Force (RS&H 2015:52). It is currently occupied by Monaco Air Duluth, the DIA's fixed-base operator (Monaco Air Duluth 2021).

Significance:
Hangar 608 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). The property was likely constructed by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through SAGE. While SAGE was a critical element of Cold War-era national defense, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as an aircraft storage facility. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

This property does not have distinctive characteristics of an architectural style, does not embody a specific time period, and does not serve as the highest or best example of a method of construction. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known

architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance and a loss of integrity.

Bibliography

Aaron, Jayne
2011 Historical and Architectural Overview of Aircraft Hangars of the Reserves and National Guard Installations from World War I through the Cold War. Electronic document, https://denix.osd.mil/cr/historic/cold-war/reserve-and-national-guard-aircraft-hangars/report/, accessed May 27, 2021.

Fox, Duncan
2016 Duluth, MN SAGE Direction Center. Electronic document, https://ss.sites.mtu.edu/mhugl/2016/10/16/duluth-mn-sage-direction-center/, accessed May 27, 2021.

Gallo, Steve, Saleh Miller and Kelli Andre Kellerhals
2021 Reconnaissance Architectural History Survey for the Duluth International Airport Master Plan Project, Duluth, St. Louis County, Minnesota. Prepared by 106 Group, St. Paul, Minnesota. Submitted to SEH, St. Paul, Minnesota.

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Architectural Forum 53(6): 769-778.

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2021 Property Details Report. Electronic document,
http://reports.stlouiscountymn.gov/ssrswrapper/ShowSSRSReport.aspx?reportPath=%2fAssessor%2fPropertyDetails%2fMain&pdf=true&param1=parcelnum=010-0148-00030, accessed June 1, 2021.

University of Minnesota [UofM]
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1972 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3639 - 5/25/2021 - West Elevation, Facing East

SL-DUL-3639 - 5/25/2021 - West & South Elevations, Facing Northeast

SL-DUL-3639 - 5/25/2021 - South & East Elevations, Facing Northwest

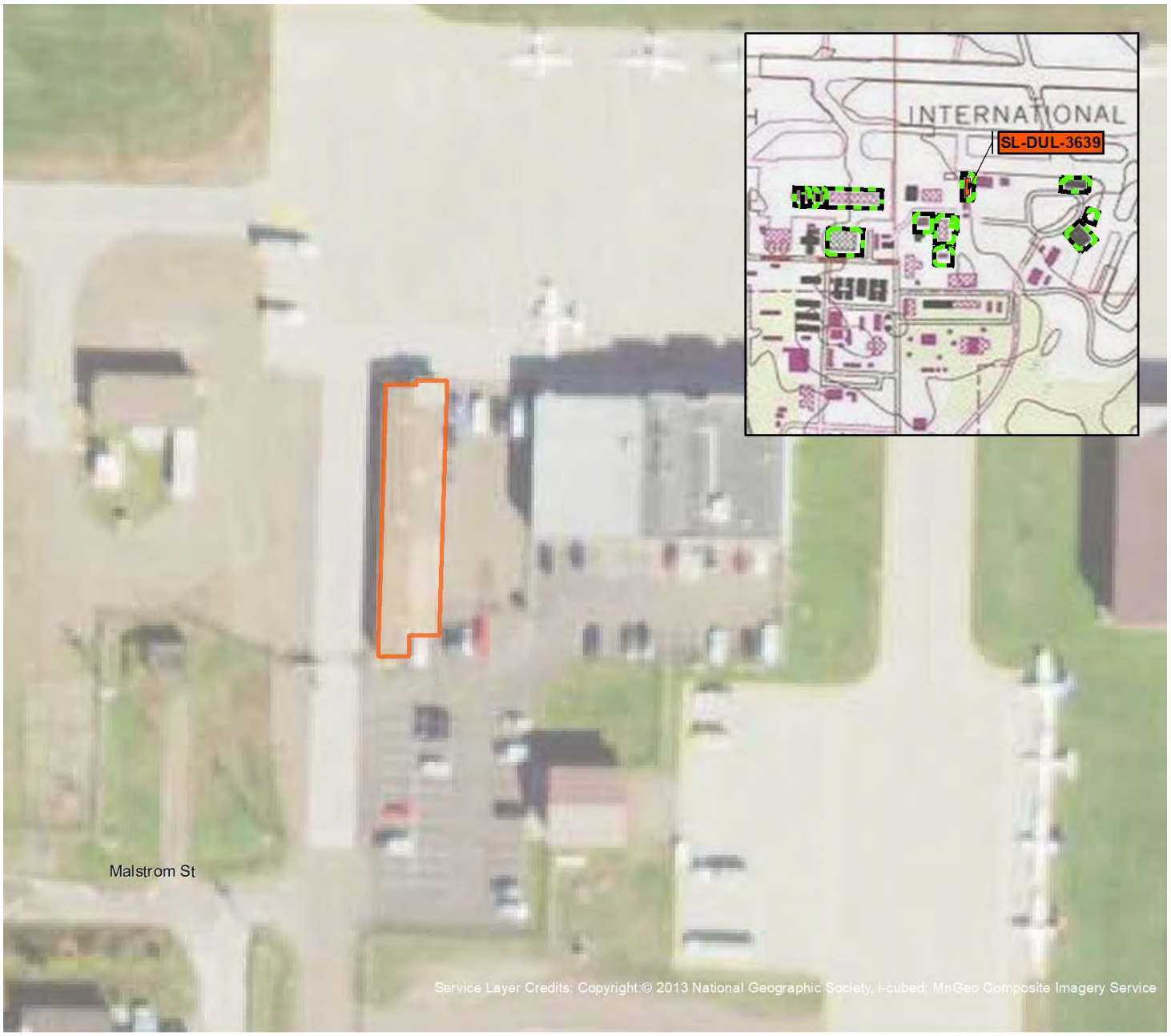
SL-DUL-3639 - 5/25/2021 - North & East Elevations, Facing Southeast

Minnesota Individual Property Inventory Form

Historic Name: Hangar 608

Inventory No: SL-DUL-3639

Associated MN Multiple Property Form (Name and Inventory No):



Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3639

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Building 306

Other Names:

Inventory No: SL-DUL-3640

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4550 Stebner Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.162067

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	1		SW	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561377.292795	5187502.61078

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 1

Lot(s): 8

Property Identification Number (PIN): 010-0148-00080

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Building 306

Inventory No: SL-DUL-3640

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Unknown	

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1955

Other Significant Construction Dates: c. 1970 *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Building 306 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This one-story rectangular building rests on a concrete foundation, is clad in standing seam metal, and has a front gable roof that is covered with corrugated metal. There is a one-story addition on the south elevation, built circa 1970, that has a flat roof covered with corrugated metal (University of Minnesota [UofM] 1961, 1972). The west elevation features a single-leaf steel door with single light, a single-leaf steel door with a plywood-covered single light, aluminum hopper window, and a single stall metal overhead door in the center of what appear to panel doors that are now welded shut. A single outrigger for the panel doors protrudes north from the west elevation. Additional fenestration includes single-leaf steel doors, a double-leaf steel door, aluminum sliding windows, and casement windows.

Integrity:
This property retains excellent integrity of location. The integrity of the setting has been compromised by the loss of historic structures to the south and southwest that were built by the Air Force during the same period (Nationwide Environmental Title Research, LLC [NETR] 2003). The integrity of feeling and association is good. The integrity of the design, materials, and workmanship is fair, as several windows and a single stall garage door have been covered with plywood and the single-story addition on the south elevation altered the original design. Segments of the standing seam metal have also been replaced on the south elevation. What were the original panel doors on the west-facing elevation have been welded shut and a single stall overhead door has been placed in their center. Overall, this property retains fair integrity.

Statement of Significance

Property History:
This hangar was built between 1952 and 1961, likely circa 1955, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015 33; UofM 1961; NETR 1952). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows an addition on the south elevation was constructed between 1961 and 1972 (UofM 1961; UofM 1972).

The property shares many characteristics of the Type 'B' weapons calibration shelters designed by the Kuljian Corporation in 1959 for use on Air Force bases throughout the United States, particularly with regard to its panel doors and outrigger on the west elevation (Weitze 1999:72-73). The south-facing outrigger was likely removed or enclosed when the addition on the south elevation was constructed in circa 1970. It is unclear when the panel doors were welded shut and the single stall overhead door was added.

In the DIA 2015 Master Plan, this building's purpose is classified as belonging to the Duluth Airport Authority and is used to house snow removal equipment (RS&H 2015:176).

Significance:
Building 306 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). The property was likely constructed by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through the SAGE. While SAGE was a

critical element of Cold War-era defense and relied on an ever-ready fighter squadron stationed at the base, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as a maintenance facility for squadron aircraft. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

This property does not have distinctive characteristics of an architectural style, does not embody a specific time period, and does not serve as the highest or best example of a method of construction. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

Aaron, Jayne
2011 Historical and Architectural Overview of Aircraft Hangars of the Reserves and National Guard Installations from World War I through the Cold War. Electronic document, https://denix.osd.mil/cr/historic/cold-war/reserve-and-national-guard-aircraft-hangars/report/, accessed May 27, 2021.

Fox, Duncan.
2016 Duluth, MN SAGE Direction Center. Electronic document, https://ss.sites.mtu.edu/mhugl/2016/10/16/duluth-mn-sage-direction-center/, accessed May 27, 2021.

Gallo, Steve, Saleh Miller and Kelli Andre Kellerhals
2021 Reconnaissance Architectural History Survey for the Duluth International Airport Master Plan Project, Duluth, St. Louis County, Minnesota. Prepared by 106 Group, St. Paul, Minnesota. Submitted to SEH, St. Paul, Minnesota.

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1930 Airplane Hangars: Planning, Fire Protection, Construction Data.
Architectural Forum 53(6): 769-778.

St. Louis County Assessor's Office

2021 Property Details Report. Electronic document, http://reports.stlouiscountymn.gov/ssrswrapper/ShowSSRSReport.aspx?reportPath=%2fAssessor%2fPropertyDetails%2fMain&pdf=true&param1=parcelnum=010-0148-00030, accessed June 1, 2021.

University of Minnesota [UofM]
1961 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

1972 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3640 - 5/25/2021 - East Elevation, Facing West

SL-DUL-3640 - 5/25/2021 - East & North Elevations, Facing Northeast

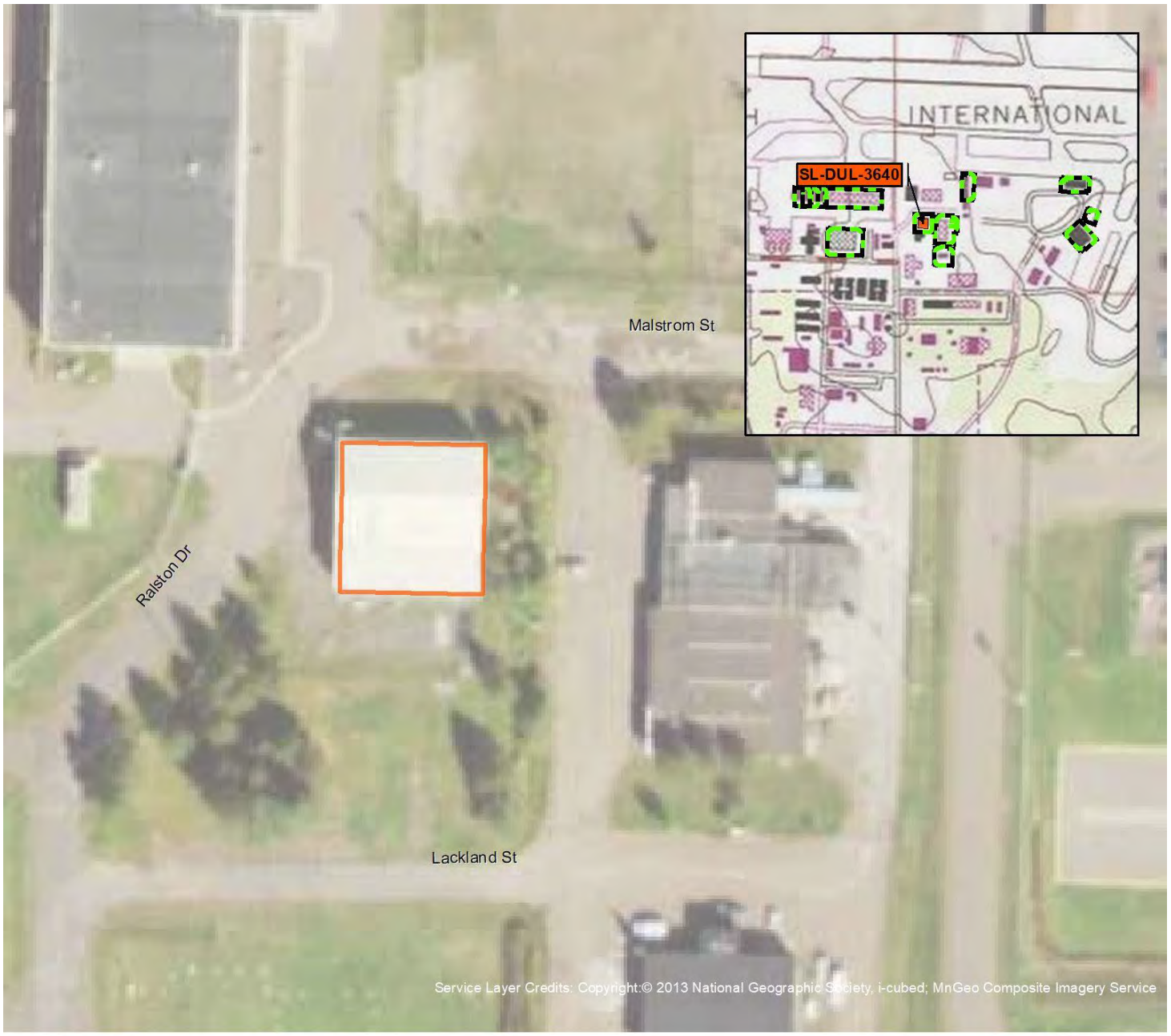
SL-DUL-3640 - 5/25/2021 - South Elevation, Facing North

Minnesota Individual Property Inventory Form

Historic Name: Building 306

Inventory No: SL-DUL-3640

Associated MN Multiple Property Form (Name and Inventory No):



Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3640

4550 Stebner Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 107

Other Names:

Inventory No: SL-DUL-3642

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.123935

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	2		SE	SE

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561059.525047	5187569.46748

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 4

Lot(s): 12

Property Identification Number (PIN): 010-0148-00310

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 107

Inventory No: SL-DUL-3642

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: 1960

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Tax Assessor & aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Hangar 107 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This one-story rectangular hangar rests on a concrete foundation, is clad in standing seam metal, and has a front gable roof that is covered with corrugated steel. The south and north elevations feature three-track, six-leaf steel doors with outriggers. Additional fenestration includes single-leaf steel doors with single lights on the west and east elevations.

Integrity:
This property retains excellent integrity of location, but the setting has been compromised by the loss of three historic hangars to the west. The integrity of feeling and association is good. The integrity of the design, materials, and workmanship is good, though segments of the standing seam metal have been visibly replaced over time. Overall, this property retains good integrity.

Statement of Significance

Property History:
The hangar was built in 1960, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; St. Louis County Assessor's Office 2001:2). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows no indication that the hangar was significantly altered since its initial construction (University of Minnesota 1961; Nationwide Environmental Title Research, LLC [NETR] 2017).

This structure is representative of the prefabricated, rigid-frame Type ‘B’ steel hangars that were designed by the Butler Manufacturing Company and were commonly erected on Tactical Air Command (TAC) and Strategic Air Command (SAC) installations across the United States from about 1960 to 1977. They were primarily used as maintenance shelters for small aircraft and grouped together in multiple unit configurations (Weitze 1999:54; Aaron 2011:5-4).

Significance:
Hangar 107 was evaluated within the “History of the Duluth International Airport, 1929-present” historic context prepared by the 106 Group (Gallo et al. 2021). The property was likely constructed by the United States Air Force during the DIA’s use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through the SAGE. While SAGE was a critical element of Cold War-era defense and relied on an ever-ready fighter squadron stationed at the base, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as a maintenance facility for squadron aircraft. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, does not have significance under NRHP Criterion B.

This property has some characteristics of the Butler rigid-frame Type ‘B’ maintenance hangars that were erected by the Air Force’s TAC and SAC on air bases throughout the country between 1960 and 1977. As these hangars were prefabricated and extremely common, this property does not embody a specific time period, does not serve as the best example of a method of construction, and does not have distinctive characteristics of an architectural style.

Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

Aaron, Jayne
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Fox, Duncan
2016 Duluth, MN SAGE Direction Center. Electronic document, https://ss.sites.mtu.edu/mhugl/2016/10/16/duluth-mn-sage-direction-center/, accessed May 27, 2021.

Gallo, Steve, Saleh Miller and Kelli Andre Kellerhals
2021 Reconnaissance Architectural History Survey for the Duluth International Airport Master Plan Project, Duluth, St. Louis County, Minnesota. Prepared by 106 Group, St. Paul, Minnesota. Submitted to SEH, St. Paul, Minnesota.

Nationwide Environmental Title Research, LLC [NETR]
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Sherman, Roger W.
1930 Airplane Hangars: Planning, Fire Protection, Construction Data.
Architectural Forum 53(6): 769-778.

St. Louis County Assessor's Office
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http://reports.stlouiscountymn.gov/ssrswrapper/ShowSSRSReport.aspx?reportPath=%2fAssessor%2fPropertyDetails%2fMain&pdf=true&param1=parcelnum=010-0148-00310, accessed May 27, 2021.

Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3642 - 5/25/2021 - South Elevation, Facing North

SL-DUL-3642 - 5/25/2021 - North Elevation, Facing Southeast

Minnesota Individual Property Inventory Form

Historic Name: Hangar 107

Inventory No: SL-DUL-3642

Associated MN Multiple Property Form (Name and Inventory No):

Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3642

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 106

Other Names:

Inventory No: SL-DUL-3643

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.124523

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	2		SE	SE

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561081.286631	5187567.29654

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 4

Lot(s): 11

Property Identification Number (PIN): 010-0148-00300

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 106

Inventory No: SL-DUL-3643

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1960

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Hangar 106 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This one-story rectangular hangar rests on a concrete foundation, is clad in standing seam metal, and has a front gable roof that is covered with corrugated steel. The south and north elevations feature three-track, six-leaf steel doors with outriggers. Additional fenestration includes single-leaf steel doors with single lights on the west and east elevations.

Integrity:
This property retains excellent integrity of location. The integrity of setting has been compromised by the loss of three historic hangars to the west. The integrity of feeling is good, but the absence of military aircraft/buildings in the vicinity minimizes the integrity of association because this building was constructed while the United States Air Force operated the airport for national defense purposes during the Cold War. The integrity of the design, materials, and workmanship is good, though segments of the standing seam metal have been visibly replaced over time with in-kind materials. Overall, this property retains good integrity.

Statement of Significance

Property History:
The hangar was built between 1952 and 1961, likely circa 1960, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; Nationwide Environmental Title Research, LLC [NETR] 1952; University of Minnesota [UofM] 1961). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows no indication that the hangar has been significantly altered since its initial construction (UofM 1961; NETR 2017).

This structure is representative of the prefabricated, rigid-frame Type ‘B’ steel hangars that were designed by the Butler Manufacturing Company and were commonly erected on Tactical Air Command (TAC) and Strategic Air Command (SAC) installations across the United States from about 1960 to 1977. They were primarily used as maintenance shelters for small aircraft and grouped together in multiple unit configurations (Weitze 1999:54; Aaron 2011:5-4).

Significance:
Hangar 106 was evaluated within the “History of the Duluth International Airport, 1929-present” historic context prepared by the 106 Group (Gallo et al. 2021). Based on its construction date, the property was likely built by the United States Air Force during the DIA’s use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through the SAGE. While SAGE was a critical element of Cold War-era national defense and relied on an ever-ready fighter squadron stationed at the base, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as a maintenance facility for squadron aircraft. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, does not have significance under NRHP Criterion B.

This property has some characteristics of the Butler rigid-frame Type ‘B’ maintenance hangars that were erected by

the Air Force's TAC and SAC on air bases throughout the country between 1960 and 1977. As these hangars were prefabricated and extremely common, this property does not embody a specific time period, does not serve as the best example of a method of construction, and does not have distinctive characteristics of an architectural style. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

Aaron, Jayne
2011 Historical and Architectural Overview of Aircraft Hangars of the Reserves and National Guard Installations from World War I through the Cold War. Electronic document, https://denix.osd.mil/cr/historic/cold-war/reserve-and-national-guard-aircraft-hangars/report/, accessed May 27, 2021.

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Property Photograph(s)

SL-DUL-3643 - 5/25/2021 - South Elevation, Facing North

SL-DUL-3643 - 5/25/2021 - North Elevation, Facing South

Minnesota Individual Property Inventory Form

Historic Name: Hangar 106

Inventory No: SL-DUL-3643

Associated MN Multiple Property Form (Name and Inventory No):

Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3643

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 105

Other Names: EAA 272

Inventory No: SL-DUL-3644

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4525 Airport Approach Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.123462

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	2		SE	SE

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561103.256988	5187568.07263

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 4

Lot(s): 10

Property Identification Number (PIN):

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 105

Inventory No: SL-DUL-3644

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1960

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Hangar 105 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This one-story rectangular hangar rests on a concrete foundation, is clad in standing seam metal, and has a front gable roof that is covered with corrugated steel. The south and north elevations feature three-track, six-leaf steel doors with outriggers. There is a one-story wing with a shed roof covered in asphalt shingles on the east elevation. The north and south walls of the wing are clad in standing seam metal and the east wall is concrete. There is a single-leaf steel door with a single light on the south elevation and a fixed window on the south elevation. Additional fenestration includes single-leaf steel doors with single lights on the west and east elevations.

Integrity:
This property retains excellent integrity of location. The integrity of setting has been slightly compromised by the loss of three historic hangars to the west. The integrity of feeling is good, but the absence of military aircraft/buildings in the vicinity minimizes the integrity of association because this building was constructed while the United States Air Force operated the airport for national defense purposes during the Cold War. The integrity of the design, materials, and workmanship is good, though segments of the standing seam metal have been visibly replaced over time with in-kind materials. Overall, this property retains good integrity.

Statement of Significance

Property History:
The hangar was built between 1952 and 1961, likely circa 1960at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; Nationwide Environmental Title Research, LLC [NETR] 1952; University of Minnesota [UofM] 1961). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows no indication that the hangar has been significantly altered since its initial construction (UofM 1961; NETR 2017). The building is currently occupied by the Experimental Aircraft Association (EAA), Duluth-Superior Chapter 272.

This structure is representative of the prefabricated, rigid-frame Type 'B' steel hangars that were designed by the Butler Manufacturing Company and were commonly erected on Tactical Air Command (TAC) and Strategic Air Command (SAC) installations across the United States from about 1960 to 1977. They were primarily used as maintenance shelters for small aircraft and grouped together in multiple unit configurations (Weitze 1999:54; Aaron 2011:5-4).

Significance:
Hangar 105 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). Based on its construction date, the property was likely built by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through SAGE. While SAGE was a critical element of Cold War-era national defense and relied on an ever-ready fighter squadron stationed at the base, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as a maintenance facility for squadron aircraft. Therefore, it does not have significance within NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, does not have significance

under NRHP Criterion B.

This property has some characteristics of the Butler rigid-frame Type 'B' maintenance hangars that were erected by the Air Force's TAC and SAC on air bases throughout the country between 1960 and 1977. As these hangars were prefabricated and extremely common, this property does not embody a specific time period, does not serve as the best example of a method of construction, and does not have distinctive characteristics of an architectural style. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

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1961 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3644 - 5/25/2021 - North Elevation, Facing South

SL-DUL-3644 - 5/25/2021 - South Elevation, Facing North-Northwest

Minnesota Individual Property Inventory Form

Historic Name: Hangar 105

Inventory No: SL-DUL-3644

Associated MN Multiple Property Form (Name and Inventory No):

Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3644

4525 Airport Approach Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 104

Other Names:

Inventory No: SL-DUL-3645

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4926 Malstrom St

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.432015

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	2		SE	SE

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561163.072642	5187567.04101

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 4

Lot(s): 9

Property Identification Number (PIN): 010-0148-00280

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 104

Inventory No: SL-DUL-3645

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1960

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Hangar 104 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This large one-story rectangular hangar rests on a concrete foundation, is clad in corrugated metal, and has a flat roof that is covered with metal. The south and north elevations feature four, single-panel vertical lift doors with single-leaf metal doors in the center of each. Additional fenestration includes a metal single-stall overhead garage door and single-leaf metal door on the east elevation. There are two structures attached to the west elevation, that appear to date to circa 1960. The southern building has standing seam metal walls, a flat roof covered in metal, and a single-leaf metal door on the south elevation. This building is attached to the hangar via conduits. The northern structure is a metal electrical generator with nine vertical access panels.

Integrity:
This property retains excellent integrity of location. The integrity of setting has been slightly compromised by the loss of three historic hangars to the west. The integrity of feeling is good, but the absence of military aircraft/buildings in the vicinity minimizes the integrity of association because this building was constructed while the United States Air Force operated the airport for national defense purposes during the Cold War. The integrity of the design, materials, and workmanship is excellent. Overall, this property retains good integrity.

Statement of Significance

Property History:
The hangar was built between 1952 and 1961, likely circa 1960, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; Nationwide Environmental Title Research, LLC [NETR] 1952; University of Minnesota [UofM] 1961). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows no indication that the property has been significantly altered since its initial construction (UofM 1961; NETR 2017).

This property is representative of the Strobel & Salzman prefabricated aircraft shelters that were constructed on Air Force bases throughout the United States in the late 1950s and 1960s. Such hangars are characterized by their "austere" rectangular design, intended for erection in pairs, threes, or fours, and large vertical-lift doors positioned parallel to the flight line to allow for pull-thru entrance and egress. They were especially common in northern-tier air defense installations, as the extreme cold experienced during winters in these regions required "complete cover" for ready aircraft (Weitze 1999:71-72).

Significance:
Hangar 104 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). Based on its construction date, the property was likely built by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through SAGE. While SAGE was a critical element of Cold War-era national defense and relied on an ever-ready fighter squadron stationed at the base, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as a support facility for squadron aircraft. Consequently, it is not significant under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, does not have significance under NRHP Criterion B.

This property has characteristics of the Strobel & Salzman aircraft shelters that were erected on Air Defense Command installations across the United States throughout the 1960s, namely its austere rectangular form and pull-thru vertical-lift doors. As these hangars were prefabricated and extremely common, this property does not embody a specific time period, does not serve as the best example of a method of construction, and does not have distinctive characteristics of an architectural style. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

Aaron, Jayne
2011 Historical and Architectural Overview of Aircraft Hangars of the Reserves and National Guard Installations from World War I through the Cold War. Electronic document, https://denix.osd.mil/cr/historic/cold-war/reserve-and-national-guard-aircraft-hangars/report/, accessed May 27, 2021.

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2021 Reconnaissance Architectural History Survey for the Duluth International Airport Master Plan Project, Duluth, St. Louis County, Minnesota. Prepared by 106 Group, St. Paul, Minnesota. Submitted to SEH, St. Paul, Minnesota.

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Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3645 - 5/25/2021 - South & West Elevations, Facing Northeast

SL-DUL-3645 - 5/25/2021 - Structures on West Elevation, Facing Northeast

SL-DUL-3645 - 5/25/2021 - South & East Elevations, Facing Northwest

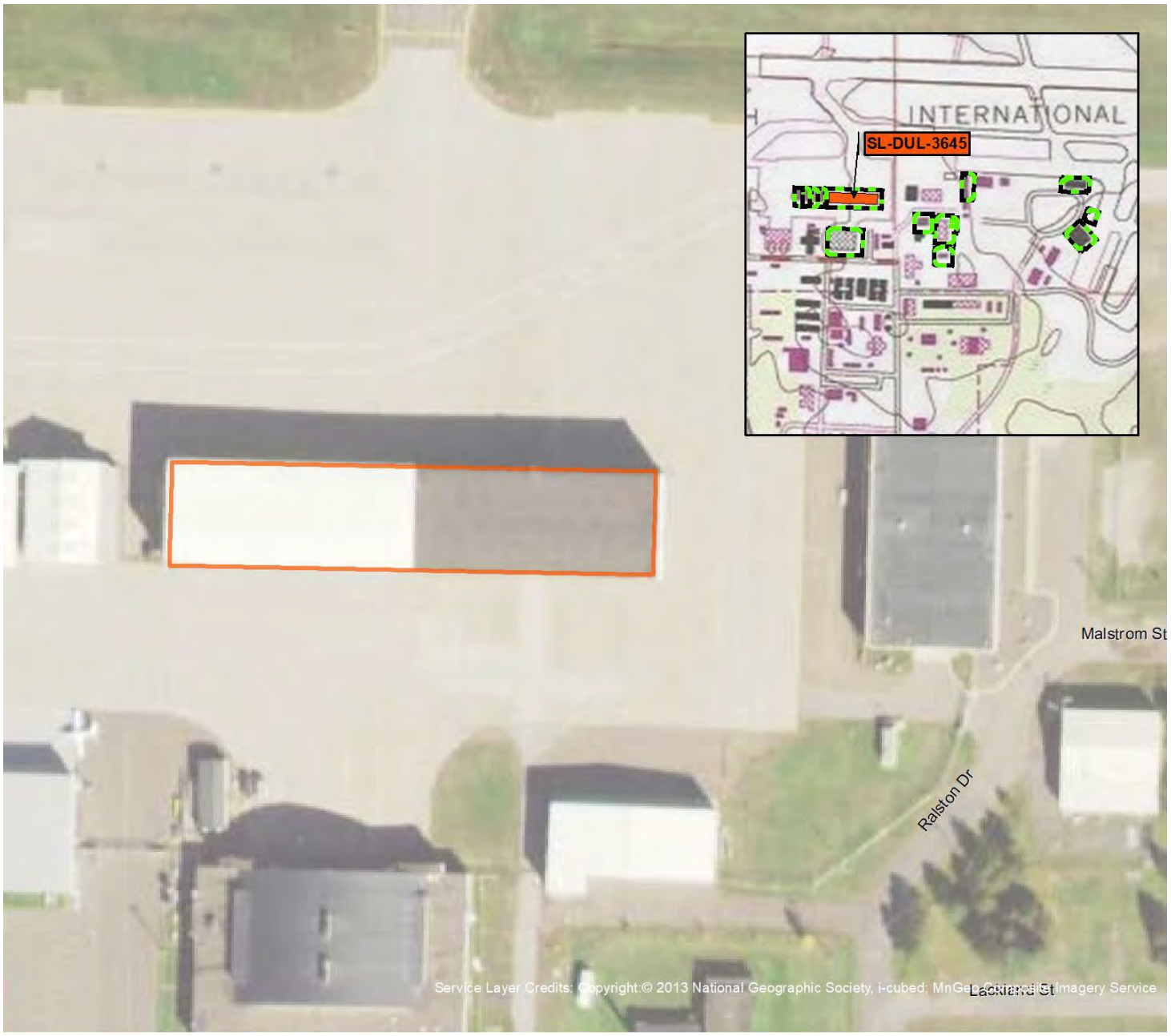
SL-DUL-3645 - 5/25/2021 - East & North Elevations, Facing Southwest

Minnesota Individual Property Inventory Form

Historic Name: Hangar 104

Inventory No: SL-DUL-3645

Associated MN Multiple Property Form (Name and Inventory No):



Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3645

4926 Malstrom Steet

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 30 Meters

0 80 Feet

1:1,500

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Building 305

Other Names: Hydro Solutions of Duluth

Inventory No: SL-DUL-3646

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4845 Lackland St

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.34598

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	1		SW	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561435.810027	5187486.02683

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 1

Lot(s): 7

Property Identification Number (PIN): 010-0148-00070

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Building 305

Inventory No: SL-DUL-3646

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Unknown	

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Metal

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: c. 1960

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Building 305 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This one-story, irregular-shaped building rests on a concrete foundation, is clad in standing seam metal, and has a flat roof. The west-facing facade features a recessed single-leaf aluminum and glass door with transom and side light. Additional fenestration includes a double-leaf steel doors; aluminum casement windows; one-over-one, double-hung, aluminum windows, a single-leaf aluminum door with window; a one-stall metal overhead door with single light; a one-stall metal overhead doors; fixed aluminum windows; and single-leaf steel door.

Integrity:
This property retains excellent integrity of location. The integrity of the setting has been compromised by the loss of historic structures to the south (Nationwide Environmental Title Research, LLC [NETR] 2003). The integrity of feeling and association is good. The integrity of the design, materials, and workmanship is good, although there are areas of vinyl infill around doors and windows on the west elevation. It is likely that these were originally one-stall overhead doors. Overall, this property retains good integrity.

Statement of Significance

Property History:
The property was built between 1952 and 1961, likely circa 1960, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; NETR 1952; University of Minnesota [UofM] 1961). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography shows no indication that the property was significantly altered since its initial construction (UofM 1961; NETR 2017).

In the DIA 2015 Master Plan, this building's purpose is classified as a "manufacturing facility" and was likely originally used as a support facility by the Air Force, based on the building's form and design (RS&H 2015:176). The building is currently leased to Hydrosolutions of Duluth, Inc., a private manufacturing company (Hydrosolutions of Duluth, Inc. 2021).

Significance:
Building 305 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). Based on its construction date, the property was likely built by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through SAGE. While SAGE was a critical element of Cold War-era national defense, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as a support facility. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

This property does not have distinctive characteristics of an architectural style, does not embody a specific time period, and does not serve as the highest or best example of a method of construction. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known

architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

Aaron, Jayne
2011 Historical and Architectural Overview of Aircraft Hangars of the Reserves and National Guard Installations from World War I through the Cold War. Electronic document, https://denix.osd.mil/cr/historic/cold-war/reserve-and-national-guard-aircraft-hangars/report/, accessed May 27, 2021.

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http://reports.stlouiscountymn.gov/ssrswrapper/ShowSSRSReport.aspx?reportPath=%2fAssessor%2fPropertyDetails%2fMain&pdf=true&param1=parcelnum=010-0148-00070, accessed June 1, 2021.

University of Minnesota [UofM]
1961 Minnesota Historical Aerial Photographs Online. Duluth, St. Louis County, Minnesota. Electronic document, https://www.lib.umn.edu/apps/mhapo/, accessed May 27, 2021.

Weitze, Karen J.
1999 Cold War Infrastructure for Air Defense: The Fighter and Command Missions. Electronic document, http://docshare04.docshare.tips/files/9112/91128529.pdf, accessed May 27, 2021.

Property Photograph(s)

SL-DUL-3646 - 5/25/2021 - North & West Elevations, Facing Southeast

SL-DUL-3646 - 5/25/2021 - West & South Elevations, Facing Northeast

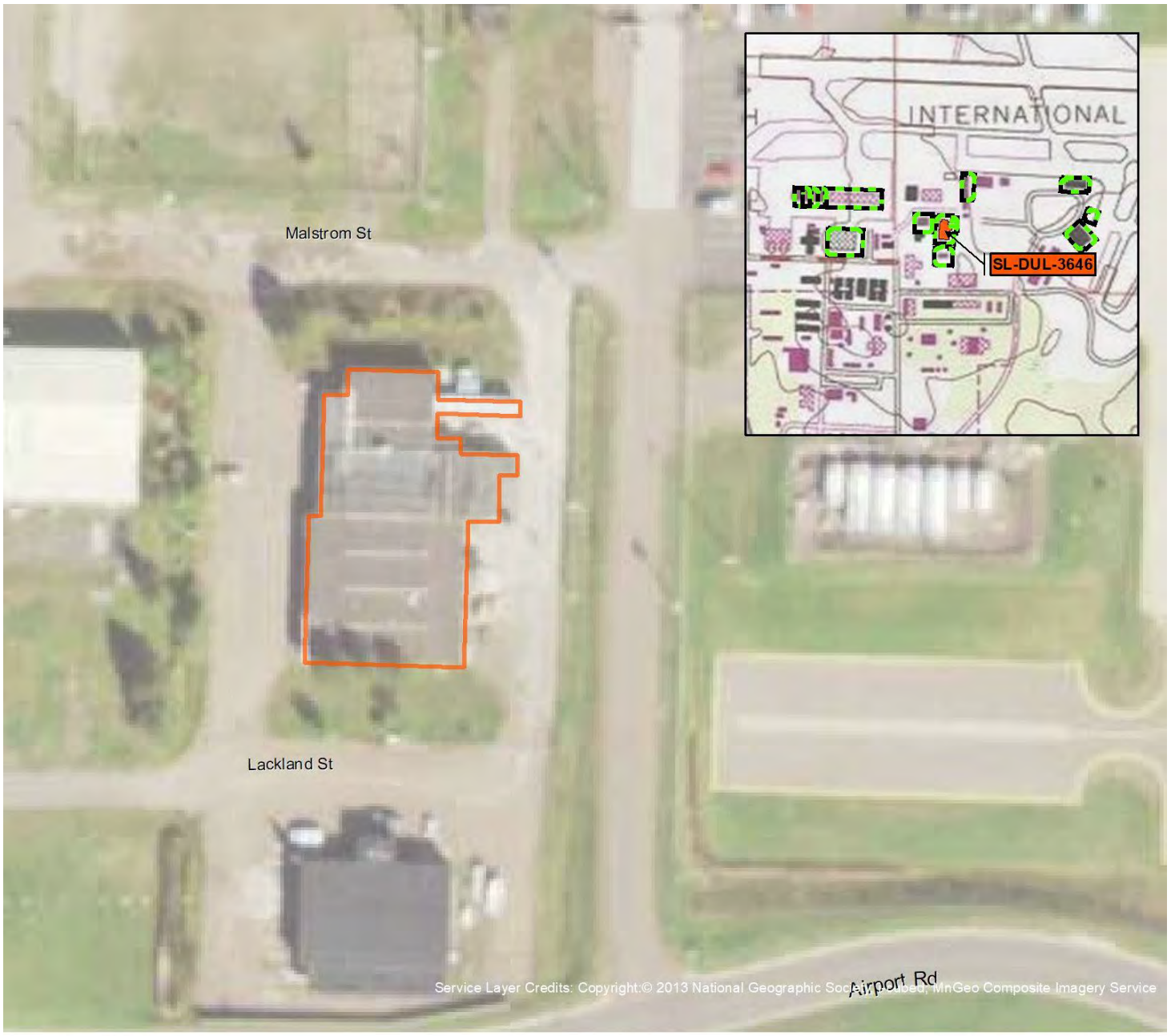
SL-DUL-3646 - 5/25/2021 - South & East Elevations, Facing Northwest

Minnesota Individual Property Inventory Form

Historic Name: Building 305

Inventory No: SL-DUL-3646

Associated MN Multiple Property Form (Name and Inventory No):



Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3646

4845 Lackland Street

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Building 308

Other Names: Duluth Composite Squadron, Civil Air Patrol

Inventory No: SL-DUL-3647

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Reconnaissance (Phase I)

Grant No.:

Location Information

Street Address: 4848 Lackland St

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.153023

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
5	15	West	1		SW	SW

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561431.2398	5187415.7283

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 1

Lot(s): 3

Property Identification Number (PIN): 010-0148-00030

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Building 308

Inventory No: SL-DUL-3647

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Unknown	

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Concrete

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

Criterion A: Property is associated with significant events. ☐ Yes ☑ No ☐ More Research Recommended

Criterion B: Property is associated with the lives of significant persons. ☐ Yes ☑ No ☐ More Research Recommended

Criterion C: Property has significant architectural characteristics. ☐ Yes ☑ No ☐ More Research Recommended

Criterion D: Property may yield important information in history/prehistory. ☐ Yes ☑ No ☐ More Research Recommended

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance:

Additional or Other Area(s) Significance:

Period(s) of Significance:

Date(s) Constructed: 1960

Other Significant Construction Dates: c. 1970 *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Tax Assessor & aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Steve Gallo, Historian & Saleh Miller, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- ☐ Eligible for the National Register
- ☑ Not Eligible for the National Register
- ☐ More Information Needed for Evaluation

- ☐ Eligible for Local Designation
- ☐ Not Eligible for Local Designation
- ☐ More Information Needed for Local Designation

Recommended District Evaluation:

☐ Within a National Register-Eligible District

Contributing Status:

District Name:

District Inventory Number:

☐ Within a Locally-Eligible District

Contributing Status:

District Name:

District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Historic District Recommendation (NRHP)

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Contributing/Noncontributing Status Recommendation

☐ Concur ☐ Does Not Concur ☐ More Information Needed

Comments:

Narrative Description

Building 308 is located at the Duluth International Airport (DIA), sited north of Airport Road on the southwest side of the airport. This one-story, irregular-shaped building does not have a visible foundation, has concrete walls, and has a low-pitched front gable roof with aluminum coping. There is a one-story addition, constructed between 1961 and 1972, on the south elevation that has a flat roof with metal coping. There is a single-leaf metal door with a single light beneath an aluminum awning on the west-facing facade. Additional fenestration includes fixed aluminum windows, single-leaf steel doors, and a single stall metal overhead door.

Integrity:
This property retains excellent integrity of location. The integrity of the setting has been compromised by the loss of historic structures to the south (Nationwide Environmental Title Research, LLC [NETR] 2003). The integrity of feeling and association is excellent due to its continued use by the Duluth Composite Squadron of the Civil Air Patrol, an auxiliary of the U.S. Air Force. The integrity of the materials and workmanship is excellent. The integrity of design has been compromised by the addition on the south elevation constructed between 1961 and 1972. Overall, this property retains good integrity.

Statement of Significance

Property History:
Building 308 was built in 1960, at which point DIA was under the jurisdiction of the United States Air Force for national defense purposes during the Cold War (RS&H 2015:33; St. Louis County Assessor's Office 2021:2). The primary role of the Duluth Air Base during this time was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). SAGE was a cutting-edge air monitoring program inaugurated in the 1950s that relied on a network of 23 installations located throughout the United States. Each installation housed two IBM AN/FSQ-7 computers that continuously ran one of the largest programs ever written at the time and communicated via an early version of the internet to create a map of U.S. airspace, monitor for any approaching aircraft, and plot an intercept course for surface-to-air missiles or fighter planes (Fox 2016). Aerial photography indicates that a one-story addition was constructed on the south elevation between 1961 and 1972 (University of Minnesota [UofM] 1961; UofM 1972).

In the DIA 2015 Master Plan, this building's purpose is classified as a "office building" and was likely originally used as an administrative building by the Air Force (RS&H 2015:176). It is currently occupied by the Duluth Composite Squadron of the Civil Air Patrol (Civil Air Patrol 2021).

Significance:
Building 308 was evaluated within the "History of the Duluth International Airport, 1929-present" historic context prepared by the 106 Group (Gallo et al. 2021). The property was likely constructed by the United States Air Force during the DIA's use as an air base for national defense during the Cold War era. The primary role of the Duluth Air Base during this period was air defense and radar monitoring, particularly through the Semi-Automatic Ground Environment System (SAGE). While SAGE was a critical element of Cold War-era defense, it is unlikely that this property housed any strategic defense equipment associated with the program and was likely used as an administrative facility. Therefore, it does not have significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, it does not have significance under NRHP Criterion B.

This property does not have distinctive characteristics of an architectural style, does not embody a specific time period, and does not serve as the highest or best example of a method of construction. Therefore, it does not have significance under NRHP Criterion C, in the area of Architecture. This property is not associated with a known

architect or builder. Therefore, this property does not have significance under NRHP Criterion C as the work of a master.

This property has not yielded, nor is it likely to yield, information important in prehistory or history. Therefore, it does not have significance under NRHP Criterion D.

Recommendation:
No intensive survey is recommended for this property due to a lack of historical significance.

Bibliography

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Property Photograph(s)

SL-DUL-3647 - 5/25/2021 - South & East Elevations, Facing Northeast

SL-DUL-3647 - 5/25/2021 - North & West Elevations, Facing Southwest

Minnesota Individual Property Inventory Form

Historic Name: Building 308

Inventory No: SL-DUL-3647

Associated MN Multiple Property Form (Name and Inventory No):

Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3647

4848 Lackland Street

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

106GROUP

Connecting People + Place + Time

INTENSIVE ARCHITECTURAL HISTORY SURVEY OF HANGAR 101 FOR THE DULUTH INTERNATIONAL AIRPORT MASTER PLAN PROJECT

Duluth, St. Louis County, Minnesota

September 2021

INTENSIVE ARCHITECTURAL HISTORY SURVEY OF HANGAR 101 FOR THE DULUTH INTERNATIONAL AIRPORT MASTER PLAN PROJECT

Duluth, St. Louis County, Minnesota

SHPO File No. Pending
106 Group Project No. 2566

SUBMITTED TO:
SEH
3535 Vadnais Center Drive
St. Paul, MN 55106

SUBMITTED BY:
106 Group
1295 Bandana Blvd N. #335
St. Paul, MN 55108

PRINCIPAL INVESTIGATOR:
Saleh Miller, M.S.

REPORT AUTHORS:
Saleh Miller, M.S.
Kelli Andre Kellerhals, M.S.
Steve Gallo, PhD

September 2021

MANAGEMENT SUMMARY

During April through September 2021, 106 Group conducted an architectural history survey for the Duluth International Airport Master Plan Project (Project). The survey was conducted to assist in development of a master plan to inform future planning and redevelopment in the hangar area at the Duluth International Airport. The survey began as a reconnaissance architectural history survey, and once Hangar 101 was identified as having potential significance the survey proceeded to an intensive evaluation. The proposed Project includes demolition of Hangar 101 due to health and safety concerns. The proposed Project will require approval from the Federal Aviation Administration (FAA) and, therefore, would need to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, as well as applicable state mandates governing cultural resources, including the Minnesota Field Archaeology Act and the Minnesota Historic Sites Act. This survey was conducted under contract for SEH. A concurrent reconnaissance architectural history survey for this Project was conducted, with funding coming from a separate source and, therefore, a separate report was prepared (Gallo et al. 2021).

The Project area is located in Section 2, Township 50, Range 15W, Duluth, St. Louis County, Minnesota. An appropriate area of potential effect (APE) for architectural history accounts for any physical, auditory, atmospheric, or visual impacts to historic properties. Based on the current Project plans, the recommended architectural history APE includes all standing structures located adjacent to Hangar 101. The recommended architectural history APE includes approximately 15.7 acres (6.4 hectares [ha]). The intensive architectural history survey consisted of historical research, field survey, and an evaluation for eligibility for listing in the National Register of Historic Places (NRHP). Saleh Miller, M.S., served as principal investigator for architectural history.

During the intensive architectural history survey, Hangar 101 was evaluated for eligibility for listing in the National Register of Historic Places (NRHP). Hangar 101 is recommended as eligible for listing in the NRHP for its significance under Criterion C, in the area of Architecture. The recommended period of significance is circa 1952, when Hangar 101 and its wings were constructed. The recommended property boundary is the footprint of the hangar and the wings.

"I certify that this investigation was conducted and documented according to the Secretary of the Interior's Standards and Guidelines and that the report is complete and accurate to the best of my knowledge."

September 10, 2021

Signature of Principal Investigator

Date

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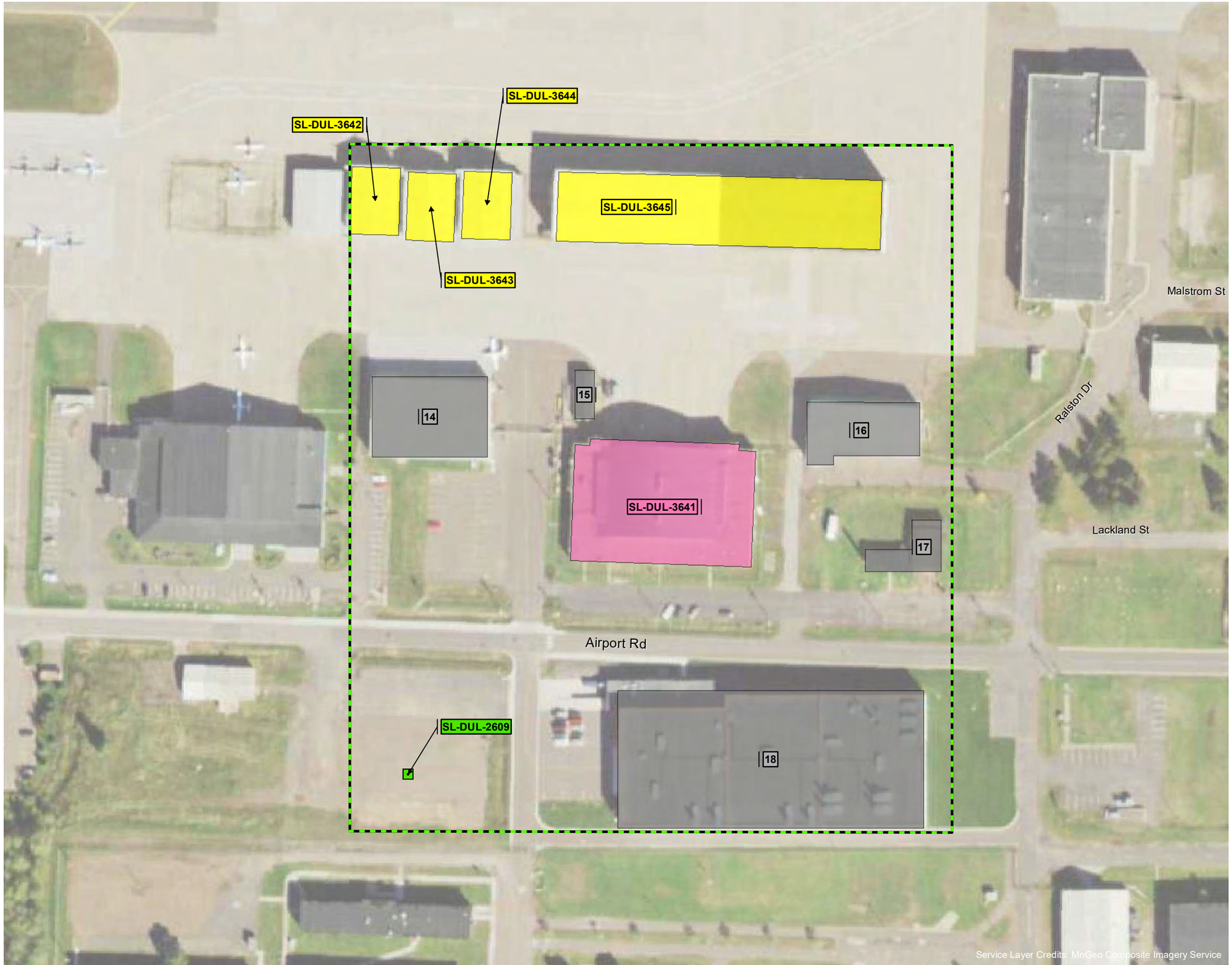
1.0 INTRODUCTION

During April through September 2021, 106 Group conducted an architectural history survey for the Duluth International Airport Master Plan Project (Project). The survey was conducted to assist in development of a master plan to inform future planning and redevelopment in the hangar area at the Duluth International Airport. The survey began as a reconnaissance architectural history survey, and once Hangar 101 was identified as having potential significance the survey proceeded to an intensive evaluation. The proposed Project includes demolition of Hangar 101 due to health and safety concerns. The proposed Project will require approval from the Federal Aviation Administration (FAA) and, therefore, would need to comply with Section 106 of the National Historic Preservation Act of 1966, as amended, as well as applicable state mandates governing cultural resources, including the Minnesota Field Archaeology Act and the Minnesota Historic Sites Act. This survey was conducted under contract for SEH. A concurrent reconnaissance architectural history survey for this Project was conducted, with funding coming from a separate source and, therefore, a separate report was prepared (Gallo et al. 2021).

The Project area is located in Section 2, Township 50, Range 15W, Duluth, St. Louis County, Minnesota (Figure 1). An appropriate area of potential effect (APE) for architectural history accounts for any physical, auditory, atmospheric, or visual impacts to historic properties. Based on the current Project plans, the recommended architectural history APE includes all standing structures located adjacent to Hangar 101. The recommended architectural history APE includes approximately 15.7 acres (6.4 hectares [ha]). The intensive architectural history survey consisted of historical research, field survey, and an evaluation for eligibility for listing in the National Register of Historic Places (NRHP). Saleh Miller, M.S., served as principal investigator for architectural history.

The following report describes project methodology, previous investigations, historic contexts, results, and recommendations for the Project area. An inventory form has been prepared and submitted separately to the Minnesota State Historic Preservation Office (SHPO). A list of Project personnel can be found in Appendix A.



Source: 106 Group; MN SHPO; MnDOT; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project Intensive Architectural History Survey of Hangar 101

Duluth, St. Louis County, Minnesota

- Project Area / Architectural History APE
- No Longer Extant
- Not of Age
- Not Recommended for Intensive Survey
- Recommended Eligible

0 30 Meters

0 80 Feet

1:1,500

106GROUP

Project Location, APE, and Results

Figure 1

2.0 METHODS

2.1 Objectives

The primary objective of the architectural history survey was to determine whether Hangar 101 is eligible for listing in the NRHP. All work was conducted in accordance with the SHPO *Historic and Architectural Survey Manual* (SHPO 2017) and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983).

2.2 Area of Potential Effect

The APE for architectural history accounts for any direct (physical) or indirect (auditory, atmospheric, or visual) effects to historic properties. The proposed Project includes the demolition of Hangar 101. The potential effects from the proposed Project include temporary vibrations, noise, and traffic impacts during demolition of Hangar 101, permanent visual effects, and permanent physical effects due to the demolition. Therefore, the recommended APE includes all adjacent standing structures.

2.3 Background Research

In April 2021, 106 Group began a reconnaissance architectural history survey for the Project. Initial research suggested that Hangar 101 may be potentially eligible for listing in the NRHP, and therefore, this intensive architectural history survey was undertaken from August to September 2021. In May, staff from 106 Group conducted background research remotely at SHPO for information on previously inventoried properties and on surveys previously conducted within the recommended architectural history APE.[1] Research was also conducted at the Minnesota Historical Society, University of Minnesota libraries, Northwest Architectural Archives, and online repositories. Research included a review of aerial photographs; historic maps; newspaper articles; building drawings and plans; Historic American Buildings Survey documentation; history of the Duluth airport, Air National Guard unit, and Duluth Air Force Base; and *Architectural Record* and *Engineering News Record* articles.

2.4 Field Methods

The intensive architectural history survey of the Project area was conducted on May 25, 2021. Erin Que, M.A., and Steve Gallo, PhD, conducted the fieldwork (see Appendix A for a list of Project personnel). The exterior of Hangar 101 was documented with field notes and digital photographs. Supplemental interior photographs were provided by SEH.

2.5 Inventory Form

A Minnesota Individual Property Inventory Form was prepared for Hangar 101 for submittal to SHPO for its review.

---

[1] For background research regarding known historic properties and previously conducted cultural resource surveys, we rely primarily on the information on file at SHPO. 106 Group cannot guarantee the accuracy and reliability of the data provided.

2.6 Evaluation

Upon completion of the fieldwork, the eligibility of Hangar 101 for listing in the NRHP was assessed based on the property's significance and integrity. The NRHP criteria, summarized below, were used to help assess the significance of the property:

- Criterion A – association with the events that have made a significant contribution to the broad patterns of our history;
- Criterion B – association with the lives of persons significant in our past;
- Criterion C – embodiment of the distinctive characteristics of a type, period, or method of construction; representation of the work of a master; possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D – potential to yield information important to prehistory or history (NPS 1997 [1995]).

The NPS has identified seven aspects of integrity to be considered when evaluating the ability of a property to convey its significance: location, design, setting, materials, workmanship, feeling, and association. The integrity of this property was assessed in regard to these seven aspects (NPS 1997 [1995]).

3.0 LITERATURE REVIEW

3.1 Previous Architectural History Studies

One architectural history survey has previously been conducted and one historic property has previously been inventoried within the recommended architectural history APE. In 2006, 106 Group conducted a cultural resources survey of the Duluth Air National Guard Base (Bradley et al. 2006). This survey documented all properties at the Duluth International Airport that were owned or leased by the 148th Figther Wing of the Minnesota Air National Guard in 2006 (Figure 1; Table 1).

Table 1. Previously NRHP-Listed, Eligible, or Inventoried Architectural History Properties Within the APE

Inventory No.	Property Name	Address	NRHP Status
SL-DUL-2609	Commissary / Building 206	4970 Airport Road	Non-extant

3.2 Property-Specific Historic Context

For the purpose of this architectural history survey, and the concurrent reconnaissance architectural history survey for the Duluth International Airport Master Plan Project (Gallo et al. 2021), the following property-specific historic context was developed: "History of the Duluth International Airport, 1929 – present."

3.2.1 History of the Duluth International Airport, 1929 – present

The Duluth International Airport (DIA) is a city-owned, public airport that is jointly used as a civil and military airport. It is located six miles northwest of downtown Duluth, Minnesota.

3.2.1.1 Establishment of DIA & Air Mail Service

DIA was originally established as the William-Johnson Municipal Airport (WJMA), which played a significant role in the early history of Minnesota-based Northwest Airlines, a major United States (U.S.) airline that was founded in 1926 and merged with Delta Airlines in 2008 (Sandvik 1986:93; Steenland 2008). Commercial flight in the U.S. was severely limited in the 1920s due to a combination of slow aircraft and preexisting railway networks that gave the public little incentive to travel by air. Consequently, early air transportation in the U.S. was almost exclusively devoted to airmail deliveries directly run by the federal government. The effort to establish a national airmail network was boosted and augmented in 1925 when Congress passed the Air Mail Act, which authorized the Postmaster General to determine airmail routes, contract with private carriers, and pay them a subsidy. This caused the United States Postal Service (USPS) to seek bids from private companies to transport mail over their Contract Air Mail routes (CAMs) from late 1925 to early 1926. Northwest Airlines (called Northwest Airways, Inc., at the time) was awarded a contract for CAM #9, which ran from Chicago to the Twin Cities via Milwaukee and La Crosse. Such a contract was a vital means of keeping Northwest Airlines financially viable at a time when no airline could make a profit by carrying passengers alone (Sandvik 1986:89-95).

With CAM #9 secured, Northwest Airlines sought to expand its services for both airmail and passengers. For the remainder of the decade, the airline added more routes throughout the region. It became an early international airline in 1928 when it began weekly services between the Twin Cities and Winnipeg via Fargo (though the Fargo-Winnipeg service was suspended after three months due to opposition from the Canadian government). Services were also added to Green Bay, Fond du Lac, Oshkosh, Neenah-Menasha, and Appleton, Wisconsin that year. Flights to Rochester, Minnesota, began in 1929. While passenger numbers were slowly increasing during this period, profit was still derived from airmail contracts. As a result, these services carried passengers and mail cargo simultaneously (Northwest Airlines History Center 2021).

Duluth's civic leaders sought to stimulate the city's economy by establishing an airmail route to the city. While the city's economy was robust in the 1880s and 1890s from the shipping boom, it began to show signs of slowing by the 1920s (Eubank 1991:1-2). Community leaders of the era not only considered it a point of civic pride to be included in the USPS airmail routes, but there was a strong conviction among the commercial class that the new form of transportation would stimulate business much as the railways had (Sandvik 1986:89). The thought process was no different in Duluth. When the city began holding public meetings on the idea of issuing up to $200,000 in bonds to establish a municipal airport in 1928, the plan quickly gained the support of the Duluth Chamber of Commerce as well as over 100 of the city's leading businessmen (Associated Press 5 June 1928:9; The Minneapolis Star 15 June 1928:7). The city purchased 640 acres of property from St. Louis County to establish a municipal airport in 1929 and held a public celebration to mark the completion of an aircraft hangar and administrative building on the site in 1930 (RS&H 2015:33; Associated Press 14 April 1930:13; The Minneapolis Tribune 14 September 1930:11). The airport featured three 2,650-foot turf runways. The runways were identified as Runway 3-21; Runway 9-27; and Runway 13-31. Runway 9-27 ran east-west, Runway 3-31 ran north-northeast to south-southwest, and Runway 13-31 ran northwest to southeast. All three runways intersected in the southeast quadrant of the airport (RS&H 2015:33). The three turf runways were paved and extended in 1942, with each runway measuring 4,000 feet long by 150 feet wide. Runways 9-27 and Runway 3-21 were extended by the U.S. Army Corps of Engineers in 1945, to 5,660 feet long (RS&H 2015:33).

The opening of DIA did not invigorate Duluth's economy as civic leaders had hoped, although it proved beneficial to Northwest Airlines. The city's economic growth stagnated along with the rest of the country during the Great Depression of the 1930s and was only revitalized by the production demands of World War II (Eubank 1991:2, 32). The USPS awarded Northwest Airlines a new airmail contract for a route between the Twin Cities and Duluth, in addition to one between Fargo and Bismarck, in May of 1931 (The Minneapolis Tribune 12 May 1931:21). Passenger services were offered on the Twin Cities-Duluth route at the same time. The airline initially intended to land on Lake Superior, purchasing two 8-passenger Sikorsky S-38 amphibian aircraft to service the route, but they switched the vehicles for a Hamilton model and began landing at DIA in December of 1931 when ice on the lake made water landings impractical and unsafe (Northwest Airlines History Center 2021; The Minneapolis Tribune 12 May 1931:21). Northwest's services to Duluth lasted until 1933, when the federal government took control of all airmail routes amidst suspicions of corruption. The airline was able to regain most of its routes the following year, but Duluth was not among them. Duluth remained without any airmail services

as late as August of 1935 (Northwest Airlines History Center 2021; Associated Press 28 August 1935:2). Northwest Airlines did not resume passenger service to the airport until 1940, when three 10-passenger planes carrying public and company officials took off from Minneapolis and landed in Duluth within an hour. They were greeted by a large crowd that had gathered to celebrate the route's inauguration (RS&H 2015:33; The Minneapolis Tribune 2 June 1940:31).

Despite the discontinuation of the Twin Cities-Duluth airmail route after only two years, it was nonetheless a critical component of Northwest Airline's financial success. It was one of several regional airmail routes that provided the company with the revenue needed to steadily expand its services westward and survive the economic tumult of the Great Depression. As a result, Northwest Airlines was able to strengthen its dominant position within the airline industry in the decade prior to World War II and thrive throughout the remainder of the twentieth century (Sandvik 1986:98).

3.2.1.2 DIA and Cold War Defense

The DIA played a notable role in the defense of the U.S., particularly during the Cold War period, through the establishment of both an Air National Guard unit as well as a U.S. Duluth Air Force Base at the DIA.

In 1948, an Air National Guard (ANG) unit was established in Duluth through the reactivation of the 179th Fighter Squadron, which was part of the 133rd Fighter Group that was headquartered in St. Paul. World War II veterans were recruited to join the new ANG unit in Duluth (Bradley et al. 2006:13). The ANG headquarters are located in the northeast quadrant of the airport, on the east side of Runway 3-21. The creation of the ANG unit coincided with the build-up of air defense capabilities at the beginning of the Cold War. At its inception, the 179th Fighter Squadron's main mission was to intercept bombers that might fly through Duluth and to identify unknown aircraft in the region near the U.S./Canada border. As Cold War tensions rose, the ports in Duluth were identified as resources that needed the highest priority for protection, as Duluth was the vital head of shipping on the Great Lakes (Bradley et al. 2006:18). Permanent facilities were built for the ANG between 1948 and 1951, and included taxiways, a main hangar, a heating plant, a sewage disposal facility, a water tank, the squadron operations and headquarters building, and more (Bradley et al. 2006:13-14). Air defense facilities and operations were scaled back in Minnesota in the 1970s, however, the ANG still operates to this day out of the DIA and is serviced by the 148th Fighter Wing of the Minnesota Air National Guard.

The U.S. Air Force also contributed to the development of the DIA. After World War II ended, the U.S. Air Force constructed permanent and semi-permanent buildings on the airport grounds, in the south/southwest area of the airport, south of Runway 9-27, and played a key role in the development of much of this area of the airport grounds. In August of 1950, Air Force officials considered the Williamson-Johnson Airport at Duluth as a location for a Fighter Squadron. Soon after the ANG unit at Duluth was called to active service, in 1951 the Central Air Defense Force of the Aerospace Defense Command (ADC) took jurisdiction over the airport at Duluth. At that time, the Air Force also had control of the Duluth ANG facilities while that unit was federalized. The Air Force began to develop a base in the area, located south of the main runway at the airport. The first facilities for the Air Base, constructed during 1951 and 1952, included a hangar, temporary shacks next to the hangar, a motor service building,

a crash and rescue station, and a heating plant. Within another year, a ground control approach and instrument landing system, aircraft hangars, exchange building, ammunition storage area, runway and taxiway extensions and improvements, mess facility, administration buildings, readiness building, and communication and utility systems were completed. A new base headquarters building was completed in 1954. A family housing facility was added to the base in 1956 (Bradley et al. 2006:20).

The Duluth Air Base was expanded in 1957 with the development of the Semi-Automatic Ground Environment (SAGE) facility, which was located west of the main portion of the base. The SAGE facility increased the base's role in the air defense mission and was responsible for monitoring a large area of the northern U.S. and Canada. The Duluth Air Base also was home to units who worked on strategic national defense operations like the North American Aerospace Defense (NORAD), in partnership with the Royal Canadian Air Force, and the Duluth Air Defense Sector (DUADS), which became operational in 1959 (Bradley et al. 2006:21). For much of the Cold War, Air Force Fighter Interceptor Squadrons (FIS) stood at alert on bases in Duluth and Minneapolis, ready to protect the U.S. from attack from foreign enemies (Bradley et al. 2006:20). During the Cold War, the Duluth Air Base had missions that were related to, but separate from, those of the Air National Guard. The main mission of the units stationed at the Duluth Air Base was air defense.

Through reorganization and reassignment of defense missions, the Duluth Air Base was deactivated in 1981 by the Unites States Air Force (Bradley et al. 2006:21). The ANG inherited portions of the Duluth Air Base and much of the area was converted into a Federal Prison Camp, which is still operational. The southwest quadrant of the airport is now the core area for general aviation, air cargo, and special aviation service organizations (RS&H:41-42).

3.2.1.3 Present-day DIA

In 1951, an air traffic control tower was erected and the original passenger terminal was constructed southwest of the intersection of Runways 3-21 and 9-27 in 1954. The airport was renamed DIA in 1961. In 1974, a 52,400-square-foot passenger terminal building and U.S. customs facility was constructed to the southeast of the runway intersection, east of the terminal constructed in 1954. Consequently, Runway 13-31 was shortened to 2,578 feet to accommodate building construction, then subsequently converted into a taxiway, and eventually closed in 1980. The former terminal building, located southwest of the runway intersection, was converted for use as offices for general aviation, and for use by the FAA and the U.S. Weather Bureau. In 1989, the three-story 1974 passenger terminal building was remodeled to form a single enclosure totaling 106,000 square feet (RS&H 2015:33).

After September 11, 2001, new federal security requirements deemed the passenger terminal functionally obsolete as the tails of parked airplanes extended too close to the runway airspace surfaces. Construction began on a new terminal in 2010, which opened in 2013, and included the replacement passenger terminal, an expanded apron, and new auto circulation and vehicle parking facilities. The new terminal was named the *James L. Oberstar Terminal* after late U.S. Representative Jim Oberstar, who represented the congressional district the airport lies within from 1975-2011 (RS&H 2015:33).

The DIA is Minnesota’s third busiest airport, after Minneapolis-St. Paul International Airport (MSP) in Minneapolis, and Rochester International Airport in Rochester. Three airlines service the airport: Delta Airlines, United Airlines, and Sun Country Airlines, however, the largest sources of air traffic comes from general aviation, which is civilian aircraft not associated with commercial air transport. The Duluth Air National Guard Base is still located at the airport, as well as airplane manufacturer Cirrus, which makes single-engine light aircrafts.

4.0 RESULTS

Staff from 106 Group conducted fieldwork of the recommended APE on May 25, 2021. Saleh Miller, M.S., served as principal investigator (see Appendix A for a list of Project personnel). During the intensive architectural history survey, Hangar 101 was surveyed and recommended eligible for listing in the NRHP (Figure 1; see Section 4.1). Five properties within the recommended APE are undergoing a concurrent reconnaissance architectural history survey, and have not been recommended for intensive-level survey due to a lack of historical significance (Gallo et al. 2021) (Figure 1; Table 2). Five properties within the recommended APE are less than 45 years of age, and therefore, do not meet the criteria for survey (Figure 1; Table 3).

Table 2. Properties Not Recommended for Intensive Survey

Inventory No.	Property Name	Address	Date
SL-DUL-3642	Hangar 106	4525 Airport Approach Road	1960
SL-DUL-3643	Hangar 107	4525 Airport Approach Road	circa 1960
SL-DUL-3644	Hangar 105 / EAA 272	4525 Airport Approach Road	circa 1960
SL-DUL-3645	Hangar 104	4926 Malstrom Street	circa 1960

Table 3. Properties Not of Age in the APE

Field Number	Property Name	Address	Date[2]
14	Hangar	4946 Airport Road	circa 2005
15	Prefabricated Trailer	4931 Airport Road	circa 2005
16	JetDuluth	4913 Airport Road	circa 2005
17	Hermantown Hydraulics	4905 Airport Road	circa 1980
18	Cirrus Finishing Center	4940 Airport Road	circa 2016

4.1 Hangar 101, SL-DUL-3641

Location:

4931 Airport Road, Duluth, St. Louis County, Minnesota

Description:

Hangar 101 is a single-bay, arched-roof hangar that is flanked by two-story, flat-roof maintenance and office wings on the east, south, and west elevations (Figures 2-3). The hangar is located in the southwest

[2] Build dates were based on County parcel data and aerial photographs.

quadrant of the DIA, along the south side of Runway 9-27. The hangar and the wings were constructed simultaneously, circa 1952 (Nationwide Environmental Title Research, LLC [NETR] 1952).

Figure 2. Hangar 101, North Elevation, Facing Southeast (106 Group, May 2021)

Figure 3. Hangar 101, Facing Northwest, Showing Collapsing Wings (106 Group, May 2021)

The wings obscure the view of the arched-roof hangar sections such that the arched-roof hangar section is only visible above the two-story wings. Clerestory sections are located on the east and west elevations, above the two-story wings. The building is clad in horizontal wood siding and replacement vertical metal panels. The north elevation features a tall, 14-leaf sliding metal door that splits in the middle. Signs at the top of the arched section on the north and south elevations read “CAF.” The north elevation also features a small sign that reads “Aviation Museum” above the 14-leaf sliding door. Two wood-sided mechanical boxes are located at the top of the arched-roof hangar section. The two-story wings on the east, south, and west elevations have collapsed in several locations and the interior of the building is visible through these sections.

Fenestration on the north elevation includes the 14-leaf sliding metal door; three sets of 20-light windows in each door panel; and a 36-light metal window.

Fenestration on the east elevation includes three-light metal windows on the clerestory of the central hangar section. On the wing on the east elevation, fenestration includes a modern metal overhead garage door with three oval lights; single-light fixed metal windows; and single-leaf modern metal doors with single-lights.

Fenestration on the south elevation includes modern two-light sliding metal windows with transoms; single-leaf metal doors with single-lights; and single-light fixed metal windows.

Fenestration on the wing on the west elevation includes modern two-light sliding metal windows with transoms; single-leaf metal doors with single-lights; single-light fixed metal windows; and a modern overhead metal garage door. Fenestration on the clerestory of the central hangar section of the west elevation includes fixed metal windows.

The interior of the central hangar section consists of a large unobstructed open area with a poured concrete floor and poured concrete walls (Figure 4). On the east and west walls, the concrete walls extend from the floor to the bottom of the wooden crescent arches. On the south wall, the concrete wall stops halfway from the floor to the top of the crescent arch; above the concrete wall, the remainder of the wall is constructed of wood framing and cladding. The north wall is comprised of a pair of seven-leaf sliding doors. Each leaf is set on wheels, which move the leaves along seven parallel tracks inlaid into the concrete floor. When the doors are open, each leaf recesses behind the preceding leaf into a wood-clad pocket structure that extends beyond the width of the hangar.

The roof system of the hangar consists of seven, two-hinged, wooden crescent arch trusses (Figure 4). The trusses are approximately 164 feet from east to west, and are spaced approximately 23 feet apart, north to south (Google Earth 2021). Each truss is a crescent truss with an arched top and bottom chord and has wooden vertical and diagonal members arranged in a saw tooth pattern. Wooden lateral bracing between the trusses is in a vertical “X” pattern. The roof rafters span between the trusses and the rafters are sheathed with wooden boards laid at a diagonal. Each truss is bolted to concrete piers/buttresses embedded into the concrete walls on the east and west sides of the hangar.

Figure 4. Hangar 101, Interior of the Central Hangar, Facing Northeast (SEH, March 2021)

Integrity

This property retains excellent integrity of location as it remains in its original location on the south side of the main runway at the DIA. The integrity of setting has been slightly compromised by the expansion of the airport runways over time, the loss of some surrounding historic buildings, particularly the Readiness Building, which was historically immediately to the west of Hangar 101, and the addition of new buildings in the vicinity. The integrity of design remains good, as the building does not appear to have had any significant changes that have altered the historic form of the building. The building was originally constructed with the wings and it retains its historic configuration of the central arched hangar flanked by wings on the east, west, and south elevations. Additionally, the wooden crescent trusses on the interior of the central hangar section, which give the hangar its distinctive structural system, remain intact. The integrity of materials is fair due to the addition of some modern materials, particularly on the wings. Such non-historic materials include vertical metal panels, modern doors, and windows, as well as some sections of the wings that have collapsed on the east, south, and west elevations. However, the north elevation of the hangar still retains its original wood cladding and metal hangar doors, thus retaining its historic appearance on the prominent elevation. The integrity of workmanship is good, as the central hangar section retains its distinctive structural system. The integrity of feeling has been slightly compromised by the current vacant status of the building, lack of use as a military airplane hangar, and collapsing condition of the wings. However, the central hangar section of the building retains its open, unobstructed space, which allows the vastness of the structure and its use as a hangar to still be understood. The integrity of association is fair as the conversion of many of the surrounding building to a

federal prison minimizes the connection of the hangar to the former Duluth Air Base. Overall, this property retains fair integrity.

Statement of Significance:

Property History

This airplane hangar and its wings appear to have been constructed by 1952, when it is visible on historical aerial photographs (NETR 1952). In the DIA's 2015 Master Plan, this hangar is referred to as "Hangar 101," which is denoted as a "common hangar" and has an area of 20,000 square feet (RS&H 2015:52).

This hangar appears to have been constructed by the U.S. Air Force for the Duluth Air Base, which was operational from the 1950s to 1981. According to the DIA's Master Plan, the Air Force was responsible for developing much of the southwest quadrant of the DIA. Between 1951 and 1952, essential facilities for the Duluth Air Base were constructed, including "a hangar, temporary shacks next to the hangar, a motor service building, a crash and rescue station, and a heating plant" (Bradley et al. 2006:20).

Hangar 101 is one of the first buildings visible in historical aerial photographs of the area that was to become the Duluth Air Base, and is likely the "hangar" referenced in the essential facilities constructed by the Air Force in 1951-1952 (RS&H 2015:41-42; NETR 1952). In a 1952 historical aerial photograph of the Duluth Air Base, Hangar 101 is visible, along with a cross-shaped building immediately to the west of the hangar (NETR 1952). On construction site plans from 1954 for a different hangar – Hangar 103 – which is immediately west of the cross-shaped building, the cross-shaped building is identified as a "Readiness Building" and Hangar 103 is identified as "Maintenance Hangar with Shops A and B." However, Hangar 101 is not identified or named on the site plan for the Maintenance Hangar despite being depicted on the plans (Toltz, King & Day Inc. 1954). Plans, drawings, or historic names for this building, beyond the "Hangar 101" name established by the DIA, have not been found for Hangar 101.

Based on its location and function, the U.S. Air Force appears to have been responsible for the construction of Hangar 101 in the early 1950s. However, this was not able to be corroborated by primary source material. The history of airplane hangar design and construction in the U.S., and particularly hangar construction employed by the U.S. military and especially the Air Force, is inextricably tied to military aircraft advancements and the limitations on construction stemming from the U.S. military involvements from the early to mid-twentieth century. An airplane hangar is generally defined as a utilitarian structure that is used to house and service aircraft. Character defining features of a hangar include a large, unobstructed area that has sufficient space, which includes vertical clearance and floor space, to accommodate an aircraft, and an unobstructed opening that is tall and wide enough to allow an aircraft to pass through (McCormick and Hufstetler 1994:8). Increased attention to airplane hangar design and construction coincided with the growth and build-up of airfields throughout the U.S. during World War I. Hangars were necessary for airplane storage and as a place to do repair and maintenance work on aircraft. As such, during World War I, the U.S. Army created a standardized hangar design that could be easily adapted for each airfield. These early hangars were utilitarian in design and were rectangular, wooden structures that could house several aircraft. Wooden trusses were a popular solution for

structurally supporting roofs from the 1900s through the 1950s, especially in buildings where large, open spans were desired (Martinez et al. 2018). The hangars had low gambrel roofs and plain sliding doors at either end wall (McCormick and Hufstetler 1994:8). Larger, more technologically advanced aircraft were developed post-World War I and additional aviation advancements after World War II, including the development of jets, rockets, and helicopters, necessitated changes in hangar design and construction (NPS 1998:11). The post-World War II time period saw hangars being constructed of reinforced concrete or structural steel framing, which better accommodated the larger widths and heights of increasingly larger aircraft. Wings or lean-to additions also became common along one or both sides of the hangar to provide space for mechanical and auxiliary facilities. Banks of large windows were also found in hangars constructed during this time period to provide interior light and ventilation (McCormick and Hufstetler 1994:9).

Rising international tensions during the late 1930s prompted the first major build-up of Army air bases since 1918 and resulted in the construction of large hangars with clear-span interiors of 200 to 275 feet wide (McCormick and Hufstetler 1994:9). In 1941, as the need for more hangar space became critical, the Army turned to hangar designs that could be easily, quickly, and cheaply assembled. Hangars featured Warren-type roof trusses supported by steel columns; multi-leaf, sliding hangar doors that opened at one or both ends of the hangar; steel sash windows; fire resistant materials, such as asbestos-protected metal or corrugated asbestos siding; and wings along the sides of the hangar that provided needed auxiliary spaces (McCormick and Hufstetler 1994:9). World War II imposed restrictions on steel and other materials, and such limitations resulted in hangars being constructed with alternative materials, particularly wood trusses and reinforced concrete. A widely used design from this time featured a structural system that was formed by a series of closely spaced wooden ribs, of which one of three truss systems were employed: the arch rib, the bowstring arch, or the crescent arch. The bowstring arch featured an arched top chord and a straight bottom chord, while the crescent arch featured an arched top and bottom chord. The wooden members were constructed of small sections of laminated lumber, stacked together and bent to the curve of the arch radius, and then glued and spiked together (*Engineering News Record* 1944:118). Wooden arch trusses in either the bowstring arch or crescent arch configurations were supported on a system of concrete beam and buttressed columns (McCormick and Hufstetler 1994:9). For the most part, military hangars during World War II were used only for the storage and maintenance of aircraft (McCormick and Hufstetler 1994:10).

The Cold War era that followed World War II necessitated a change in hangar function from one of storage and maintenance to one of facilitating national defense capabilities. During the 1950s, the newly-created U.S. Air Force established air bases at strategic locations through the country to defend the country from any possible threats and attacks; the Duluth Air Base is one such example. As part of the air base development, specialty hangars were developed to house fighters, tankers, and other military aircraft at “readiness,” meaning they were ready to take off at a moment’s notice to defend the base and the surrounding area from an outside attack (McCormick and Hufstetler 1994:10). These specialty hangars were typically constructed at locations that would provide quick access to an air base’s runway and fell into one of two categories: an “alert” hangar and a “readiness” hangar. They are defined as follows:

> Alert hangars were designed to hold aircraft that could be manned and airborne within 90 seconds. The standard alert hangar plan featured four separate hangar "pockets," each designed to shelter a single plane and equipped with fast-operating hangar doors at both ends. The pockets were configured in pairs on both sides of a central block, which contained maintenance facilities and waiting rooms for the flight crews (McCormick and Hufstetler 1994:10).
>
> In contrast, a readiness hangar was intended as a more multi-purpose facility. First, it provided a space where planes could be kept under cover and warm, and taken out to the runway with considerable dispatch, although not quite as quickly as from an alert hangar. Second, it acted as an aircraft maintenance shop. Readiness hangars typically utilized the form of a standard World War II aircraft hangar: a central hangar space flanked on both sides by wings housing workshops, a boiler room, and other facilities. Such buildings typically had sufficient clearance and floor space to accommodate all but the largest bombers of the 1950s era (McCormick and Hufstetler 1994:10).

While the first function of a readiness hangar was to house planes at the "ready," the second function of a readiness hangar is maintenance. Indeed, as described in a 1952 issue of the *Architectural Record*, "[t]here is no thought, however, that planes would be kept lined up for instant service, or that they would actually flown out of the hangar. The readiness hangar is also a maintenance shop for anything short of major overhaul. It is quite possible to use the hangar for both readiness and service at the same time" (Architectural Record 1952:99).

Hangar 101 is designed with a large arched-roof hangar section in the center of the building and wings flanking the central hangar space along the east, south, and west elevations. In the interior of the hangar space, the hangar was designed using the crescent arch support system, a commonly used truss system stemming from material shortages during World War II (McCormick and Hufstetler 1994:9). The wooden crescent trusses are constructed with arched top and bottom chords that support the distinctive arched roof of the hanger. Theses trusses are braced by vertical bracing in a "V" pattern between the top and bottom chords. The use of such trusses allowed for an unobstructed interior hangar space to accommodate aircraft inside the hangar. The wings are two stories tall and likely provided auxiliary, office, and storage space for the hangar.

Architectural drawings and plans specific to Hangar 101 have not been found, nor has an architect or engineer of record. However, Hangar 101 is remarkably similar to the now-demolished Readiness Hangar that was constructed at Ellsworth Air Force Base in South Dakota in 1952 (see Figures 5-6). Like Hangar 101, the Ellsworth Readiness Hangar was a single-bay, arched-roof hangar flanked on the sides by shed-roof wings. The interior roof system of the Ellsworth hangar was constructed of seven, two-hinged wooden crescent arched trusses (McCormick and Hufstetler 1994:13). Hangar 101 is also constructed of seven, two-hinged wooden crescent arched trusses, and, like the Ellsworth Hangar, is of nearly the same dimensions: 160 feet by 118 feet. Also like Hangar 101, the Ellsworth Readiness Hangar was constructed in line with the Air Force's efforts to improve the nation's defense capabilities during the onset of the Cold War. The Ellsworth Readiness Hangar was documented by the Historic American Building Survey

(HABS) in 1994 prior to its demolition; that documentation noted that the hangar was a “significant representation of period military hangar architecture…and its configuration typifies the basic form preferred for a readiness hangar by military planners of the early 1950s” (McCormick and Hufstetler 1994:2). While documentation has not been found on the historic use of Hangar 101, it is possible that the structure served as a readiness hangar for the Duluth Air Force Base, as both the Duluth Air Force Base and the Ellsworth Air Force Base both served air defense missions during the Cold War era.

Figure 5. Ellsworth Readiness Hangar, Exterior (McCormick and Hufstetler 1994)

Figure 6. Ellsworth Readiness Hangar, Interior Wooden Crescent Arched Trusses (McCormick and Hufstetler 1994)

The Duluth Air Base was closed in 1981. At that time, many of the buildings of the Duluth Air Base were converted into a federal prison. The Duluth ANG also took ownership of many buildings. It is not known how or by whom Hangar 101 was used after this time. However, the north and south elevations of the hangar feature signs that read “CAF.” The Confederate Air Force, now known as the Commemorative Air Force (CAF), occupied the building beginning at an unknown date, until 2018. The CAF acquires, restores and preserves a collection of combat aircraft that were flown by all military services of the U.S. The CAF used Hangar 101 as their maintenance shop and aviation museum until they moved to a new location in Superior, Wisconsin, in 2018 (CAF 2021). Since 2018, Hangar 101 has remained vacant.

Significance

Hangar 101 was evaluated within the context “History of the Duluth International Airport, 1929-present” (see Section 3.2.1). The U.S. Air Force operated an air base at the DIA from the 1950s to 1981; during this time the Air Force built multiple structures to support their operations. Based on its location and function, Hangar 101 was likely constructed by the U.S. Air Force at a time of growth and expansion of the airport, in the early 1950s. This hangar appears to be one of the first structures constructed by the Air Force as part of this expansion. As the key role of the Duluth Air Base during this time was air defense, it is possible Hangar 101 was constructed as a readiness hangar and could have played an integral role in the Air Base’s ability to fulfill its mission. Indeed, constructing a hangar as one of the first buildings on the new Air Base suggests that the hangar likely played a needed role in air defense while other strategic defense equipment, such as the SAGE system, were still under construction. However, documentation as to Hangar 101’s historic name, use, or role within the air defense mission of the Duluth Air Base has not been found within the archives of the Minnesota Historical Society, the Northwest Architectural Archives, or in the records at the DIA. Online research regarding this hangar and the Duluth Air Base also yielded little information. As such it is not possible at this time to definitively evaluate Hangar 101’s significance in the defense mission of the Duluth Air Base. Further research into the historic role of Hangar 101 is necessary to determine any potential significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, does not have significance under NRHP Criterion B.

National Register Bulletin #43 notes that air-related facilities may be eligible for the National Register of Historic Places (NRHP), in the area of Architecture, if they are good representations of a type, period, or method of construction (NPS 1998:46). Hangar 101 was constructed with a central arched-roofed hangar section that is flanked on the east, west, and south elevations by shed-roof wings. The central hangar section is an open expanse created by seven wooden crescent arches with arched top and bottom chords. The remarkably similar Readiness Hangar at the Ellsworth Air Force Base was a documented standard plan hangar designed by the Air Force. Based on the design of this hangar, it is likely Hangar 101 was a standard military plan designed by the U.S. Army Corp of Engineers, which played a key role in the drafting and standardization of military hangars and buildings during this time period. Such Air Force standard plan hangars included character defining features such as unobstructed hangar space, maintenance and auxiliary spaces flanking the hangar area, and large doors that allowed aircraft to pass through. These types of hangars serve as significant representations of a period military airplane hangar architecture, as the building’s form and design were preferred by the military for new hangar construction

during World War II and influenced hangar design through the Cold War. Additionally, Hangar 101 was constructed using wooden crescent trusses, which is a somewhat unusual construction material for a post-World War II hangar. Wartime material shortages had eased by the time Hangar 101 was constructed and hangars constructed in the 1950s typically relied on heavy steel framing for the structure and cladding; as exemplified by Hangar 103 (the Maintenance Hangar with Shops A and B) at the DIA, which was constructed around 1954 (McCormick and Hufstetler 1994:11). The reason for Hangar 101's wood construction is not known, although it could be theorized that the wooden arch design was less expensive than a steel design, or may have allowed for the use of an already-existing blueprint. While wooden construction hangars were popular in early hangar construction, a 2011 report on hangar construction from World War I through the Cold War noted that few wooden hangars survive, with many having been demolished (such as the Ellsworth Readiness Hangar) and extant ones scheduled for demolition (Aaron 2011:77). Therefore, Hangar 101 is a rare example of a diminishing number of wooden Air Force designed hangars. As such, Hangar 101 has significance under NRHP Criterion C, in the area of Architecture, for its embodiment of typical period military airplane hangar construction, its unique wooden crescent truss method of construction used during a time period of heavy steel construction, and its likely association as an Air Force standard plan hangar. The recommended period of significance is circa 1952, when the hangar and its wings were constructed. The recommended property boundary is the footprint of the hangar and the wings.

This property has not yielded, nor is likely to yield, information important in prehistory or history. Therefore it does not appear to have significance under NRHP Criterion D.

Recommendation

Hangar 101 is recommended as eligible for the NRHP under Criterion C, in the area of Architecture. The recommended property boundary is the footprint of the hangar and the wings.

5.0 RECOMMENDATIONS

During the intensive architectural history survey, 106 Group recommended Hangar 101 as eligible for listing in the NRHP under Criterion C, in the area of Architecture. The proposed demolition of this historic structure would be considered an adverse effect, and therefore, consultation with FAA and SHPO is recommended in order to determine an appropriate form of mitigation.

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APPENDIX A: PROJECT PERSONNEL

LIST OF PERSONNEL

Project Manager	Saleh Miller, M.S.
Principal Investigator	Saleh Miller, M.S.
Historians	Kelli Andre Kellerhals, M.S. Steve Gallo, PhD Saleh Miller, M.S. Erin Que, M.A.
Graphics and GIS	Molly McDonald, MGIS

Minnesota Individual Property Inventory Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

Please refer to the Historic and Architectural Survey Manual before completing this form.

Must use Adobe Acrobat Reader to complete and save this form. Adobe Acrobat Reader can be downloaded at: https://get.adobe.com/reader/?promoid=KLXME

General Information

Historic Name: Hangar 101

Other Names:

Inventory No: SL-DUL-3641

Associated MN Multiple Property Form (Name and Inventory No:):

New or Updated Form: New

Review and Compliance No.:

Extant: Yes

Agency Proj No.:

Survey Type: Intensive (Phase II)

Grant No.:

Location Information

Street Address: 4931 Airport Rd

County(s): Saint Louis

City/Twp(s): Duluth

Total Acres: 0.833203

USGS 7.5 Quad Name(s): Duluth Heights, 1993

TOWNSHIP	RANGE	E/W	SECTION	QQQ	QQ	Q
50	15	West	2		SE	SE

UTM Coordinates:

Datum: NAD 83

UTM Zone	Easting	Northing
15N	561173.119243	5187451.89946

Urban:

Subdivision: AIRPORT DIVISION

Block(s): 4

Lot(s): 2

Property Identification Number (PIN): 010-0148-00210

Previous Determinations

Previous Individual Determination:

- ☐ National Register Listed
- ☐ NPS DOE
- ☐ State Register Listed
- ☐ CEF
- ☐ SEF
- ☐ Locally Designated
- ☐ Not Eligible

Previous District Determination:

District Name:

- ☐ Within a National Register-Listed District
  Contributing Status:
- ☐ Within a State Register-Listed District
  Contributing Status:
- ☐ Within a CEF District
  Contributing Status:
- ☐ Within a SEF District
  Contributing Status:
- ☐ Within a Locally Designated District
  Contributing Status:

Minnesota Individual Property Inventory Form

Historic Name: Hangar 101

Inventory No: SL-DUL-3641

Associated MN Multiple Property Form (Name and Inventory No):

Classification

Associated Properties (Name and Inventory No.):

Property Category : Building

Number of Resources on the Property:

Buildings: 1 Structures: Sites: Objects:

Function or Use

Historic:

Function/Use Category	Function/Use Subcategory
Transportation	air-related

Function/Use Category (if other)

Function/Use Subcategory (if other)

Current:

Function/Use Category	Function/Use Subcategory
Vacant/Not in use	

Function/Use Category (if other)

Function/Use Subcategory (if other)

Description

Provide full Narrative Description on Continuation Sheet.

Architectural Style: No Style

Architectural Style (if other):

Exterior Material: Wood

Exterior Material (if other):

Significance

Provide full Statement of Significance on Continuation Sheet.

Applicable National Register of Historic Places Criteria:

	Yes	No	More Research Recommended
Criterion A: Property is associated with significant events.	☐	☐	☑
Criterion B: Property is associated with the lives of significant persons.	☐	☑	☐
Criterion C: Property has significant architectural characteristics.	☑	☐	☐
Criterion D: Property may yield important information in history/prehistory.	☐	☑	☐

Criteria Considerations? ☑ No ☐ Yes *If yes, describe in Statement of Significance on Continuation Sheet.*

Area of Significance: Architecture

Additional or Other Area(s) Significance:

Period(s) of Significance: c. 1952

Date(s) Constructed: c. 1952

Other Significant Construction Dates: *Discuss in Statement of Significance on Continuation Sheet.*

Date Source(s): Aerial photographs

Architect/Builder/Engineer: Unknown

Architect/Builder/Engineer Documentation:

Bibliography

Complete Bibliography on Continuation Sheet.

Additional Documentation

For all properties, the following additional documentation must be submitted with the inventory form. Refer to the Historic and Architectural Survey Manual for guidance.

1. Photographs
2. Maps

Preparer's Information and Recommendation

Preparer Name and Title: Kelli Andre Kellerhals, Sr. Architectural Historian

Organization/Firm (if applicable): 106 Group

Date Inventory Form Prepared: 9/9/2021

Recommended Individual Evaluation:

- [x] Eligible for the National Register
- [ ] Not Eligible for the National Register
- [ ] More Information Needed for Evaluation

- [ ] Eligible for Local Designation
- [ ] Not Eligible for Local Designation
- [ ] More Information Needed for Local Designation

Recommended District Evaluation:

- [ ] Within a National Register-Eligible District
  - Contributing Status:
  - District Name:
  - District Inventory Number:
- [ ] Within a Locally-Eligible District
  - Contributing Status:
  - District Name:
  - District Inventory Number:

Minnesota Historic Preservation Office Comments (MnHPO Use Only)

Initials: Date:

Individual Recommendation (NRHP)

- [ ] Concur
- [ ] Does Not Concur
- [ ] More Information Needed

Historic District Recommendation (NRHP)

- [ ] Concur
- [ ] Does Not Concur
- [ ] More Information Needed

Contributing/Noncontributing Status Recommendation

- [ ] Concur
- [ ] Does Not Concur
- [ ] More Information Needed

Comments:

Narrative Description

Hangar 101 is a single-bay, arched-roof hangar that is flanked by two-story, flat-roof maintenance and office wings on the east, south, and west elevations. The hangar is located in the southwest quadrant of the DIA, along the south side of Runway 9-27. The hangar and the wings were constructed simultaneously, circa 1952 (Nationwide Environmental Title Research, LLC [NETR] 1952).

The wings obscure the view of the arched-roof hangar sections such that the arched-roof hangar section is only visible above the two-story wings. Clerestory sections are located on the east and west elevations, above the two-story wings. The building is clad in horizontal wood siding and replacement vertical metal panels. The north elevation features a tall, 14-leaf sliding metal door that splits in the middle. Signs at the top of the arched section on the north and south elevations read “CAF.” The north elevation also features a small sign that reads “Aviation Museum” above the 14-leaf sliding door. Two wood-sided mechanical boxes are located at the top of the arched-roof hangar section. The two-story wings on the east, south, and west elevations have collapsed in several locations and the interior of the building is visible through these sections.

Fenestration on the north elevation includes the 14-leaf sliding metal door; three sets of 20-light windows in each door panel; and a 36-light metal window.

Fenestration on the east elevation includes three-light metal windows on the clerestory of the central hangar section. On the wing on the east elevation, fenestration includes a modern metal overhead garage door with three oval lights; single-light fixed metal windows; and single-leaf modern metal doors with single-lights.

Fenestration on the south elevation includes modern two-light sliding metal windows with transoms; single-leaf metal doors with single-lights; and single-light fixed metal windows.

Fenestration on the wing on the west elevation includes modern two-light sliding metal windows with transoms; single-leaf metal doors with single-lights; single-light fixed metal windows; and a modern overhead metal garage door. Fenestration on the clerestory of the central hangar section of the west elevation includes fixed metal windows.

The interior of the central hangar section consists of a large unobstructed open area with a poured concrete floor and poured concrete walls. On the east and west walls, the concrete walls extend from the floor to the bottom of the wooden crescent arches. On the south wall, the concrete wall stops halfway from the floor to the top of the crescent arch; above the concrete wall, the remainder of the wall is constructed of wood framing and cladding. The north wall is comprised of a pair of seven-leaf sliding doors. Each leaf is set on wheels, which move the leaves along seven parallel tracks inlaid into the concrete floor. When the doors are open, each leaf recesses behind the preceding leaf into a wood-clad pocket structure that extends beyond the width of the hangar.

The roof system of the hangar consists of seven, two-hinged, wooden crescent arch trusses. The trusses are approximately 164 feet from east to west, and are spaced approximately 23 feet apart, north to south (Google Earth 2021). Each truss is a crescent truss with an arched top and bottom chord and has wooden vertical and diagonal members arranged in a saw tooth pattern. Wooden lateral bracing between the trusses is in a vertical “X” pattern. The roof rafters span between the trusses and the rafters are sheathed with wooden boards laid at a diagonal. Each truss is bolted to concrete piers/buttresses embedded into the concrete walls on the east and west sides of the hangar.

Integrity:
This property retains excellent integrity of location as it remains in its original location on the south side of the main

runway at the DIA. The integrity of setting has been slightly compromised by the expansion of the airport runways over time, the loss of some surrounding historic buildings, particularly the Readiness Building, which was historically immediately to the west of Hangar 101, and the addition of new buildings in the vicinity. The integrity of design remains good, as the building does not appear to have had any significant changes that have altered the historic form of the building. The building was originally constructed with the wings and it retains its historic configuration of the central arched hangar flanked by wings on the east, west, and south elevations. Additionally, the wooden crescent trusses on the interior of the central hangar section, which give the hangar its distinctive structural system, remain intact. The integrity of materials is fair due to the addition of some modern materials, particularly on the wings. Such non-historic materials include vertical metal panels, modern doors, and windows, as well as some sections of the wings that have collapsed on the east, south, and west elevations. However, the north elevation of the hangar still retains its original wood cladding and metal hangar doors, thus retaining its historic appearance on the prominent elevation. The integrity of workmanship is good, as the central hangar section retains its distinctive structural system. The integrity of feeling has been slightly compromised by the current vacant status of the building, lack of use as a military airplane hangar, and collapsing condition of the wings. However, the central hangar section of the building retains its open, unobstructed space, which allows the vastness of the structure and its use as a hangar to still be understood. The integrity of association is fair as the conversion of many of the surrounding building to a federal prison minimizes the connection of the hangar to the former Duluth Air Base. Overall, this property retains fair integrity.

Statement of Significance

Property History:
This airplane hangar and its wings appear to have been constructed by 1952, when it is visible on historical aerial photographs (NETR 1952). In the DIA's 2015 Master Plan, this hangar is referred to as "Hangar 101," which is denoted as a "common hangar" and has an area of 20,000 square feet (RS&H 2015:52).

This hangar appears to have been constructed by the U.S. Air Force for the Duluth Air Base, which was operational from the 1950s to 1981. According to the DIA's Master Plan, the Air Force was responsible for developing much of the southwest quadrant of the DIA. Between 1951 and 1952, essential facilities for the Duluth Air Base were constructed, including "a hangar, temporary shacks next to the hangar, a motor service building, a crash and rescue station, and a heating plant" (Bradley et al. 2006:20).

Hangar 101 is one of the first buildings visible in historical aerial photographs of the area that was to become the Duluth Air Base, and is likely the "hangar" referenced in the essential facilities constructed by the Air Force in 1951-1952 (RS&H 2015:41-42; NETR 1952). In a 1952 historical aerial photograph of the Duluth Air Base, Hangar 101 is visible, along with a cross-shaped building immediately to the west of the hangar (NETR 1952). On construction site plans from 1954 for a different hangar – Hangar 103 – which is immediately west of the cross-shaped building, the cross-shaped building is identified as a "Readiness Building" and Hangar 103 is identified as "Maintenance Hangar with Shops A and B." However, Hangar 101 is not identified or named on the site plan for the Maintenance Hangar despite being depicted on the plans (Toltz, King & Day Inc. 1954). Plans, drawings, or historic names for this building, beyond the "Hangar 101" name established by the DIA, have not been found for Hangar 101.

Based on its location and function, the U.S. Air Force appears to have been responsible for the construction of Hangar 101 in the early 1950s. However, this was not able to be corroborated by primary source material. The history of airplane hangar design and construction in the U.S., and particularly hangar construction employed by the U.S. military and especially the Air Force, is inextricably tied to military aircraft advancements and the limitations on construction stemming from the U.S. military involvements from the early to mid-twentieth century. An airplane hangar is generally defined as a utilitarian structure that is used to house and service aircraft. Character defining features of a hangar include a large, unobstructed area that has sufficient space, which includes vertical clearance and floor space, to accommodate an aircraft, and an unobstructed opening that is tall and wide enough to allow an

aircraft to pass through (McCormick and Hufstetler 1994:8). Increased attention to airplane hangar design and construction coincided with the growth and build-up of airfields throughout the U.S. during World War I. Hangars were necessary for airplane storage and as a place to do repair and maintenance work on aircraft. As such, during World War I, the U.S. Army created a standardized hangar design that could be easily adapted for each airfield. These early hangars were utilitarian in design and were rectangular, wooden structures that could house several aircraft. Wooden trusses were a popular solution for structurally supporting roofs from the 1900s through the 1950s, especially in buildings where large, open spans were desired (Martinez et al. 2018). The hangars had low gambrel roofs and plain sliding doors at either end wall (McCormick and Hufstetler 1994:8). Larger, more technologically advanced aircraft were developed post-World War I and additional aviation advancements after World War II, including the development of jets, rockets, and helicopters, necessitated changes in hangar design and construction (NPS 1998:11). The post-World War II time period saw hangars being constructed of reinforced concrete or structural steel framing, which better accommodated the larger widths and heights of increasingly larger aircraft. Wings or lean-to additions also became common along one or both sides of the hangar to provide space for mechanical and auxiliary facilities. Banks of large windows were also found in hangars constructed during this time period to provide interior light and ventilation (McCormick and Hufstetler 1994:9).

Rising international tensions during the late 1930s prompted the first major build-up of Army air bases since 1918 and resulted in the construction of large hangars with clear-span interiors of 200 to 275 feet wide (McCormick and Hufstetler 1994:9). In 1941, as the need for more hangar space became critical, the Army turned to hangar designs that could be easily, quickly, and cheaply assembled. Hangars featured Warren-type roof trusses supported by steel columns; multi-leaf, sliding hangar doors that opened at one or both ends of the hangar; steel sash windows; fire resistant materials, such as asbestos-protected metal or corrugated asbestos siding; and wings along the sides of the hangar that provided needed auxiliary spaces (McCormick and Hufstetler 1994:9). World War II imposed restrictions on steel and other materials, and such limitations resulted in hangars being constructed with alternative materials, particularly wood trusses and reinforced concrete. A widely used design from this time featured a structural system that was formed by a series of closely spaced wooden ribs, of which one of three truss systems were employed: the arch rib, the bowstring arch, or the crescent arch. The bowstring arch featured an arched top chord and a straight bottom chord, while the crescent arch featured an arched top and bottom chord. The wooden members were constructed of small sections of laminated lumber, stacked together and bent to the curve of the arch radius, and then glued and spiked together (Engineering News Record 1944:118). Wooden arch trusses in either the bowstring arch or crescent arch configurations were supported on a system of concrete beam and buttressed columns (McCormick and Hufstetler 1994:9). For the most part, military hangars during World War II were used only for the storage and maintenance of aircraft (McCormick and Hufstetler 1994:10).

The Cold War era that followed World War II necessitated a change in hangar function from one of storage and maintenance to one of facilitating national defense capabilities. During the 1950s, the newly-created U.S. Air Force established air bases at strategic locations through the country to defend the country from any possible threats and attacks; the Duluth Air Base is one such example. As part of the air base development, specialty hangars were developed to house fighters, tankers, and other military aircraft at “readiness,” meaning they were ready to take off at a moment’s notice to defend the base and the surrounding area from an outside attack (McCormick and Hufstetler 1994:10). These specialty hangars were typically constructed at locations that would provide quick access to an air base’s runway and fell into one of two categories: an “alert” hangar and a “readiness” hangar. They are defined as follows:

"Alert hangars were designed to hold aircraft that could be manned and airborne within 90 seconds. The standard alert hangar plan featured four separate hangar “pockets,” each designed to shelter a single plane and equipped with fast-operating hangar doors at both ends. The pockets were configured in pairs on both sides of a central block, which contained maintenance facilities and waiting rooms for the flight crews" (McCormick and Hufstetler 1994:10).

"In contrast, a readiness hangar was intended as a more multi-purpose facility. First, it provided a space where planes could be kept under cover and warm, and taken out to the runway with considerable dispatch, although not quite as quickly as from an alert hangar. Second, it acted as an aircraft maintenance shop. Readiness hangars typically utilized the form of a standard World War II aircraft hangar: a central hangar space flanked on both sides by wings housing workshops, a boiler room, and other facilities. Such buildings typically had sufficient clearance and floor space to accommodate all but the largest bombers of the 1950s era" (McCormick and Hufstetler 1994:10).

While the first function of a readiness hangar was to house planes at the “ready,” the second function of a readiness hangar is maintenance. Indeed, as described in a 1952 issue of the Architectural Record, “[t]here is no thought, however, that planes would be kept lined up for instant service, or that they would actually flown out of the hangar. The readiness hangar is also a maintenance shop for anything short of major overhaul. It is quite possible to use the hangar for both readiness and service at the same time” (Architectural Record 1952:99).

Hangar 101 is designed with a large arched-roof hangar section in the center of the building and wings flanking the central hangar space along the east, south, and west elevations. In the interior of the hangar space, the hangar was designed using the crescent arch support system, a commonly used truss system stemming from material shortages during World War II (McCormick and Hufstetler 1994:9). The wooden crescent trusses are constructed with arched top and bottom chords that support the distinctive arched roof of the hanger. Theses trusses are braced by vertical bracing in a “V” pattern between the top and bottom chords. The use of such trusses allowed for an unobstructed interior hangar space to accommodate aircraft inside the hangar. The wings are two stories tall and likely provided auxiliary, office, and storage space for the hangar.

Architectural drawings and plans specific to Hangar 101 have not been found, nor has an architect or engineer of record. However, Hangar 101 is remarkably similar to the now-demolished Readiness Hangar that was constructed at Ellsworth Air Force Base in South Dakota in 1952. Like Hangar 101, the Ellsworth Readiness Hangar was a single-bay, arched-roof hangar flanked on the sides by shed-roof wings. The interior roof system of the Ellsworth hangar was constructed of seven, two-hinged wooden crescent arched trusses (McCormick and Hufstetler 1994:13). Hangar 101 is also constructed of seven, two-hinged wooden crescent arched trusses, and, like the Ellsworth Hangar, is of nearly the same dimensions: 160 feet by 118 feet. Also like Hangar 101, the Ellsworth Readiness Hangar was constructed in line with the Air Force’s efforts to improve the nation’s defense capabilities during the onset of the Cold War. The Ellsworth Readiness Hangar was documented by the Historic American Building Survey (HABS) in 1994 prior to its demolition; that documentation noted that the hangar was a “significant representation of period military hangar architecture…and its configuration typifies the basic form preferred for a readiness hangar by military planners of the early 1950s” (McCormick and Hufstetler 1994:2). While documentation has not been found on the historic use of Hangar 101, it is possible that the structure served as a readiness hangar for the Duluth Air Force Base, as both the Duluth Air Force Base and the Ellsworth Air Force Base both served air defense missions during the Cold War era.

The Duluth Air Base was closed in 1981. At that time, many of the buildings of the Duluth Air Base were converted into a federal prison. The Duluth ANG also took ownership of many buildings. It is not known how or by whom Hangar 101 was used after this time. However, the north and south elevations of the hangar feature signs that read “CAF.” The Confederate Air Force, now known as the Commemorative Air Force (CAF), occupied the building beginning at an unknown date, until 2018. The CAF acquires, restores and preserves a collection of combat aircraft that were flown by all military services of the U.S. The CAF used Hangar 101 as their maintenance shop and aviation museum until they moved to a new location in Superior, Wisconsin, in 2018 (CAF 2021). Since 2018, Hangar 101 has remained vacant.

Significance:
Hangar 101 was evaluated within the context “History of the Duluth International Airport, 1929-present” that was developed by the 106 Group in 2021 (Miller et al. 2021). The U.S. Air Force operated an air base at the DIA from the

1950s to 1981; during this time the Air Force built multiple structures to support their operations. Based on its location and function, Hangar 101 was likely constructed by the U.S. Air Force at a time of growth and expansion of the airport, in the early 1950s. This hangar appears to be one of the first structures constructed by the Air Force as part of this expansion. As the key role of the Duluth Air Base during this time was air defense, it is possible Hangar 101 was constructed as a readiness hangar and could have played an integral role in the Air Base's ability to fulfill its mission. Indeed, constructing a hangar as one of the first buildings on the new Air Base suggests that the hangar likely played a needed role in air defense while other strategic defense equipment, such as the SAGE system, were still under construction. However, documentation as to Hangar 101's historic name, use, or role within the air defense mission of the Duluth Air Base has not been found within the archives of the Minnesota Historical Society, the Northwest Architectural Archives, or in the records at the DIA. Online research regarding this hangar and the Duluth Air Base also yielded little information. As such it is not possible at this time to definitively evaluate Hangar 101's significance in the defense mission of the Duluth Air Base. Further research into the historic role of Hangar 101 is necessary to determine any potential significance under NRHP Criterion A.

This property is not known to be associated with significant individuals and, therefore, does not have significance under NRHP Criterion B.

National Register Bulletin #43 notes that air-related facilities may be eligible for the National Register of Historic Places (NRHP), in the area of Architecture, if they are good representations of a type, period, or method of construction (NPS 1998:46). Hangar 101 was constructed with a central arched-roofed hangar section that is flanked on the east, west, and south elevations by shed-roof wings. The central hangar section is an open expanse created by seven wooden crescent arches with arched top and bottom chords. The remarkably similar Readiness Hangar at the Ellsworth Air Force Base was a documented standard plan hangar designed by the Air Force. Based on the design of this hangar, it is likely Hangar 101 was a standard military plan designed by the U.S. Army Corp of Engineers, which played a key role in the drafting and standardization of military hangars and buildings during this time period. Such Air Force standard plan hangars included character defining features such as unobstructed hangar space, maintenance and auxiliary spaces flanking the hangar area, and large doors that allowed aircraft to pass through. These types of hangars serve as significant representations of a period military airplane hangar architecture, as the building's form and design were preferred by the military for new hangar construction during World War II and influenced hangar design through the Cold War. Additionally, Hangar 101 was constructed using wooden crescent trusses, which is a somewhat unusual construction material for a post-World War II hangar. Wartime material shortages had eased by the time Hangar 101 was constructed and hangars constructed in the 1950s typically relied on heavy steel framing for the structure and cladding; as exemplified by Hangar 103 (the Maintenance Hangar with Shops A and B) at the DIA, which was constructed around 1954 (McCormick and Hufstetler 1994:11). The reason for Hangar 101's wood construction is not known, although it could be theorized that the wooden arch design was less expensive than a steel design, or may have allowed for the use of an already-existing blueprint. While wooden construction hangars were popular in early hangar construction, a 2011 report on hangar construction from World War I through the Cold War noted that few wooden hangars survive, with many having been demolished (such as the Ellsworth Readiness Hangar) and extant ones scheduled for demolition (Aaron 2011:77). Therefore, Hangar 101 is a rare example of a diminishing number of wooden Air Force designed hangars. As such, Hangar 101 has significance under NRHP Criterion C, in the area of Architecture, for its embodiment of typical period military airplane hangar construction, its unique wooden crescent truss method of construction used during a time period of heavy steel construction, and its likely association as an Air Force standard plan hangar. The recommended period of significance is circa 1952, when the hangar and its wings were constructed. The recommended property boundary is the footprint of the hangar and the wings.

This property has not yielded, nor is likely to yield, information important in prehistory or history. Therefore it does not appear to have significance under NRHP Criterion D.

Recommendation:
Hangar 101 is recommended as eligible for the NRHP under Criterion C, in the area of Architecture. The recommended property boundary is the footprint of the hangar and the wings.

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1954 Duluth Air Force Base Index. Toltz, King & Day, Inc. St. Paul, Minnesota. Plans on file at the Northwest Architectural Archives, University of Minnesota, Minneapolis, Minnesota.

Property Photograph(s)

SL-DUL-3641 - 3/29/2021 - South Elevation, Facing North (SEH)

SL-DUL-3641 - 5/25/2021 - South & East Elevations, Facing Northwest

SL-DUL-3641 - 3/29/2021 - East Elevation, Facing West (SEH)

SL-DUL-3641 - 5/25/2021 - North Elevation, Facing Southeast

SL-DUL-3641 - 3/29/2021 - North Elevation, Facing South (SEH)

SL-DUL-3641 - 5/25/2021 - North & East Elevations, Facing Southwest

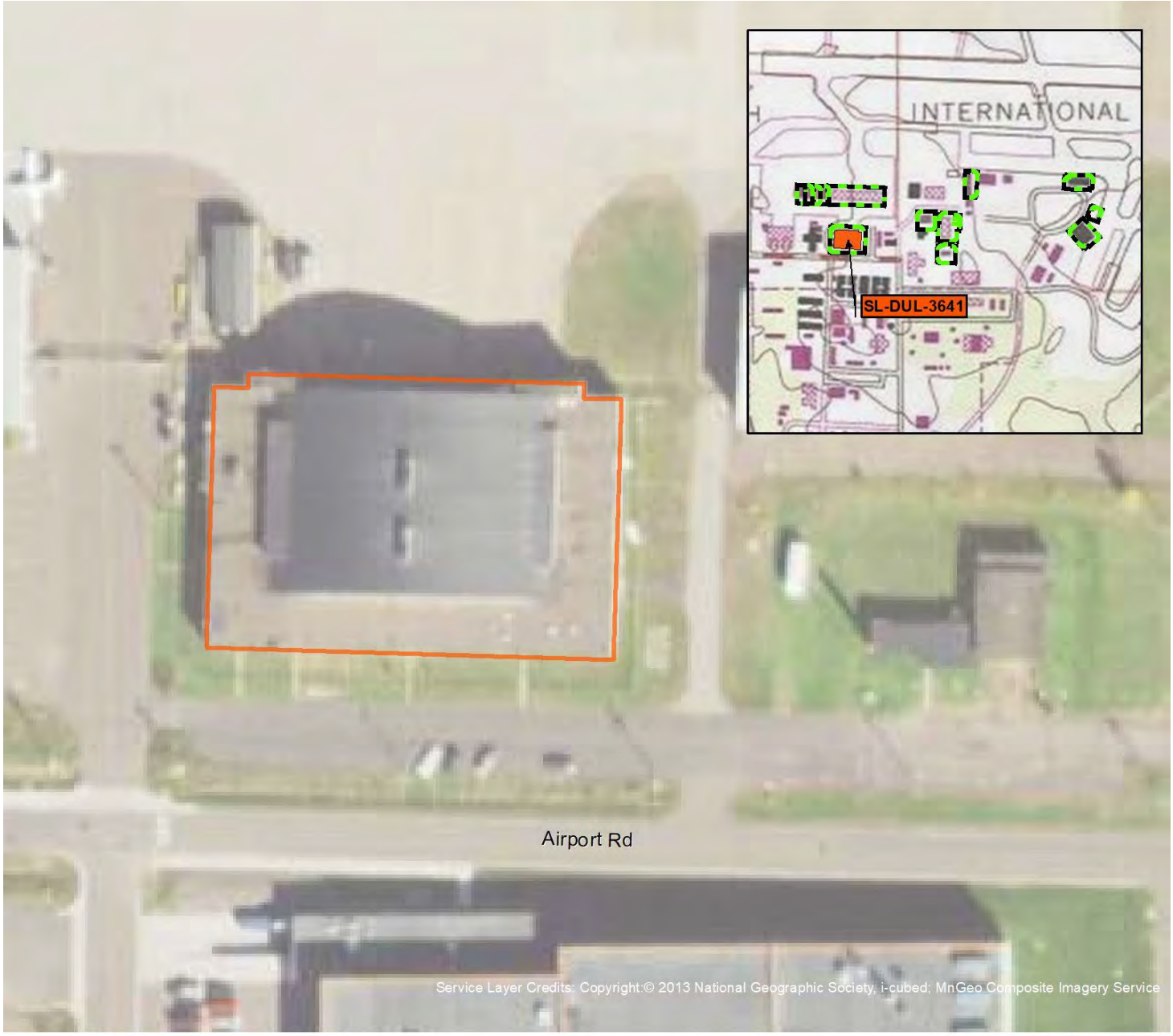
SL-DUL-3641 - 3/29/2021 - West Elevation, Facing East (SEH)

SL-DUL-3641 - 3/29/2021 - Interior of Central Hangar, Facing Northeast (SEH)

SL-DUL-3641 - 3/29/2021 - Interior of Central Hangar, Facing Southeast (SEH)

SL-DUL-3641 - 9/9/2021 - Ellsworth Readiness Hangar, Exterior (McCormick and Hufstetler 1994)

SL-DUL-3641 - 9/9/2021 - Ellsworth Readiness Hangar, Interior (McCormick and Hufstetler 1994)



Source: 106 Group; SEH

Map Produced by 106 Group 9/9/2021

Duluth International Airport Master Plan Project

Duluth, St. Louis County, Minnesota

SL-DUL-3641

4931 Airport Road

Duluth, St. Louis County, Minnesota

Survey Area

Inventoried Property

0 20 Meters

0 50 Feet

1:1,000

106GROUP

Map 1

Appendix C2
State Historic Preservation Office's Letter of Concurrence with the FAA's Adverse Effect Finding - November 15, 2021

November 15, 2021 **Via Email Only**

Mr. Josh Fitzpatrick
Environmental Protection Specialist
Federal Aviation Administration
Dakota –Minnesota Airports District Office
6020 28th Avenue South, Room 102
Minneapolis, MN 55450

Re: Proposed Demolition of Hangar 101, Duluth International Airport
Duluth, St. Louis County
SHPO Number: 2022-0198

Dear Josh Fitzpatrick:

Thank you for initiating consultation on the above referenced project. Information received on October 13, 2021 has been reviewed pursuant to the responsibilities given the State Historic Preservation Officer by Section 106 of the National Historic Preservation Act of 1966 and implementing federal regulations at 36 CFR 800.

We have reviewed the information included with your submission which included the following documentation:

- Request for Project Review form (dated 10/13/201)
- FAA Cover Letter (dated 10/13/2021)
- FAA Determination of Effect Document (dated 10/13/2021)
- Project Location and Area of Potential Effects (APE) Maps
- Photos of Existing Conditions – Hangar 101
- Report titled *Reconnaissance Architectural History Survey for the Duluth International Airport Master Plan Project, Duluth, St. Louis County, Minnesota* (106 Group, September 2021)
- Report titled *Intensive Architectural History Survey of Hangar 101 for the Duluth International Airport Master Plan Project, Duluth, St. Louis County, Minnesota* (106 Group, September 2021)

Our comments are provided below.

Define Undertaking and Area of Potential Effects
According to your corredspondece, the Duluth International Airport (DIA) is proposing to demolish Hangar 101 due to health and safety concerns. The wings on the east, south, and west elevations have collapsed in several locations. The DIA has looked at alternatives to demolition, including reconstructing the building, but analysis has revealed that rehabilitation would be cost prohibitive. The DIA also does not have a use for the hangar. The Federal Aviation Administration (FAA) has determined that the proposed demolition of Hangar 101 is a federal undertaking subject to review under Section 106 of the National Historic Preservation Act.

We have completed our review of the documentation provided in regards to your agency's determination of the area of potential effect (APE) for the Federal undertaking. We agree that this APE determination is generally appropriate to take into account the potential direct and indirect effects of the proposed undertaking as we currently understand it. As the project's scope of work is further defined, or if it is significantly altered from the current scope, additional consultation with our office may be necessary in order to revise the current APE.

Archaeological Resources
Based on the information provided, we agree that there is a low likelihood for intact archaeological resources being present within the project APE. Therefore, we do not believe that an archaeological survey is warranted for the project as it is currently proposed.

History/Architecture Properties
We agree with your agency's determination that no further Phase II survey is warranted for the following eleven (11) properties: Hangar 622 (SL-DUL-3636), Hangar (SL-DUL-3637), Building 616 / Air Traffic Control Tower (SL-DUL-3638), Hangar 608 (SL-DUL-3639), Building 306 (SL-DUL-3640), Hangar 107 (SL-DUL-3642), Hangar 106 (SL-DUL-3643), Hangar 15 / EAA 272 (SL-DUL-3644), Hangar 104 (SL-DUL-3645), Building 305 / Hydro Solutions of Duluth (SL-DUL-3646) and Building 308 / Duluth Composite Squadron, Civil Air Patrol (SL-DUL-3647).

We also agree with your agency's determination that **Hangar 101** (SL-DUL-3641) is **eligible** for listing in the National Register of Historic Places (NRHP). Although the building has suffered substantial damage at the wings, the main hangar structure is largely intact, including its distinctive wooden crescent truss roof and 14-leaf sliding metal door on the north elevation. Given that the main arched-roof hangar is the most substantial and significant component of the entire building, it is important that this section is intact, has not been altered, and therefore retains good overall integrity. As a result, we agree that Hangar 101 is eligible for listing in the NRHP.

Determination of Effect
We concur with your agency's finding that the demolition of Hangar 101 will have an **adverse effect** on the historic property. Please notify the Advisory Council on Historic Preservation of the adverse effect determination and allow them the opportunity to participate in accordance with 36 CFR 800.6(a)(1).

Consulting Party/Public Participation
We assume that your agency has provided the public and other consulting parties with an opportunity to review and comment on the proposed undertaking and its effects on historic properties as required under 36 CFR 800.4(d)(1). Please notify our office if your agency has received, or receives after we issue this comment letter, from a consulting party or the public, any written disagreements with your agency's Section 106 findings and determinations.

We look forward to working with you on ways to avoid, minimize, or mitigate for the adverse effects of this project.

If you have any questions regarding our review of this project, please contact Kelly Gragg-Johnson, Environmental Review Program Specialist, at kelly.graggjohnson@state.mn.us.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

Appendix D
U.S. Fish and Wildlife Service Information, Planning and Consultation Results

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

In Reply Refer To: May 23, 2022
Project code: 2022-0045452
Project Name: Hangar 101 Removal

Subject: Verification letter for the 'Hangar 101 Removal' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear John Thayer:

The U.S. Fish and Wildlife Service (Service) received on May 23, 2022 your effects determination for the 'Hangar 101 Removal' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with ESA Section 7(a)(2) only for the northern long-eared bat. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Canada Lynx *Lynx canadensis* Threatened
- Gray Wolf *Canis lupus* Threatened
- Monarch Butterfly *Danaus plexippus* Candidate
- Piping Plover *Charadrius melodus* Endangered
- Red Knot *Calidris canutus rufa* Threatened

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

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[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Hangar 101 Removal

2. Description

The following description was provided for the project 'Hangar 101 Removal':

> The project proposes to demolish and remove Hangar 101 from the Duluth International Airport.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.837928250000004,-92.1978133858965,14z

Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may

affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

   No

3. Will your activity purposefully **Take** northern long-eared bats?

   No

4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/media/nleb-roost-tree-and-hibernacula-state-specific-data-links-0.

   Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

7. Will the action involve Tree Removal?

   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type ‘0’ in questions 1-3.

1. Estimated total acres of forest conversion:

0

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type ‘0’ in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type ‘0’ in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type ‘0’ in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC User Contact Information

Agency: SEH INC
Name: John Thayer
Address: 418 W. Superior Street, Suite 200
City: Duluth
State: MN
Zip: 55016
Email jthayer@sehinc.com
Phone: 6128605087

Lead Agency Contact Information

Lead Agency: Federal Aviation Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873
http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html

In Reply Refer To: May 23, 2022
Project Code: 2022-0045452
Project Name: Hangar 101 Removal

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species
The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of "There are no listed species found within the vicinity of the project," then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats

Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),

- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

If any of the above activities are proposed, please use the northern long-eared bat determination key in IPaC. This tool streamlines consultation under the 2016 rangewide programmatic biological opinion for the 4(d) rule. The key helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. No further review by us is necessary.

Please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the bat by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of northern long-eared bats after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Whooping Crane

Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of

Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination

While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
(952) 252-0092

Project Summary

Project Code: 2022-0045452
Event Code: None
Project Name: Hangar 101 Removal
Project Type: Airport - Maintenance/Modification
Project Description: The project proposes to demolish and remove Hangar 101 from the Duluth International Airport.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.837928250000004,-92.1978133858965,14z

Counties: St. Louis County, Minnesota

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf *Canis lupus* Population: MN There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4488	Threatened
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Canada Lynx *Lynx canadensis* https://ecos.fws.gov/ecp/species/3652#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Tern *Chlidonias niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3093	Breeds May 15 to Aug 20

NAME	BREEDING SEASON
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Common Tern *Sterna hirundo hirundo* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Aug 31
Connecticut Warbler *Oporornis agilis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Aug 10
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Golden-winged Warbler *Vermivora chrysoptera* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745	Breeds May 1 to Jul 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

NAME	BREEDING SEASON
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

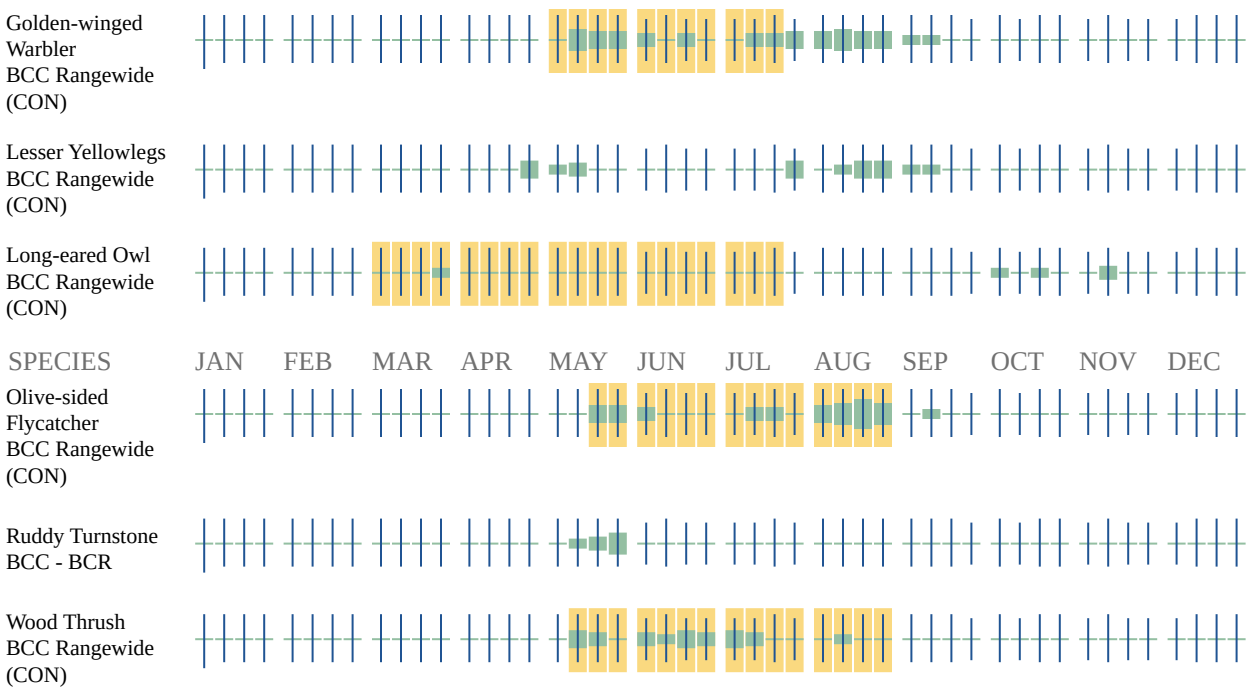
Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPaC User Contact Information

Agency: SEH INC
Name: John Thayer
Address: 418 W. Superior Street, Suite 200
City: Duluth
State: MN
Zip: 55016
Email jthayer@sehinc.com
Phone: 6128605087

Appendix E
Asbestos Inspection and Regulated Waste Assessment at Hangar 101 – August 16, 2021

Building a Better World
for All of Us®

August 16, 2021

RE: DLH Hangar 101 Demolition (Final Design)
4931 Airport Road, Hermantown, MN 55811
Asbestos Inspection and
Regulated Waste Assessment
SEH No. DULAI 159869

Mark Papko, A.A.E
Director of Operations
Duluth Airport Authority
4701 Grinden Drive
Duluth, Minnesota 55811

Dear Mr. Papko:

Short Elliott Hendrickson Inc. (SEH®) was retained by the Duluth Airport Authority (DAA) to complete an Asbestos Inspection and Regulated Waste Assessment (RWA) at the Duluth International Airport (DLH) Hangar 101, (herein referred to as "Hangar") located at 4931 Airport Road, Hermantown, Minnesota 55811. The Hangar's location is depicted on **Figure 1**.

During the Asbestos Inspection a total of 141 samples were collected and documented on a EMSL Analytical, Inc. (EMSL) Chain-of-custody. These samples were packaged and mailed from Duluth via FedEx to the Minneapolis EMSL laboratory.

ASBESTOS INSPECTION

Joseph Pearson and Michael Hanson, certified asbestos inspectors (**Attachment A**), completed the asbestos inspection on March 23, 24 and April 27 of 2021. The asbestos inspection was conducted in accordance with Minnesota Department of Health (MDH) asbestos inspection and assessment rules (Section 4620.3460) and U.S. Environmental Protection Agency (USEPA) guidance documents. The asbestos inspection is intended to meet the requirements of the National Emission Standard for Hazardous Air Pollutants (NESHAP) Subpart M – National Emission Standard for Asbestos. The Minnesota Pollution Control Agency (MPCA) enforces the NESHAP regulation in Minnesota.

The potential exists that asbestos containing material (ACM) may be located within wall cavities, above ceilings, under floors and in other inaccessible areas. During the inspection, the inspector attempted to identify if suspect material existed in these inaccessible areas. Suspect material in these areas should be assumed to contain asbestos and should not be disturbed. If disturbance of the suspect material is required, the material should first be sampled and tested for the presence of ACM or should be assumed to contain asbestos and be handled accordingly.

CONDITIONS AND ASSUMED ACM

During the inspection of the Hangar, it could not be confirmed whether power was live or not, samples of the electrical system were unable to be collected and should be considered as assumed ACM. Also, portions of the Hanger had collapsed prior to the inspection, the collapsed areas were deemed unsafe to assess and the potential for ACM exists in these areas. Due to height limitations and the partial collapse

of the hanger it was determined accessing the roof for sampling was unsafe, roofing samples were collected from debris in collapsed areas.

Assumed ACM must be treated as asbestos containing unless representative samples are collected by a MDH certified asbestos inspector, analyzed by Polarized Light Microscopy (PLM) by a Minnesota certified lab, and contain 1% or less of asbestos.

Assumed ACM		
Location	Material	Estimated quantity
Throughout	Electrical wiring and associated panels	Unknown
Throughout	Thermal Pipe wrap	Unknown
Roof	Roofing Material	35,000 square feet

The assessed property consisted of a large open hangar with two story attached spaces on three of four of the sides. These spaces consisted of approximately 30 rooms with various uses (bathrooms, offices, utility rooms, and garages) and the second story consisting mainly of storage space. The Hangar consists of a poured concrete foundation, floor and support walls with timbers supporting the ceiling. The additional rooms consist of a poured concrete foundation and floor with timber framing with various types of materials making up the interior walls.

A walk-through inspection was conducted to identify suspect ACM. Destructive bulk samples of each suspect ACM were collected in accordance with USEPA guidance documents. Building floor plans are available in **Figure 2**. SEH took several photos of the building during the walk-through and select photos have been compiled into a Photo Journal (**Attachment B**). The EMSL laboratory is accredited by the National Institute of Science and Technology (NIST) through the National Voluntary Laboratory Accreditation Program (NVLAP) (NIST-NVLAP No. 200019-0).

Results of the asbestos inspection indicate that seventeen building materials in or on the structures have met the definition of ACM (i.e., contain more than 1% asbestos), these materials are presented in the table below. The PLM analytical results are summarized in **Table 1** and the EMSL laboratory report is included in **Attachment C**.

Asbestos Analytical Results					
Sample ID	Location	Material	Results	Estimated Quantity	Photo Journal Photo Number
M-2-(1-9)	Throughout	Plaster (gray)	18% Chrysotile	20,000 square feet	Photo 1
M-4-(1-4)	Throughout	Gray plaster	2% Chrysotile	20,000 square feet	Photo 2
M-6-(1&2)-Floor tile	Stock Room	Floor Tile (dark green)	4% Chrysotile	2,000 square feet	Photo 3
S-2-3	Throughout	White Surfacing	5% Chrysotile	500 square feet	NA
S-2-3	Throughout	Black Surfacing	5% Chrysotile	500 square feet	NA
M-11-(1-3)-Floor tile	Throughout	Floor tile (various)	8% Chrysotile	8,000 square feet	Photo 4
M-16-1-Floor tile	Throughout	Tile (brown)	9% Chrysotile	8,000 square feet	Photo 5

Sample ID	Location	Material	Results	Estimated Quantity	Photo Journal Photo Number
M-18-(1-9)-Floor tile	Throughout	Floor tile (tan)	4% Chrysotile	8,000 square feet	Photo 6
M-18-(1-9)-Adhesive	Throughout	Adhesive (black)	7% Chrysotile	8,000 square feet	Photo 6
M-20-(1-4)-Floor tile	Throughout	Floor tile (black)	6% Chrysotile	8,000 square feet	Photo 7
M-20-(1-4)-Adhesive	Throughout	Adhesive (black)	6% Chrysotile	8,000 square feet	Photo 7
M-31-(1-4) – floor tile	Room #30	Floor tile (black)	5% Chrysotile	1,000 square feet	Photo 7
TSI-1-(1&2)-Wrap	Stock room C	Pipe wrap (various)	56% Chrysotile	100 linear feet	Photo 8
TSI-2-1-Wrap	Stock room C	Wrap (white)	27% Amosite	100 linear feet	Photo 9
TSI-5-1-Wrap	Room #20	Wrap (white)	23% Amosite 6% Chrysotile	100 linear feet	Photo 10
TSI-6-1-Wrap	Room #18	Wrap (white)	23% Amosite 3% Chrysotile	100 linear feet	Photo 11
TSI-8-1-Wrap	West side hangar	Wrap (gray)	8% Chrysotile	100 linear feet	Photo 12

Additionally, bulk paint samples were collected from the Hangar for laboratory analysis. These paint samples were analyzed for lead at EMSL using Flame Atomic Absorption Spectroscopy (AAS) by method SW 846 3050B/7000B. One sample was collected of the interior paint and one from the exterior. Lead-based paint is defined as paint that exceeds 5,000 parts per million (ppm) per square centimeter (40 CFR 745.103). Both samples collected exceeded the regulatory standard. Based off of the laboratory results and age of the structure that all paint it can be assumed that all paint is lead-based. The laboratory results are summarized in **Table 2** and Included in **Appendix D**.

Lead Analytical Results			
Sample ID	Location	Results (ppm)	Estimated Quantity
Pb-1	Room #20	61,000	250 square feet
Pb-3	Exterior paint	77,000	15,000 square feet

REGULATED WASTE ASSESSMENT

A RWA was performed along with the asbestos inspection. The purpose of the RWA is to identify materials, other than ACMs, that were encountered at the property and would need to be segregated from construction and demolition debris prior to demolition. Hazardous and regulated waste items must be removed and properly disposed prior to demolition of the buildings and cannot be treated as construction and demolition waste material as defined in MN Administrative Rule 7035.0030, subpart 30.

The following regulated waste observations were made at the Hanger:

Room #1 - Main Hanger

- High intensity discharge (HID) bulb – 64
- Electrical panel – 31
- 55-gallon plastic drum – 10
- Overhead heater – 9

- Alarm bells – 6
- Fire pull – 5
- Thermostat – 3
- Loudspeakers – 2
- Garage door opener – 1

Room #2 - Men's Restroom
- Hydraulic door opener – 1

Room #3 - Stock Room D
- Florescent bulbs – 4
- Light Ballasts – 2
- Telephone – 1

Room #4 - Stock Room C
- Florescent bulbs – 22
- Light Ballasts – 15
- Circuit breaker panel – 9
- Miscellaneous electronics – 5
- 55-gallon plastic drum – 2
- 20-gallon plastic tank
- Electrical panel – 1
- Gas heater – 1

Room #5 - Stock Room B
- Florescent bulbs – 22
- Light Ballasts – 15
- Circuit breaker panel – 9
- Miscellaneous electronics – 5
- 55-gallon plastic drum – 2
- 20-gallon plastic tank
- Electrical panel – 1
- Gas heater - 1

Room #6 – Undesignated
- Florescent bulbs – 4
- Lights ballasts – 1

Room #7 – Undesignated
- Florescent bulbs – 20
- Lights ballasts – 5

Room #8 – Undesignated
- HID bulbs – 3

Room #9 - Undesignated
- Florescent bulbs – 4

- Light Ballasts – 2

Room #10 - Undesignated
- Florescent bulbs – 4
- Light Ballasts – 2
- Circuit breaker panel – 1

Room #11 - Undesignated
- Florescent bulbs – 4
- Light Ballasts – 2
- Circuit breaker panel – 1

Room #12 – Supply Room
- Florescent bulbs – 10
- Light Ballasts – 5

Room #13 – Storage
- Florescent bulbs – 32
- Light ballasts – 8
- Baseboard heaters – 2
- Thermostats – 1

Room #14 - Maintenance
- Florescent bulbs – 32
- Light Ballasts – 8
- Baseboard heater – 2
- Thermostat – 1
- Hydraulic door closer – 1
- Alarm bell – 1
- Circuit breaker panel – 1

Room #15 - Storage
- Florescent bulbs – 34
- Light ballasts – 17
- Circuit breaker panel – 2
- Hydraulic door closer – 2
- Thermostats – 2
- Baseboard heater – 2

Room #16 - Storage
- Florescent bulbs – 56
- Light ballasts – 28
- Baseboard heaters – 8
- Electrical panels – 2
- Circuit breakers panel – 2
- Thermostat – 2

Room #17 - Storage

- Florescent bulbs – 8
- Light ballasts – 4
- Baseboard heaters – 3

Room #18 – Women's Restroom

- Florescent bulbs – 8
- Miscellaneous cleaning supplies – 6
- Light ballasts – 4
- Electrical fan – 1

Room #19 – Storage

- Florescent bulbs – 18
- Light ballasts – 12
- Gas meters – 2
- Baseboard heaters – 2

Room #20 - Storage

- 55-gallon plastic drums – 6
- Water heater – 1
- Circuit breaker panel – 1

Room #21 – 2nd Floor Storage

- Florescent bulbs – 12
- Light ballasts – 6
- Drum of pipe wrap – 1
- Exit sign – 1
- Box of electrical equipment – 1

Room #22 – Exhibit Room

- Florescent bulbs – 16
- Light ballasts – 8
- Baseboard heater – 4

Room #23 – Exhibit Room

- Florescent bulbs – 16
- Light ballasts – 8
- Baseboard heater – 2
- Door closer – 1
- Thermostat – 1

Room #24 – Exhibit Room

- Florescent bulbs – 16
- Light ballasts – 8
- Baseboard heater – 2
- Thermostat – 1

Room #25 – Exhibit Room

- Hydraulic door closer – 1
- Baseboard heater – 1
- Thermostat – 1

Room #26 – Storage

- Florescent bulbs – 8
- Light ballasts – 4
- Baseboard heater – 1

Room #27 – Exhibit Room

- Florescent bulbs – 24
- Light ballasts – 12
- Thermostat – 1
- Baseboard heater – 1

Room #28 – Flight Simulators

- Florescent bulbs – 20
- Light ballasts – 10
- Baseboard heater – 1

Room #29 – Exhibit Room

- Florescent bulbs – 20
- Light ballasts – 10
- Baseboard heater – 1

Room #30 – Exhibit Room

- Florescent bulbs – 24
- Light ballasts – 12
- Circuit breaker panel – 1
- Thermostat – 1

If you have any questions or comments regarding the results of the asbestos inspection and RWA, please feel free to call me at 763.218.9982, or by email at JPearson@sehinc.com.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

Joseph Pearson
Environmental Scientist

Attachments:
Table 1 – Data for Bulk Asbestos Samples
Table 2 – Data for Bulk Lead Samples

Figure 1 – Site Location
Figure 2 – Site Layout

Attachment A – Inspector Certifications
Attachment B – Photo Log
Attachment C – EMSL Asbestos Analytical Laboratory Reports
Attachment D – EMSL Lead Analytical Laboratory Reports

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Tables

Table 1
Data for Bulk Asbestos Samples - DLH Hangar 101 Demolition (Final Design)
4931 Airport Road, Hermantown, MN 55811
SEH Project No. DULAI 159869

Material Category	Sample ID	Sample location	Description and Type of Suspect Material	Estimated Quantity	Asbestos Type and % by PLM
S	S-1-1	Throughout	Black Mastic	NA	ND
S	S-1-2	Throughout	Black Mastic	NA	ND
S	S-2-(1&2)-Surfacing	Throughout	White surfacing	NA	<1% Chrysotile
S	S-2-(1&2)-Surfacing	Throughout	Black surfacing	NA	<1% Chrysotile
S	S-2-3	Throughout	Sample Not Received By Lab		
S	S-3-1	Room #17	Black surfacing	NA	ND
S	S-4-1-Surfacing	Room #20	Black surfacing	NA	ND
S	S-4-1-Surfacing	Room #20	Green surfacing	NA	ND
S	S-4-1-Surfacing	Room #20	Gray Surfacing	NA	ND
S	S-5-1-Trim	Room #30	Black	NA	ND
S	S-5-1-Mastic	Room #30	Trim mastic (yellow)	NA	ND
M	M-1-1	Garage	Gasket (gray)	NA	ND
M	M-2-(1-9)	Throughout	Plastic (gray)	20,000 square feet	18% Chrysotile
M	M-3-(1-6)	Throughout	Sheetrock (tan)	NA	ND
M	M-4-(1-4)	Throughout	Gray plastic	20,000 square feet	2% Chrysotile
M	M-5-(1-3)	Throughout	Sheetrock (gray)	NA	ND
M	M-6-(1&2)-Floor tile	Stock Room	Floor Tile (dark green)	20,000 square feet	4% Chrysotile
M	M-6-(1&2)-Mastic	Stock Room	Mastic (tan)	NA	ND
M	M-6-(1&2)-Mastic	Stock Room	Mastic (black)	NA	ND
M	M-7-(1-5)	Throughout	Insulation (yellow)	NA	ND
M	M-8-(1-3)	Throughout	Adhesive pucks (brown)	NA	ND
M	M-8-(4&5)-Pucks	Throughout	Adhesive pucks (tan)	NA	ND
M	M-8-(4&5)-Pucks	Throughout	Adhesive pucks (brown)	NA	ND
M	M-9-(1-4)	Throughout	Wall tile (white)	NA	ND
M	M-10-(1-6)	Throughout	Insulation (pink)	NA	ND
M	M-10-(4&6)-Adhesive	Throughout	Insulation (pink) adhesive	NA	ND
M	M-10-(4&6)-insulation	Throughout	Insulation (various)	NA	ND
M	M-11-(1-3)-Floor tile	Throughout	Floor tile (various)	8,000 square feet	8% Chrysotile
M	M-11-(1-3)-Adhesive	Throughout	Floor tile adhesive (black)	NA	ND
M	M-12-(1-9)	Throughout	Sheetrock (white)	NA	ND

Table 1
Data for Bulk Asbestos Samples - DLH Hangar 101 Demolition (Final Design)
4931 Airport Road, Hermantown, MN 55811
SEH Project No. DULAI 159869

Material Category	Sample ID	Sample location	Description and Type of Suspect Material	Estimated Quantity	Asbestos Type and % by PLM
M	M-12-(3,4,7,8)-Joint compound	Throughout	Joint compound (white)	8,000 square feet	<1% Chrysotile
M	M-12-(3&7)-Tape	Throughout	Tape (blue	NA	ND
M	M-13-(1-3)	Throughout	Ceiling tile (white)	NA	ND
M	M-14-(1&2)	Throughout	Sheetrock (white)	NA	ND
M	M-14-2-Joint compound	Throughout	Joint compound (white)	NA	ND
M	M-14-2-Tape	Throughout	Tape (gray)	NA	ND
M	M-15-(1&2)	Throughout	Tar paper (black)	NA	ND
M	M-15-1-Adhesive	Throughout	Adhesive (black)	NA	ND
M	M-15-1-Paper	Throughout	Paper (tan)	NA	ND
M	M-16-1-Floor tile	Throughout	Tile (brown)	8,000 square feet	9% Chrysotile
M	M-16-1-Adhesive	Throughout	Adhesive (black)	NA	ND
M	M-17-(1&2)	Throughout	Sheetrock (white with brown back)	NA	ND
M	M-18-(1-9)-Floor tile	Throughout	Floor tile (tan)	8,000 square feet	4% Chrysotile
M	M-18-(1-9)-Adhesive	Throughout	Adhesive (black)	8,000 square feet	7% Chrysotile
M	M-19-(1-7)	Throughout	Ceiling tile (white with brown back)	NA	ND
M	M-20-(1-4)-Floor tile	Throughout	Floor tile (black)	8,000 square feet	6% Chrysotile
M	M-20-(1-4)-Adhesive	Throughout	Adhesive (black)	8,000 square feet	6% Chrysotile
M	M-21-(1&2)	Room #16	Sample Not Received By Lab		
M	M-22-1	Throughout	Sample Not Received By Lab		
M	M-24-(1&2)	Woman's restroom	Sample Not Received By Lab		
M	M-25-(1-3)	Woman's restroom	Sample Not Received By Lab		
M	M-26-(1-3)	Woman's restroom	Sample Not Received By Lab		
M	M-27-(1&2)	Room #19	Sample Not Received By Lab		
M	M-28-(1&2)	Throughout	Sample Not Received By Lab		
M	M-29-(1-4)	Museum area - east side	Sample Not Received By Lab		
M	M-30-(1&2)	Room #30	Sample Not Received By Lab		
M	M-31-(1-4)	Room #30	Sample Not Received By Lab		
M	M-32-(1-4)	Main hangar	Sample Not Received By Lab		
M	M-33-(1-3)	North main hangar door	Sample Not Received By Lab		
M	M-34-1	Exterior east side	Tar paper (black)	NA	ND

Table 1
Data for Bulk Asbestos Samples - DLH Hangar 101 Demolition (Final Design)
4931 Airport Road, Hermantown, MN 55811
SEH Project No. DULAI 159869

Material Category	Sample ID	Sample location	Description and Type of Suspect Material	Estimated Quantity	Asbestos Type and % by PLM
M	M-35-(1&2)	Exterior window	Caulking (white)	NA	ND
M	M-36-1-Roofing	South hangar roof	Roofing material (brown)	NA	ND
M	M-36-1-Felt	South hangar roof	Roofing felt (brown)	NA	ND
M	M-36-1-Roofing	South hangar roof	Roofing material (black)	NA	ND
TSI	TSI-1-(1&2)-Wrap	Stock room C	Pipe wrap (various)	100 linear feet	56% Chrysotile
TSI	TSI-1-(1&2)-Adhesive	Stock room C	Adhesive (white)	NA	ND
TSI	TSI-1-(1&2)-Pipe	Stock room C	Pipe (tan)	NA	ND
TSI	TSI-2-1-Pipe	Stock room C	Pipe (various)	NA	ND
TSI	TSI-2-1-Wrap	Stock room C	Wrap (white)	100 linear feet	27% Amosite
TSI	TSI-3-1-Pipe	Room #16	Pipe (various)	NA	ND
TSI	TSI-3-1-Wrap	Room #16	Wrap (orange)	NA	ND
TSI	TSI-5-1-Pipe	Room #20	Pipe (various)	NA	ND
TSI	TSI-5-1-Wrap	Room #20	Wrap (white)	100 linear feet	23% Amosite 6% Chrysotile
TSI	TSI-6-1-Pipe	Room #18	Pipe (various)	NA	ND
TSI	TSI-6-1-Wrap	Room #18	Wrap (white)	100 linear feet	23% Amosite 3% Chrysotile
TSI	TSI-7-1-Pipe	Room #22	Pipe (various)	NA	ND
TSI	TSI-7-1-Wrap	Room #22	Wrap (various)	NA	ND
TSI	TSI-8-1-Pipe	West side hangar	Pipe (gray)	NA	ND
TSI	TSI-8-1-Wrap	West side hangar	Wrap (gray)	100 linear feet	8% Chrysotile
TSI	TSI-9-1-Pipe	West side hangar	Pipe (gray)	NA	ND
TSI	TSI-9-1-Wrap	West side hangar	Wrap (various)	NA	ND

Notes:

Material Categories include: Miscellaneous (M), Surfacing (S)

NA = Not Applicable

ND = No Asbestos Detected above 1%

PLM = Bulk sample analysis by Polarized Light Microscopy EPA 600

Table 2
Data for Bulk Lead Samples - DLH Hangar 101 Demolition (Final Design)
4931 Airport Road, Hermantown, MN 55811
SEH Project No. DULAI 159869

Sample ID	Sample location	Description and Type of Suspect Material	Estimated Quantity	Concentration
Pb-1	Room #20	Interior wall paint	250 suare feet	61,000 ppm
Pb-2	Exterior	Exterior wall paint	15,000 sqare feet	77,000 ppm

Figures

Path: X:\AE\D\DULA\159869\3-env-stdy-regs\30-env-doc\60-Regulated Materials\GIS\Figure1.mxd

SEH

3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

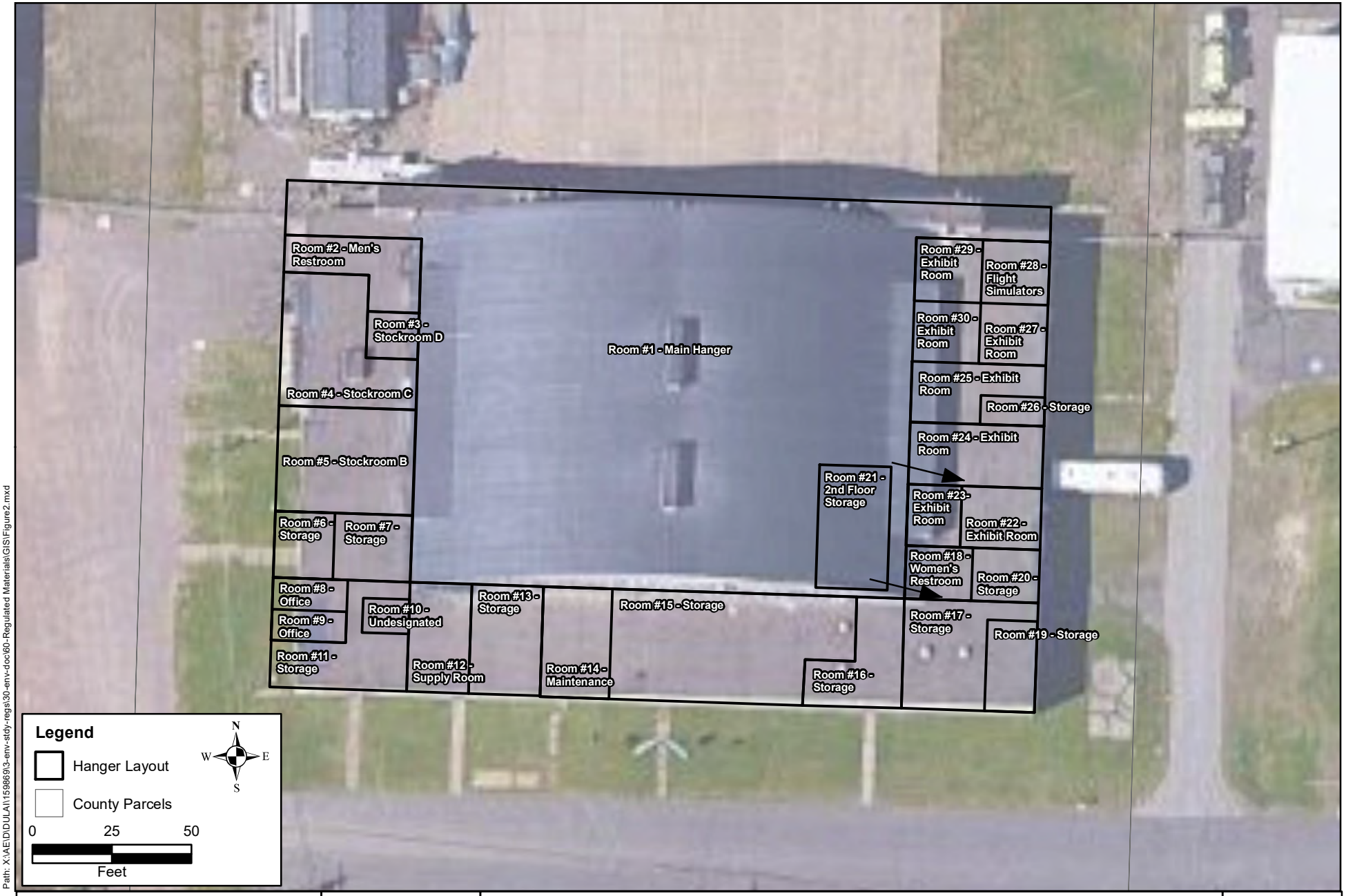
Project: DULAI 159869
Print Date: 4/12/2021

Map by: rhawkins
Projection: NAD83 UTM 15N
Source: ESRI, SEH, USGS

Site Location

DLH Hangar 101 Demolition (Final Design)
Asbestoa and Regulated Waste Assessment
Duluth, Minnesota

Figure 1



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SEH

3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (651) 490-2150
WATTS: 800-325-2055
www.sehinc.com

Project: DULAI 159869
Print Date: 4/12/2021

Map by: rhawkins
Projection: NAD 83 UTM Zone 15N
Source: ESRI, SEH Digi,
St. Louis County

Site Layout

DLH Hangar 101 Demolition (Final Design)
Asbestos and Regulated Waste Assessment
Duluth, Minnesota

Figure 2

Attachment A

Inspector Certifications

Certificate No: 5LM01112103IR

Expiration Date: January 11, 2022

This is to certify that

Michael Hanson

has attended and successfully completed an

ASBESTOS INSPECTOR

REFRESHER TRAINING COURSE

permitted by

the State of Minnesota under Minnesota Rules 4620.3702 to 4620.3722

and meets the requirements of

Section 206 of Title II of the Toxic Substances Control Act (TSCA)

conducted by

Lake States Environmental, Ltd.

Attended Remotely on January 11, 2021

Examination Date: January 11, 2021

Lake States Environmental, Ltd
P. O. Box 645, Rice Lake, WI 54868
(800) 254-9811

Training Instructor

DEPARTMENT OF HEALTH

ASBESTOS INSPECTOR

Certified by:
State of Minnesota
Department of Health

Expires: 12/02/2021

Joseph M. Pearson
4004 Haines Rd
Duluth, MN 55811

Director, Env. Health Div.

No. AI14669 Issued: 01/11/2021

Certificate No: 5LM12022007II

Expiration Date: December 2, 2021

This is to certify that

Joseph Pearson

has attended and successfully completed an

ASBESTOS INSPECTOR
INITIAL TRAINING COURSE

permitted by
the State of Minnesota under Minnesota Rules 4620.3702 to 4620.3722
and meets the requirements of
Section 206 of Title II of the Toxic Substances Control Act (TSCA)
conducted by

Lake States Environmental, Ltd.

in

White Bear Lake, MN on November 30 - December 2, 2020
Examination Date: December 2, 2020

Lake States Environmental, Ltd
P. O. Box 645, Rice Lake, WI 54868
(800) 254-9811

Grant J Grassle

Training Instructor

Attachment B

Photo Log

Photo 1 Gray plaster wall (18% Chrysotile)

Photo 2 Plaster mesh wall (2% Chrysotile)

Photo 3 D-green Stock Room floor tile (4% Chrysotile)

Photo 4 Red Floor tile (8% Chrysotile)

Photo 5 Brown tile (9% Chrysotile)

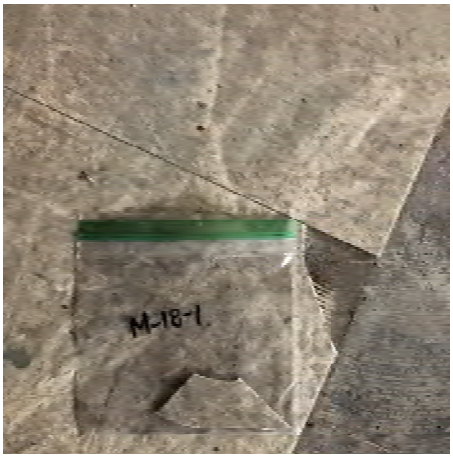

Photo 6 Tan floor tile (4% Chrysotile) and adhesive (7% Chrysotile)

Photo 7 Black floor tile (6% Chrysotile) and adhesive (6% Chrysotile)

Photo 8 Stock room C white pipe wrap (3% Chrysotile) and Brown pipe wrap (56% Chrysotile)

Photo 9 Stock room C White pipe wrap (27% Amosite)

Photo 10 Room #20 2nd floor pipe wrap (23% Amosite 6% Chrysotile)

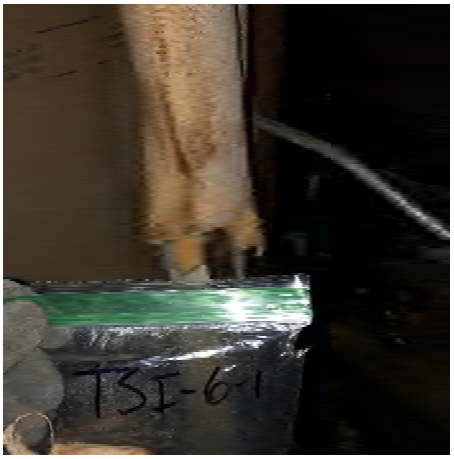

Photo 11 Room #18 2nd floor pipe wrap (23% Amosite 3% Chrysotile)

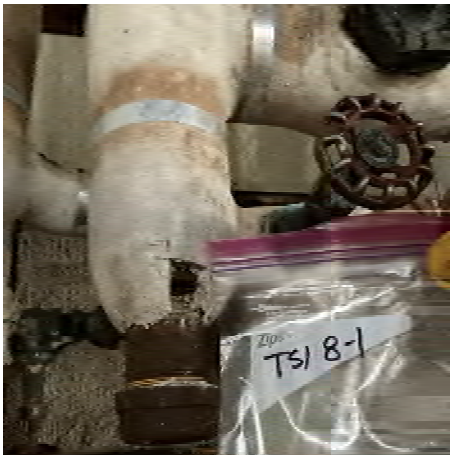

Photo 12 West side hangar pipe wrap (8% Chrysotile)

Photo 13 Front of Hangar looking south

Photo 14 East side of Hangar

Photo 15 Back of Hangar

Photo 16 West side of Hangar

Photo 17 Inside Hangar looking southeast

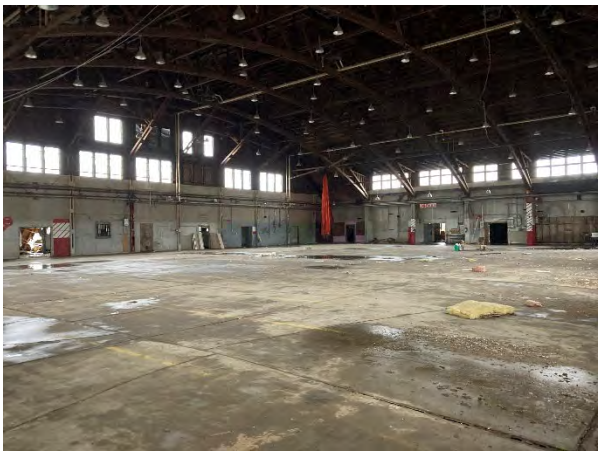

Photo 18 Inside Hangar looking southwest

Photo 19 Inside Hangar looking northwest

Photo 20 Garage bay on northwest side of hangar

Photo 21 Storage room off Hangar

Photo 22 West wall of hangar

Photo 23 Bathroom (Room #2)

Photo 24 Stockroom D (Room #3)

Photo 25 Stockroom D (Room #3)

Photo 26 Stockroom C (Room #4)

Photo 27 Stockroom C (Room #4)

Photo 28 Stockroom C (Room #4) electrical panels

Photo 29 Stockroom C (Room #4)

Photo 30 Stockroom C (Room #4) ceiling heating unit

Photo 31 Stockroom B (Room #5)

Photo 32 Stockroom B (Room #5)

Photo 33 Storage (Room #6)

Photo 34 Storage (Room #6

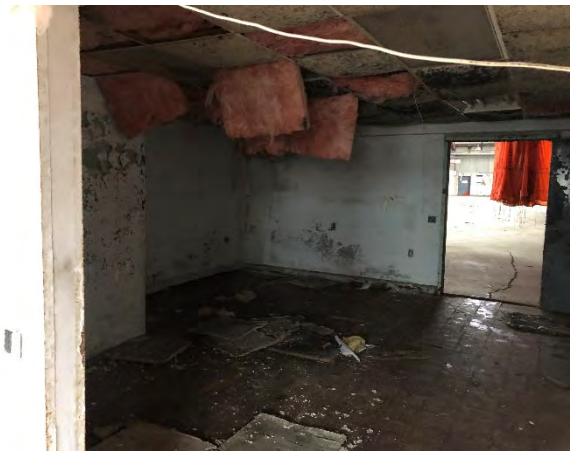

Photo 35 Storage (Room #7)

Photo 36 Storage (Room #7)

Photo 37 Room #7 Stairwell to second floor

Photo 38 Insulation above Room #6 and #7

Photo 39 2nd floor office above Room #6

Photo 40 Storage (Room #11)

Photo 41 Storage (Room #11). Room #8 and #9 on the left

Photo 42 Room #10

Photo 43 Storage (Room #11)

Photo 44 Supply Room (Room #12)

Photo 45 Supply Room (Room #12)

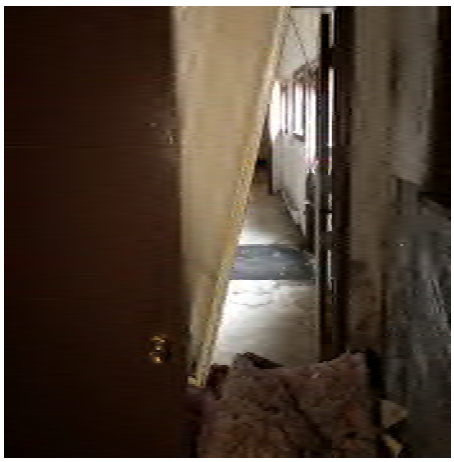

Photo 46 Supply Room (Room #12) blocked access to stairwell and Room #13

Photo 47 Storage (Room #13) blocked access to stairwell and Room #12

Photo 48 Storage (Room #13)

Photo 49 Maintenance (Room #14)

Photo 50 Storage (Room #15) entire south wall collapsed

Photo 51 Storage (Room #15) entire south wall collapsed

Photo 52 Storage (Room #15)

Photo 53 Storage (Room #16) partial south wall collapsed

Photo 54 Storage (Room #17)

Photo 55 Storage (Room #16/#17)

Photo 56 Storage (Room #19)

Photo 57 Women's restroom (Room #18)

Photo 58 Women's restroom (Room #18)

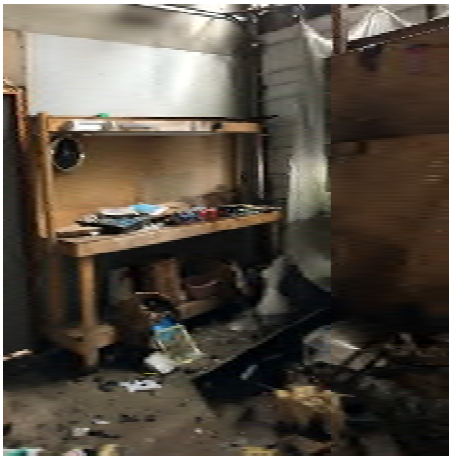

Photo 59 Storage (Room #20)

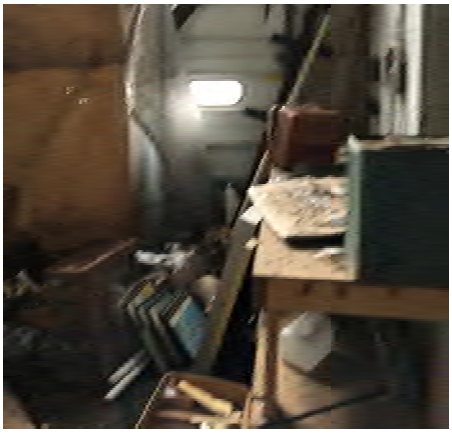

Photo 60 Storage (Room #20)

Photo 61 2nd Floor Storage (Room #21)

Photo 62 2nd Floor Storage (Room #21)

Photo 63 2nd Floor Storage (Room #21)

Photo 64 2nd Floor Storage (Room #21)

Photo 65 Exhibit Room (Room #22)

Photo 66 Exhibit Room (Room #22)

Photo 67 Exhibit Room (Room #23)

Photo 68 Exhibit Room (Room #23)

Photo 69 Exhibit Room (Room #24)

Photo 70 Exhibit Room (Room #25)

Photo 71 Exhibit Room (Room #25)

Photo 72 Storage (Room #26)

Photo 73 Exhibit Room (Room #27)

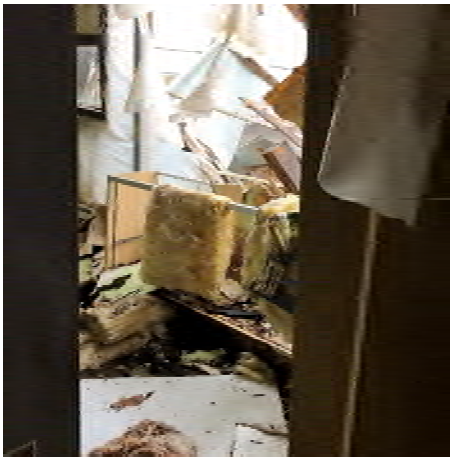

Photo 74 Exhibit Room (Room #28)

Photo 75 Flight Simulators (Room #28)

Photo 76 Flight Simulators (Room #28)

Photo 77 Flight Simulators (Room #29)

Photo 78 Flight Simulators (Room #29)

Photo 79 Exhibit Room (Room #30)

Photo 80 Exhibit Room (Room #30)

Attachment C

EMSL Asbestos Analytical Laboratory Report

EMSL Analytical, Inc.

3410 Winnetka Avenue North New Hope, MN 55427

Tel/Fax: (763) 449-4922 / (763) 449-4924

http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 352102475
Customer ID: SEHI80
Customer PO:
Project ID:

Attention: Joseph Pearson
Short Elliot & Hendrickson
3535 Vadnais Center Drive
St. Paul, MN 55110

Project: 159869 - DULAI DLH Hangar 101

Phone:
Fax: (651) 490-2150
Received Date: 03/25/2021 9:22 AM
Analysis Date: 04/06/2021 - 04/08/2021
Collected Date:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
S-1-1 *352102475-0001* *Other layers present analyzed with other samples in the order.*	Throughout-Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-1-2 *352102475-0002*	Throughout-Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-2-1-Surfacing *352102475-0003*	Throughout-Surfacing Material	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
S-2-1-Surfacing *352102475-0003A*	Throughout-Surfacing Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-2-2-Surfacing *352102475-0004*	Throughout-Surfacing Material	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
S-2-2-Surfacing *352102475-0004A*	Throughout-Surfacing Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-2-3 *352102475-0005*	Throughout-Surfacing Material				Not Submitted
S-3-1 *352102475-0006* *Other layers present analyzed with other samples in the order.*	Room #17-Black Surfacing Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-4-1-Surfacing *352102475-0007*	Room #20 2nd Floor-Black Surfacing Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-4-1-Surfacing *352102475-0007A*	Room #20 2nd Floor-Black Surfacing Material	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-4-1-Surfacing *352102475-0007B*	Room #20 2nd Floor-Black Surfacing Material	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-5-1-Trim *352102475-0008* *No black mastic present.*	Room #30-Black Mastic Trim	Various Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
S-5-1-Mastic *352102475-0008A* *No black mastic present.*	Room #30-Black Mastic Trim	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-1-1 *352102475-0009*	Garage Door Seal West Side-Gasket	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-2-1 *352102475-0010*	Throughout-Grey Plastic	Gray Non-Fibrous Homogeneous		82% Non-fibrous (Other)	18% Chrysotile

Initial report from: 04/08/2021 10:32:08

EMSL Analytical, Inc.
3410 Winnetka Avenue North New Hope, MN 55427
Tel/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 352102475
Customer ID: SEHI80
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
No plaster present.					
M-2-2 *352102475-0011*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-3 *352102475-0012*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-4 *352102475-0013*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-5 *352102475-0014*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-6 *352102475-0015*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-7 *352102475-0016*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-8 *352102475-0017*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-2-9 *352102475-0018*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-3-1 *352102475-0019*	Throughout-Tan Sheetrock	Tan Non-Fibrous Homogeneous	22% Cellulose	78% Non-fibrous (Other)	None Detected
M-3-2 *352102475-0020*	Throughout-Tan Sheetrock	Tan Non-Fibrous Homogeneous	19% Cellulose	81% Non-fibrous (Other)	None Detected
M-3-3 *352102475-0021*	Throughout-Tan Sheetrock	Tan Non-Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
M-3-4 *352102475-0022*	Throughout-Tan Sheetrock	Tan Non-Fibrous Homogeneous	21% Cellulose	79% Non-fibrous (Other)	None Detected
M-3-5 *352102475-0023*	Throughout-Tan Sheetrock	Tan Non-Fibrous Homogeneous	22% Cellulose	78% Non-fibrous (Other)	None Detected
M-3-6 *352102475-0024*	Throughout-Tan Sheetrock	Tan Non-Fibrous Homogeneous	25% Cellulose	75% Non-fibrous (Other)	None Detected
M-4-1 *352102475-0025* *No grey layer present.*	Throughout-Grey Plastic	Various Non-Fibrous Homogeneous		16% Quartz 84% Non-fibrous (Other)	<1% Chrysotile
M-4-2 *352102475-0026* *No grey layer present.*	Throughout-Grey Plastic	Various Non-Fibrous Homogeneous		17% Quartz 83% Non-fibrous (Other)	<1% Chrysotile
M-4-3-Plaster *352102475-0027* *No grey layer present.*	Throughout-Grey Plastic	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-4-3-Plaster *352102475-0027A*	Throughout-Grey Plastic	Various Non-Fibrous Homogeneous		13% Quartz 13% Mica 72% Non-fibrous (Other)	2% Chrysotile

Initial report from: 04/08/2021 10:32:08

EMSL Analytical, Inc.
3410 Winnetka Avenue North New Hope, MN 55427
Tel/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 352102475
Customer ID: SEHI80
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
No grey layer present.					
M-4-4 *352102475-0028*	Throughout-Grey Plastic				Positive Stop (Not Analyzed)
M-5-1 *352102475-0029* *No grey layer present.*	Throughout-Grey Sheetrock	Various Non-Fibrous Homogeneous	22% Cellulose	78% Non-fibrous (Other)	None Detected
M-5-2 *352102475-0030* *No grey layer present.*	Throughout-Grey Sheetrock	Various Non-Fibrous Homogeneous	19% Cellulose	81% Non-fibrous (Other)	None Detected
M-5-3 *352102475-0031* *No grey layer present.*	Throughout-Grey Sheetrock	Various Non-Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
M-6-1-Floor Tile *352102475-0032* *No green layer present.*	Stock Room D-Green Floor Tile & Black Mastic	Various Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
M-6-1-Mastic *352102475-0032A* *No green layer present.*	Stock Room D-Green Floor Tile & Black Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-6-1-Mastic *352102475-0032B* *No green layer present.*	Stock Room D-Green Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-6-2-Floor Tile *352102475-0033* *No green layer present.*	Stock Room D-Green Floor Tile & Black Mastic				Positive Stop (Not Analyzed)
M-6-2-Mastic *352102475-0033A* *No green layer present.*	Stock Room D-Green Floor Tile & Black Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-6-2-Mastic *352102475-0033B* *No green layer present.*	Stock Room D-Green Floor Tile & Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-7-1 *352102475-0034*	Throughout-Insulation -Yellow	Yellow Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (Other)	None Detected
M-7-2 *352102475-0035*	Throughout-Insulation -Yellow	Yellow Fibrous Homogeneous	96% Min. Wool	4% Non-fibrous (Other)	None Detected
M-7-3 *352102475-0036*	Throughout-Insulation -Yellow	Yellow Fibrous Homogeneous	93% Min. Wool	7% Non-fibrous (Other)	None Detected
M-7-4 *352102475-0037*	Throughout-Insulation -Yellow	Yellow Fibrous Homogeneous	94% Min. Wool	6% Non-fibrous (Other)	None Detected
M-7-5 *352102475-0038*	Throughout-Insulation -Yellow	Yellow Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (Other)	None Detected

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http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 352102475
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
M-8-1 *352102475-0039*	Throughout-Black "Pucks"	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present. Other layers present analyzed with other samples in the order.					
M-8-2 *352102475-0040*	Throughout-Black "Pucks"	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present. Other layers present analyzed with other samples in the order.					
M-8-3 *352102475-0041*	Throughout-Black "Pucks"	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present.					
M-8-4-Pucks *352102475-0042*	Throughout-Black "Pucks"	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present. Other layers present analyzed with other samples in the order.					
M-8-4-Pucks *352102475-0042A*	Throughout-Black "Pucks"	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present. Other layers present analyzed with other samples in the order.					
M-8-5-Pucks *352102475-0043*	Throughout-Black "Pucks"	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present. Other layers present analyzed with other samples in the order.					
M-8-5-Pucks *352102475-0043A*	Throughout-Black "Pucks"	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
No black layer present. Other layers present analyzed with other samples in the order.					
M-9-1 *352102475-0044*	Throughout-White Wall Tiles	White Fibrous Homogeneous	13% Cellulose 68% Min. Wool	19% Non-fibrous (Other)	None Detected
M-9-2 *352102475-0045*	Throughout-White Wall Tiles	White Fibrous Homogeneous	14% Cellulose 69% Min. Wool	17% Non-fibrous (Other)	None Detected
M-9-3 *352102475-0046*	Throughout-White Wall Tiles	White Fibrous Homogeneous	11% Cellulose 66% Min. Wool	23% Non-fibrous (Other)	None Detected
Other layers present analyzed with other samples in the order.					
M-9-4 *352102475-0047*	Throughout-White Wall Tiles	White Fibrous Homogeneous	30% Cellulose 55% Min. Wool	15% Non-fibrous (Other)	None Detected
M-10-1 *352102475-0048*	Throughout-Insulation Pink	Pink Fibrous Homogeneous	94% Min. Wool	6% Non-fibrous (Other)	None Detected
M-10-2 *352102475-0049*	Throughout-Insulation Pink	Pink Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (Other)	None Detected
M-10-3 *352102475-0050*	Throughout-Insulation Pink	Pink Fibrous Homogeneous	96% Min. Wool	4% Non-fibrous (Other)	None Detected
M-10-4-Insulation *352102475-0051*	Throughout-Insulation Pink	Various Fibrous Homogeneous	100% Cellulose		None Detected
M-10-4-Adhesive *352102475-0051A*	Throughout-Insulation Pink	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-10-4-Insulation *352102475-0051B*	Throughout-Insulation Pink	Pink Fibrous Homogeneous	93% Min. Wool	7% Non-fibrous (Other)	None Detected
M-10-5 *352102475-0052*	Throughout-Insulation Pink	Pink Fibrous Homogeneous	94% Min. Wool	6% Non-fibrous (Other)	None Detected
M-10-6-Insulation *352102475-0053*	Throughout-Insulation Pink	Various Fibrous Heterogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
M-10-6-Adhesive *352102475-0053A*	Throughout-Insulation Pink	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-10-6-Insulation *352102475-0053B*	Throughout-Insulation Pink	Pink Fibrous Homogeneous	95% Min. Wool	5% Non-fibrous (Other)	None Detected
M-11-1-Floor Tile *352102475-0054* *No red layer present.*	Throughout-Red Floor Tile	Various Non-Fibrous Homogeneous		92% Non-fibrous (Other)	8% Chrysotile
M-11-1-Adhesive *352102475-0054A* *No red layer present.*	Throughout-Red Floor Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-11-2-Floor Tile *352102475-0055* *No red layer present.*	Throughout-Red Floor Tile				Positive Stop (Not Analyzed)
M-11-2-Adhesive *352102475-0055A* *No red layer present.*	Throughout-Red Floor Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-11-3-Floor Tile *352102475-0056* *No red layer present.*	Throughout-Red Floor Tile				Positive Stop (Not Analyzed)
M-11-3-Mastic *352102475-0056A* *No red layer present.*	Throughout-Red Floor Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-12-1 *352102475-0057*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	22% Cellulose	78% Non-fibrous (Other)	None Detected
M-12-2 *352102475-0058*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	16% Cellulose 13% Glass	71% Non-fibrous (Other)	None Detected
M-12-3-Joint Compound *352102475-0059*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous		27% Perlite 73% Non-fibrous (Other)	None Detected
M-12-3-Tape *352102475-0059A*	Throughout-Sheet Rock-White	Gray Fibrous Homogeneous	100% Cellulose		None Detected
M-12-3-Joint Compound *352102475-0059B*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous		27% Perlite 73% Non-fibrous (Other)	None Detected
M-12-3-Sheetrock *352102475-0059C*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	17% Cellulose 14% Glass	69% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-12-4-Joint Compound *352102475-0060*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-12-4-Sheetrock *352102475-0060A*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	18% Cellulose 15% Glass	67% Non-fibrous (Other)	None Detected
M-12-5 *352102475-0061*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	22% Cellulose	78% Non-fibrous (Other)	None Detected
M-12-6 *352102475-0062*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	16% Cellulose 13% Glass	71% Non-fibrous (Other)	None Detected
M-12-7-Joint Compound *352102475-0063*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-12-7-Tape *352102475-0063A*	Throughout-Sheet Rock-White	Blue Fibrous Homogeneous	100% Glass		None Detected
M-12-7-Joint Compound *352102475-0063B*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-12-7-Sheetrock *352102475-0063C*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	17% Cellulose 14% Glass	69% Non-fibrous (Other)	None Detected
M-12-8-Joint Compound *352102475-0064*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
M-12-8-Sheetrock *352102475-0064A*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	21% Cellulose	79% Non-fibrous (Other)	None Detected
M-12-9 *352102475-0065*	Throughout-Sheet Rock-White	White Non-Fibrous Homogeneous	15% Cellulose	85% Non-fibrous (Other)	None Detected
M-13-1 *352102475-0066* *No white layer present.*	Throughout-Ceiling Tile-White	Various Fibrous Homogeneous	6% Cellulose 79% Min. Wool	15% Non-fibrous (Other)	None Detected
M-13-2 *352102475-0067* *No white layer present.*	Throughout-Ceiling Tile-White	Various Fibrous Homogeneous	6% Cellulose 76% Min. Wool	18% Non-fibrous (Other)	None Detected
M-13-3 *352102475-0068* *No white layer present.*	Throughout-Ceiling Tile-White	Various Fibrous Homogeneous	3% Cellulose 65% Min. Wool	32% Non-fibrous (Other)	None Detected
M-14-1 *352102475-0069*	Throughout-White Sheetrock	White Non-Fibrous Homogeneous	17% Cellulose 14% Glass	69% Non-fibrous (Other)	None Detected
M-14-2-Joint Compound *352102475-0070*	Throughout-White Sheetrock	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-14-2-Tape *352102475-0070A*	Throughout-White Sheetrock	Gray Fibrous Homogeneous	100% Cellulose		None Detected
M-14-2-Joint Compound *352102475-0070B*	Throughout-White Sheetrock	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-14-2-Sheetrock *352102475-0070C*	Throughout-White Sheetrock	White Non-Fibrous Homogeneous	15% Cellulose 5% Glass	80% Non-fibrous (Other)	None Detected
M-15-1-Tar Paper *352102475-0071*	Throughout-Black Tar Paper	Black Non-Fibrous Homogeneous	48% Cellulose	52% Non-fibrous (Other)	None Detected
M-15-1-Adhesive *352102475-0071A*	Throughout-Black Tar Paper	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-15-1-Paper *352102475-0071B*	Throughout-Black Tar Paper	Tan Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
M-15-2 *352102475-0072*	Throughout-Black Tar Paper	Black Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
M-16-1-Floor Tile *352102475-0073*	Throughout-Brown Tile	Brown Non-Fibrous Homogeneous		91% Non-fibrous (Other)	9% Chrysotile
M-16-1-Adhesive *352102475-0073A*	Throughout-Brown Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-17-1 *352102475-0074*	Throughout-White Sheetrock w/ Brown Back	Various Non-Fibrous Homogeneous	16% Cellulose 13% Glass	71% Non-fibrous (Other)	None Detected
M-17-2 *352102475-0075*	Throughout-White Sheetrock w/ Brown Back	Various Non-Fibrous Homogeneous	14% Cellulose	86% Non-fibrous (Other)	None Detected
M-18-1-Floor Tile *352102475-0076*	Throughout-Tan Floor Tile	Tan Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
M-18-1-Adhesive *352102475-0076A*	Throughout-Tan Floor Tile	Black Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
M-18-2-Floor Tile *352102475-0077*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-2-Adhesive *352102475-0077A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-3-Floor Tile *352102475-0078*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-3-Adhesive *352102475-0078A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-4-Floor Tile *352102475-0079*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-4-Adhesive *352102475-0079A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-5-Floor Tile *352102475-0080*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-5-Adhesive *352102475-0080A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-18-6-Floor Tile *352102475-0081*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-6-Adhesive *352102475-0081A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-7-Floor Tile *352102475-0082*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-7-Adhesive *352102475-0082A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-8-Floor Tile *352102475-0083*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-8-Adhesive *352102475-0083A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-9-Floor Tile *352102475-0084*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-18-9-Adhesive *352102475-0084A*	Throughout-Tan Floor Tile				Positive Stop (Not Analyzed)
M-19-1 *352102475-0085*	Throughout-Ceiling Tile-White w/ Brown	Various Fibrous Homogeneous	28% Cellulose 37% Min. Wool	28% Perlite 7% Non-fibrous (Other)	None Detected
M-19-2 *352102475-0086*	Throughout-Ceiling Tile-White w/ Brown	Various Fibrous Homogeneous	29% Cellulose 38% Min. Wool	29% Perlite 4% Non-fibrous (Other)	None Detected
M-19-3 *352102475-0087*	Throughout-Ceiling Tile-White w/ Brown	Various Fibrous Homogeneous	26% Cellulose 35% Min. Wool	26% Perlite 13% Non-fibrous (Other)	None Detected
M-19-4 *352102475-0088*	Throughout-Ceiling Tile-White w/ Brown	Various Fibrous Homogeneous	4% Cellulose 77% Min. Wool	19% Non-fibrous (Other)	None Detected
M-19-5 *352102475-0089*	Throughout-Ceiling Tile-White w/ Brown	Various Fibrous Homogeneous	5% Cellulose 78% Min. Wool	17% Non-fibrous (Other)	None Detected
M-19-6 *352102475-0090*	Throughout-Ceiling Tile-White w/ Brown	Various Fibrous Homogeneous	6% Cellulose 79% Min. Wool	15% Non-fibrous (Other)	None Detected
M-19-7 *352102475-0091*	Throughout-Ceiling Tile-White w/ Brown	White Fibrous Homogeneous	80% Cellulose	10% Perlite 10% Non-fibrous (Other)	None Detected
M-20-1-Adhesive *352102475-0092* *No black tile present.*	Throughout-Black Tile	Black Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
M-20-1-Floor Tile *352102475-0092A* *No black tile present.*	Throughout-Black Tile	Various Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
M-20-1-Adhesive *352102475-0092B* *No black tile present.*	Throughout-Black Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

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			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
M-20-2-Adhesive *352102475-0093*	Throughout-Black Tile				Positive Stop (Not Analyzed)
M-20-2-Floor Tile *352102475-0093A*	Throughout-Black Tile				Positive Stop (Not Analyzed)
M-20-2-Adhesive *352102475-0093B*	Throughout-Black Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-20-3-Adhesive *352102475-0094*	Throughout-Black Tile				Positive Stop (Not Analyzed)
M-20-3-Floor Tile *352102475-0094A*	Throughout-Black Tile				Positive Stop (Not Analyzed)
M-20-3-Adhesive *352102475-0094B*	Throughout-Black Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-20-4-Adhesive *352102475-0095*	Throughout-Black Tile				Positive Stop (Not Analyzed)
M-20-4-Floor Tile *352102475-0095A*	Throughout-Black Tile				Positive Stop (Not Analyzed)
M-20-4-Adhesive *352102475-0095B*	Throughout-Black Tile	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-21-1 *352102475-0096*	Room #16-Black Caulk on Floor				Not Submitted
M-21-2 *352102475-0097*	Room #16-Black Caulk on Floor				Not Submitted
M-22-1 *352102475-0098*	Throughout-Ceiling Tile-Yellow Backing				Not Submitted
M-24-1 *352102475-0099*	Women's Rest Room-Ceiling Tile-Popcorn				Not Submitted
M-24-2 *352102475-0100*	Women's Rest Room-Ceiling Tile-Popcorn				Not Submitted
M-25-1 *352102475-0101*	Women's Restroom-Floor Tile				Not Submitted
M-25-2 *352102475-0102*	Women's Restroom-Floor Tile				Not Submitted
M-25-3 *352102475-0103*	Women's Restroom-Floor Tile				Not Submitted
M-26-1 *352102475-0104*	Women's Restroom-Wall Tile				Not Submitted
M-26-2 *352102475-0105*	Women's Restroom-Wall Tile				Not Submitted

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M-26-3 *352102475-0106*	Women's Restroom-Wall Tile				Not Submitted
M-27-1 *352102475-0107*	Room #19-Black Mastic Floor Trim				Not Submitted
M-27-2 *352102475-0108*	Room #19-Black Mastic Floor Trim				Not Submitted
M-28-1 *352102475-0109*	Throughout-Ceiling Tile-White Back				Not Submitted
M-28-2 *352102475-0110*	Throughout-Ceiling Tile-White Back				Not Submitted
M-29-1 *352102475-0111*	Museum Area-East Side-Blue Carpet				Not Submitted
M-29-2 *352102475-0112*	Museum Area-East Side-Blue Carpet				Not Submitted
M-29-3 *352102475-0113*	Museum Area-East Side-Blue Carpet				Not Submitted
M-29-4 *352102475-0114*	Museum Area-East Side-Blue Carpet				Not Submitted
M-30-1 *352102475-0115*	Room #30-White and Tan Tile				Not Submitted
M-30-2 *352102475-0116*	Room #30-White and Tan Tile				Not Submitted
M-31-1 *352102475-0117*	Room #30-Black Tile				Not Submitted
M-31-2 *352102475-0118*	Room #30-Black Tile				Not Submitted
M-31-3 *352102475-0119*	Room #30-Black Tile				Not Submitted
M-31-4 *352102475-0120*	Room #30-Black Tile				Not Submitted
M-32-1 *352102475-0121*	Main Hanger-Floor Joint Compound				Not Submitted
M-32-2 *352102475-0122*	Main Hanger-Floor Joint Compound				Not Submitted
M-32-3 *352102475-0123*	Main Hanger-Floor Joint Compound				Not Submitted
M-32-4 *352102475-0124*	Main Hanger-Floor Joint Compound				Not Submitted

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M-33-1 *352102475-0125*	North Main Hanger Door-Gasket Material				Not Submitted
M-33-2 *352102475-0126*	North Main Hanger Door-Gasket Material				Not Submitted
M-33-3 *352102475-0127*	North Main Hanger Door-Gasket Material				Not Submitted
M-34-1 *352102475-0128*	Exterior East Side-Tar Paper	Black Non-Fibrous Homogeneous	47% Cellulose	53% Non-fibrous (Other)	None Detected
M-35-1 *352102475-0129* *No white layer present.*	Exterior Window-Caulking-White	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-35-2 *352102475-0130*	Exterior Window-Caulking-White	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-36-1-Roofing *352102475-0131*	South Hanger Roof-Roofing Material	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
M-36-1-Felt *352102475-0131A*	South Hanger Roof-Roofing Material	Brown Non-Fibrous Homogeneous	38% Cellulose	62% Non-fibrous (Other)	None Detected
M-36-1-Roofing *352102475-0131B*	South Hanger Roof-Roofing Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TSI-1-1-Wrap *352102475-0132*	Stock Room C-White Pipe Wrap	Various Fibrous Homogeneous	69% Fibrous (Other)	31% Non-fibrous (Other)	None Detected
TSI-1-1-Adhesive *352102475-0132A*	Stock Room C-White Pipe Wrap	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TSI-1-1-Pipe *352102475-0132B*	Stock Room C-White Pipe Wrap	Tan Fibrous Homogeneous	96% Cellulose	4% Non-fibrous (Other)	None Detected
TSI-1-2-Wrap *352102475-0133*	Stock Room C-White Pipe Wrap	Various Fibrous Homogeneous	66% Fibrous (Other)	34% Non-fibrous (Other)	None Detected
TSI-1-2-Pipe *352102475-0133A*	Stock Room C-White Pipe Wrap	Tan Fibrous Homogeneous	96% Cellulose	4% Non-fibrous (Other)	None Detected
TSI-1-2-Adhesive *352102475-0133B*	Stock Room C-White Pipe Wrap	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
TSI-1-2-Wrap *352102475-0133C*	Stock Room C-White Pipe Wrap	Various Fibrous Homogeneous	86% Cellulose 3% Synthetic	8% Non-fibrous (Other)	3% Chrysotile
TSI-1-2-Wrap *352102475-0133D*	Stock Room C-White Pipe Wrap	Brown Fibrous Homogeneous	3% Cellulose	41% Non-fibrous (Other)	56% Chrysotile
TSI-1-3 *352102475-0134*	Stock Room C-White Pipe Wrap				Positive Stop (Not Analyzed)
TSI-2-1-Pipe *352102475-0135*	Stock Room C-White Pipe Wrap-Loose	Various Fibrous Homogeneous	67% Fibrous (Other)	33% Non-fibrous (Other)	None Detected

Initial report from: 04/08/2021 10:32:08

EMSL Analytical, Inc.
3410 Winnetka Avenue North New Hope, MN 55427
Tel/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com / minneapolislab@emsl.com

EMSL Order: 352102475
Customer ID: SEHI80
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
TSI-2-1-Wrap *352102475-0135A*	Stock Room C-White Pipe Wrap-Loose	White Non-Fibrous Homogeneous		67% Gypsum 6% Non-fibrous (Other)	27% Amosite
TSI-3-1-Pipe *352102475-0136*	Room #16-Pipe Wrap	Various Fibrous Homogeneous	68% Fibrous (Other)	32% Non-fibrous (Other)	None Detected
TSI-3-1-Wrap *352102475-0136A*	Room #16-Pipe Wrap	Orange Fibrous Homogeneous	94% Min. Wool	6% Non-fibrous (Other)	None Detected
TSI-5-1-Pipe *352102475-0137*	Room #20 2nd Floor-Pipe Wrap	Various Fibrous Homogeneous	69% Fibrous (Other)	31% Non-fibrous (Other)	None Detected
TSI-5-1-Wrap *352102475-0137A*	Room #20 2nd Floor-Pipe Wrap	White Non-Fibrous Homogeneous		69% Gypsum 2% Non-fibrous (Other)	23% Amosite 6% Chrysotile
TSI-6-1-Pipe *352102475-0138*	Room #18 2nd Floor-Pipe Wrap	Various Fibrous Homogeneous	66% Fibrous (Other)	34% Non-fibrous (Other)	None Detected
TSI-6-1-Wrap *352102475-0138A*	Room #18 2nd Floor-Pipe Wrap	White Non-Fibrous Homogeneous		66% Gypsum 8% Non-fibrous (Other)	23% Amosite 3% Chrysotile
TSI-7-1-Pipe *352102475-0139*	Room #22-Pipe Wrap	Various Fibrous Heterogeneous	37% Cellulose 17% Glass	46% Non-fibrous (Other)	None Detected
TSI-7-1-Wrap *352102475-0139A*	Room #22-Pipe Wrap	Various Fibrous Homogeneous	94% Min. Wool	6% Non-fibrous (Other)	None Detected
TSI-8-1-Pipe *352102475-0140*	West Side Hanger-Pipe Wrap	Gray Fibrous Homogeneous	98% Fibrous (Other)	2% Non-fibrous (Other)	None Detected
TSI-8-1-Wrap *352102475-0140A*	West Side Hanger-Pipe Wrap	Gray Non-Fibrous Homogeneous	38% Min. Wool	54% Non-fibrous (Other)	8% Chrysotile
TSI-9-1-Pipe *352102475-0141*	West Side Hanger-Behind Sink-Pipe Wrap	Gray Fibrous Homogeneous	89% Fibrous (Other)	11% Non-fibrous (Other)	None Detected
TSI-9-1-Wrap *352102475-0141A*	West Side Hanger-Behind Sink-Pipe Wrap	Various Fibrous Homogeneous	79% Cellulose 19% Synthetic	2% Non-fibrous (Other)	None Detected

Analyst(s)
Donald Schmidt (24)
Sue Ferrario (114)

Rachel Travis, Laboratory Manager
or Other Approved Signatory

Initial report from: 04/08/2021 10:32:08

Attachment D

EMSL Lead Analytical Laboratory Report

EMSL Analytical, Inc.
3410 Winnetka Avenue North, New Hope, MN 55427
Phone/Fax: (763) 449-4922 / (763) 449-4924
http://www.EMSL.com minneapolislab@emsl.com

EMSL Order:	352102622
CustomerID:	SEHI80
CustomerPO:	
ProjectID:	

Attn: **Joseph Pearson**
Short Elliot & Hendrickson
3535 Vadnais Center Drive
St. Paul, MN 55110

Phone:	(651) 490-2000
Fax:	(651) 490-2150
Received:	3/25/2021 09:22 AM
Collected:	3/24/2021

Project: **159869 - DULAI DLH Hangar 101**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample	*Description*	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
Pb-1		3/23/2021	4/1/2021	0.2914 g	4000 ppm	61000 ppm
352102622-0001	Site: Room #20 2nd Floor					
Pb-3		3/24/2021	4/1/2021	0.2838 g	4000 ppm	77000 ppm
352102622-0002	Site: Exterior Paint					

The duplicate and ms QC associated with these samples did not meet acceptable QC limits.

Rachel Travis, Laboratory Manager
or other approved signatory

Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008% wt based on the minimum sample weight per our SOP. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. New Hope, MN AIHA-LAP, LLC--ELLAP Accredited #101103

Initial report from 04/01/2021 15:49:10

Appendix F
Environmental Protection Agency EJSCREEN Standard Report

EJScreen Report (Version 2.0)

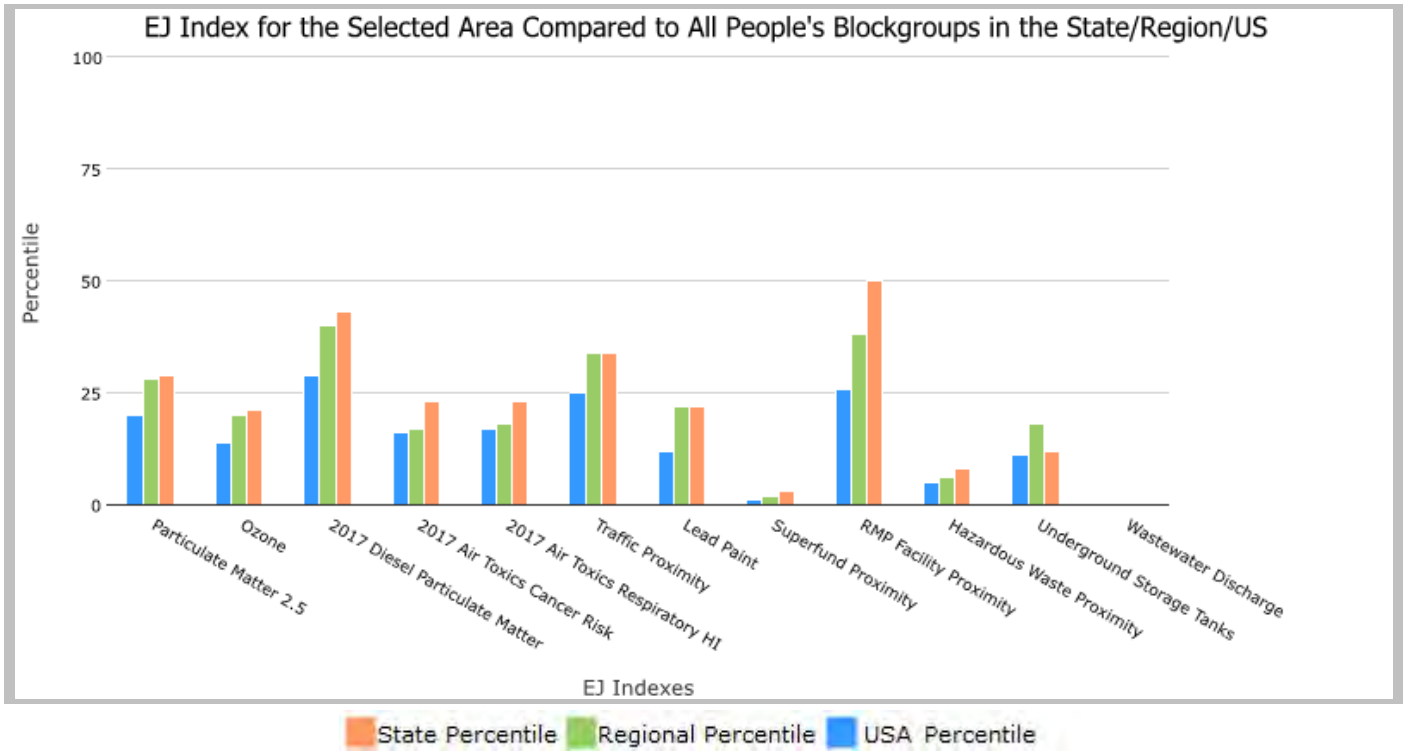
1 mile Ring around the Area, MINNESOTA, EPA Region 5

Approximate Population: 1,389

Input Area (sq. miles): 3.33

Hangar 101

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
Environmental Justice Indexes			
EJ Index for Particulate Matter 2.5	29	28	20
EJ Index for Ozone	21	20	14
EJ Index for 2017 Diesel Particulate Matter*	43	40	29
EJ Index for 2017 Air Toxics Cancer Risk*	23	17	16
EJ Index for 2017 Air Toxics Respiratory HI*	23	18	17
EJ Index for Traffic Proximity	34	34	25
EJ Index for Lead Paint	22	22	12
EJ Index for Superfund Proximity	3	2	1
EJ Index for RMP Facility Proximity	50	38	26
EJ Index for Hazardous Waste Proximity	8	6	5
EJ Index for Underground Storage Tanks	12	18	11
EJ Index for Wastewater Discharge	N/A	N/A	N/A



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJScreen Report (Version 2.0)

1 mile Ring around the Area, MINNESOTA, EPA Region 5

Approximate Population: 1,389

Input Area (sq. miles): 3.33

Hangar 101

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	3

EJScreen Report (Version 2.0)

1 mile Ring around the Area, MINNESOTA, EPA Region 5

Approximate Population: 1,389

Input Area (sq. miles): 3.33

Hangar 101

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Pollution and Sources							
Particulate Matter 2.5 (µg/m^3)	5.49	7.54	2	8.96	0	8.74	1
Ozone (ppb)	34.4	37.8	4	43.5	0	42.6	9
2017 Diesel Particulate Matter* (µg/m^3)	0.1	0.218	24	0.279	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	20	24	56	24	60-70th	29	<50th
2017 Air Toxics Respiratory HI*	0.26	0.29	56	0.3	50-60th	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	80	470	37	610	27	710	30
Lead Paint (% Pre-1960 Housing)	0.21	0.31	48	0.37	39	0.28	55
Superfund Proximity (site count/km distance)	0.27	0.18	84	0.13	91	0.13	90
RMP Facility Proximity (facility count/km distance)	0.14	0.77	20	0.83	20	0.75	24
Hazardous Waste Proximity (facility count/km distance)	2	1.5	75	1.8	70	2.2	71
Underground Storage Tanks (count/km^2)	1.4	1.8	67	4.8	49	3.9	51
Wastewater Discharge (toxicity-weighted concentration/m distance)	N/A	0.034	N/A	9	N/A	12	N/A
Socioeconomic Indicators							
Demographic Index	16%	22%	45	28%	34	36%	20
People of Color	16%	20%	56	26%	52	40%	30
Low Income	16%	24%	38	29%	28	31%	26
Unemployment Rate	2%	4%	29	5%	24	5%	21
Linguistically Isolated	1%	2%	61	2%	62	5%	47
Less Than High School Education	5%	7%	48	10%	35	12%	29
Under Age 5	5%	6%	30	6%	37	6%	36
Over Age 64	24%	15%	85	16%	84	16%	84

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

For additional information, see: www.epa.gov/environmentaljustice

Appendix G
Notice of Availability and Distribution List

NOTICE OF ENVIRONMENTAL ASSESSMENT
Duluth International Airport
Hangar 101 Demolition – Emergency Action

The Duluth Airport Authority, in cooperation with the Federal Aviation Administration, announces the availability of the Environmental Assessment. The Duluth Airport Authority, under an emergency action, demolished the vacant and condemned Hangar 101 (the project) due to health and safety concerns. Previously, Hangar 101, a historic property, was condemned by the city of Duluth Office of Construction Services and Inspections Division and an EA was planned. However, severe weather and a recent wind storm caused extensive damage and it was determined structurally unsound, unsafe, and an inimical threat to community safety.

The EA provides information on the project and discusses the potential economic, social, environmental impacts, and mitigation measures, as appropriate, of the project. It has been prepared pursuant to the requirements of Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA), and in accordance with FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions. The EA also addresses the adverse impact to the historic hangar in accordance with Section 106 of the National Historic Preservation Act (54 USC § 306108) and physical use of a Section 4(f) property in accordance with the U.S. Department of Transportation Act (49 USC § 303).

PUBLIC INSPECTION: Copies of the EA will be made available for public review beginning June 25, 2022 during regular business hours at the following locations:

- Duluth Airport Authority administration offices, 4701 Grinden Drive, Duluth
- Duluth City Hall, 411 West 1st Street, Duluth
- Hermantown City Hall, 5105 Maple Grove Road, Hermantown
- Duluth Public Library, 520 West Superior Street, Duluth
- MNDOT District 1, 1123 Mesaba Avenue, Duluth

COMMENT PERIOD: Written comments will be accepted until August 9th, 2022. Please direct written comments to Natalie White, Senior Scientist, SEH, PO Box 229, Duluth, MN 55801-0229 or nwhite@sehinc.com. Please note “Hangar 101 Demolition Project” in the subject line.

Before including your address, phone number, email address or other personal identifying information in your comment, be advised that your entire comment, including your personal identifying information may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee we will be able to do so.

ACCOMODATIONS: Auxiliary aids and services may be provided upon request. Requests for these services can be made by calling Natalie White at 218-279-3003. Every reasonable effort to accommodate special needs will be made.

Contacts for EA Distribution

Agency	Contact	Title	Email	Mailing Address
U.S. Environmental Protection Agency, Region 5	Kenneth Westlake	Section Chief	westlake.kenneth@epa.gov	77 West Jackson Blvd Chicago IL 60604
St. Louis County Historical Society	JoAnne Coombe	Executive Director	joanne@thehistorypeople.org	506 West Michigan Street Duluth MN 55802
City of Duluth		Duluth City Hall		411 West First Street Duluth MN 55802
Duluth Airport Authority		Administration Offices		4701 Grinden Drive Duluth, MN 55811
City of Hermantown		Hermantown City Hall		5105 Maple Grove Road, Hermantown MN 55811
Duluth Public Library				520 West Superior Street Duluth MN 55802
MN State Historic Preservation Office SHPO Number 2022-0198	Kelly Gragg-Johnson	Environmental Review Program Specialist	kelly.graggjohnson@state.mn.us	50 Sherburne Avenue Administration Building 203 St. Paul MN 55155
Advisory Council on Historic Preservation ACHP Project Number: 018263	Rachael Mangum	Program Analyst	rmangum@achp.gov	401 F Street NW, Suite 308 Washington DC 20001
MnDOT Office of Aeronautics	Kevin Carlson	Planning Program Coordinator	kevin.r.carlson@state.mn.us	395 John Ireland Blvd, St Paul, MN 55155
MnDOT District 1				1123 Mesaba Avenue Duluth, MN 55811
US Fish and Wildlife Service Project Code: 2022-0045452	To whom it may concern		TwinCities@fws.gov	MN-WI Field Office E.S. 4101 American Blvd E Bloomington MN 55425
Minnesota Department of Health		Environmental Health Division	health.review@state.mn.us	625 North Robert Street St. Paul, MN 55155

Contacts for EA Distribution

Agency	Contact	Title	Email	Mailing Address
Minnesota Department of Natural Resources	Jessica Parson	Regional Environmental Assessment Ecologist	jessica.parson@state.mn.us	1201 East Highway 2 Grand Rapids, MN 55744
Minnesota Pollution Control Agency	Karen Kromar	Environmental Review Unit	karen.kromar@state.mn.us	520 Lafayette Road N St. Paul, MN 55155
U.S. Department of the Interior			via email by FAA	