

**NEW HAVEN CITY PLAN COMMISSION  
FLOOD DAMAGE PREVENTION ORDINANCE VARIANCE**

**RE: 1592-04 TWEED-NEW HAVEN AIRPORT WEST TERMINAL IMPROVEMENTS**

Locations; 51 SOUTH END RD, URIAH ST, SOUTH END RD, SOUTH END RD, MORRIS CSWY, 191 BURR ST, 269 BURR ST, 353 BURR ST, 425 DODGE AV (Map, Block, Lot, and Unit numbers: 013 0853 00400, 014 0853 02700, 014 0853 02800, 014 0853 02900, 015 0875 00100, 019 0900 00100, 019 0900 00200, 020 0900 00100, 020 0900 00200, 028 0900 00100) Flood Damage Prevention Ordinance Variance to install non-floodproofed temporary modular trailers below the Base Flood Elevation. (Owner: The City of New Haven; Applicant: Jeremy Nielson of Avports LLC.; Agent: Joseph P Williams of Shipman & Goodwin LLP.)

**REPORT: 1592-04  
FLOOD DAMAGE PREVENTION ORDINANCE VARIANCE: Approval with Conditions**

**Submission:**

Flood Damage Prevention Ordinance Variance Application, application fee, received September 15 and 17th, 2021

**Improvements to West Ramp Facilities (PACKAGE 4) TEMPORARY STRUCTURES, dated August 10, 2021, Received September 17<sup>th</sup>**

All drawings in submission set, including but not limited to:

4A2.10 Site Plan

4A2.20 Hold room Connector Plan & RCP4A2.21 North Trailer Group

4A2.22 Central Trailer Group

*Other Materials considered:*

**Site Plan Review Application Packet including DATA, WORKSHEET, SITE, SESC, Coastal Site Plan Review. Received July 22, 2021. Revised August 2, 2021, August 6, 2021.**

**Flood Plain Permit Application. Received July 22, 2021.**

Elevation Certificate for the Existing Building.

FEMA FIRM Map/Panel number **09009C0444J**, effective on **07/08/2013**

**Letter to Aicha Woods re\_ Application for Flood Plan Variance 9\_17\_21**

**Sheet 4A2.10\_20210920**

**State Code Modification Request Response 21-0489 NEW HAVEN 155 Burr Street**

**HVN - Flood Resistant Design Narrative\_20210916**

**HVN Flood Emergency Protocols (DRAFT)**

**PROJECT SUMMARY:**

**Project:** Tweed Airport Improvements to West Ramp Facilities Temporary Structures

**Address:** 155 Burr Street. A/K/A: Tax Map-Block-Parcel(s) Nearest Cross Street: Burr St & Fort Hale Rd

**Site Size:** 176,610 SF (4.05 acres) total. Zoning Lot Area is 148,646 SF (3.4 acres)

**Zone:** Airport

**Parking:** 927 Parking Spaces

**Owner:** City of New Haven, (Michael Piscitelli)

**Applicant:** Jeremy Neilson

**Agent:** Joe Williams

**Architect:** Jeff Gerber, AIA

**Phone:** 203-946-2366

**Phone:** 203-466-8833

**Phone:** 203-836-2804

**Phone:** 203-535-1688

**Site Engineer:**  
**City Lead:** City Plan Department

**Phone:**  
**Phone:** 203-946-6379

### **BACKGROUND**

Per the New Haven Zoning Ordinance Section 56 (g) and the City of New Haven Flood Damage Prevention Ordinance, Section 7.5, the Applicant, Avports LLC, has applied for flood damage prevention variances to install Temporary Structures without floodproofing below the base flood elevation (BFE). Additional prior approvals received include a Special Permit to (CPC Report 1590-02) and Site Plan Review including Coastal Site Plan Review (CPC Report 1590-02).

Pursuant to New Haven Zoning Ordinance **Section 53- Airport District**, *this district exists for the purpose of designating that area which has been and is being developed by the Tweed-New Haven Airport. The airport represents a distinct land use; not easily classified in any other district, having unique needs for development as an integrated unit to serve the city and the region.*

The applicant wishes to utilize the abovementioned parcels for continued operations of Tweed New Haven Airport and in particular functions related to expansion of commercial passenger service. The improvements subject to this Flood Plain Permit Variance include temporary structures and are in accordance with NHZO Section 53.

Pursuant to NHZO **Section-56 Flood Damage Prevention District** *“These districts exist to minimize the public and private losses due to flood conditions by controlling the uses, methods of construction, alteration of natural waterways and barriers, topographical features of land and erection of flood barriers.”* Furthermore, any development activity in these districts is subject to **Technical Ordinance Title 4 -Flood Damage Prevention Ordinance.**

The temporary structures that are the subject of the associated Flood Plain Development Permit Application do not meet the requirements of the Flood Damage Prevention and variances are requested.

### **Current site conditions:**

New Haven Tweed Airport area consists of 10 parcels. The project site is located on three of the ten parcels: 155 Burr Street, 191 Burr Street and 269 Burr Street and encompasses an area of approximately 11.2 acres. The Project Site consists of several asphalt pavement surface parking lots, two 2-story buildings, roads, walkways. Tuttle Brook, a watercourse located within the project site, is culverted at five locations to accommodate various airport and municipal structures. The project site is part of the Tweed Airport area and is bounded by Burr Street to the west and Dean Street to the South. The entire site is in the Special Flood Hazard Area (SPFH) Zone AE and the project area is within the Limit of Moderate Wave Action (LMWA) demarcation.

### **Proposed Activity:**

Installation of prefab temporary structures, and associated steps, ramps, connection passages foundations and anchoring for the following structures shown on 4A2.10 Site Plan

1. Hold room/office trailers – this is two modular trailers connected by a temporary structure (referred to as “modular trailer building expansion adjacent to the existing passenger terminal” in the application and staff report)
2. Ticketing/check-in trailer
3. Catering trailer

**A full Coastal Site Plan review has been conducted with review of Detailed Plans. See companion report CPC 1590-02**

**Variance to Flood Damage Prevention Ordinance:** A petition for Flood Protection Ordinance variance was presented to the City Plan Commission on September 22, 2021. Minutes of the hearing, CPC meeting 1592, are available from the City Plan Department.

**Project Schedule:** Activity will begin immediately upon approval. The temporary buildings will be removed after a period of 36 months from permit sign off by Building Inspector and site restored to current conditions.

## **FLOOD PLAIN DEVELOPMENT VARIANCE**

**Authority:** In Section 7-148(c)(7) of the CT General Statutes, the Legislature of the State of Connecticut delegates to local governmental units the responsibility of adopting regulations designed to promote the public health, safety, and general welfare of its citizenry. The City of New Haven adopted a revised Section 56 of its Zoning Ordinance and a *Flood Damage Prevention Ordinance* (hereafter FDP Ordinance) on October 4, 2010.

**New Haven FDP Ordinance, Section 7.1 - Variance Procedures:** *The New Haven City Plan Commission as established by the City of New Haven shall hear and decide appeals and requests for FDP Ordinance Variances from the requirements of this ordinance.*

The site is located within the Special Flood Hazard Area, Zone AE (EL 12) on Flood Insurance Rate Map (FIRM) **09009C0444J** revised July 8, 2013. As defined by FEMA, the AE Zone is subject to inundation by the 1% annual chance flood event, where the base flood elevation (or elevation of surface water resulting from a flood) has been determined at 12'. The Coastal AE Zone is defined by the Limits of Wave Action delineation (LMWA) which is noted on the associated FIRM Panel.

The installation of temporary buildings and trailers under consideration in this variance includes the following:

1. Hold room/office trailers – this is two modular trailers connected by a temporary structure (referred to as “modular trailer building expansion adjacent to the existing passenger terminal” in the Development Application and Site Plan Review/Coastal Site Plan Review staff report 1590-02.) These are noted on Permit drawing Site plan as Willscott Building 1 and Willscott Building 2. The Finished Floor Elevation (FFE) noted for both buildings is +8.72. They are connected by an enclosed passageway at FFE +8.72. An enclosed ramp connecting the passageway to the existing building slopes from FFE +8.72 to FFE +6.71.
2. Ticketing/check-in trailer, Willscott Building 3, is located outside main entrance to existing building at FFE +5.10
3. Catering trailer is Willscott Building 4, located on the apron and has FFE of +5.20
4. In addition, there are 5 moveable container structures located on the apron adjacent to the catering structure. These structures are moveable in the event of a flood.

**Flood Damage Prevention Variance Request:** The applicant has requested the following variances from the flood regulations and submits that the structures under consideration be permitted as designed due to the following:

- Good and sufficient cause and exceptional hardship exist, as demonstrated in the responses provided in the table below and;
- The variance will not result in additional threats to public safety, extraordinary public expense, or fraud or victimization of the public; and

The variance is the minimum action necessary to afford relief.

The applicant's stated hardship that is justifying the variance with regards floor elevations of buildings in sections 5.3.1.2 and 5.3.4.2 is detailed in the variance application under Section 7.5.3.2. The temporary buildings must be located adjacent to and at similar floor levels to existing buildings. To elevate the buildings so that the lowest structural members supporting the first floor are at BFE +1' (at Flood Elevation 13') would require raising the temporary buildings approximately 5' to 10' above proposed elevations. To also meet ADA requirements this would require extensive ramping that would impede basic operations and passenger flow and does not fit within the site and existing structures.

The applicant's stated hardship that requires a variance to dry flood proofing in **5.3.1.2.2** or wet floodproofing in **5.3.4.2** is due partially to the fact that the temporary buildings will be below the Base Flood Elevation and the type of manufacture and construction of portable and modular prefab units does not include Floodproofing. The buildings are designed to be moveable, if necessary, in the event of severe flooding. Also, by the nature of these buildings being temporary and the requirement that they be removed after a period of 36 months reduces risk and cost of repetitive loss damage over time. Where is it feasible, openings in the envelope or foundation walls will be provided to allow inflow and outflow of water in a flood event. The ordinance does not specifically address temporary buildings; however American Society of Civil Engineers (ASCE) 24-14k does, as does Section 108 of the 2015 International Building Code portion of the 2018 Connecticut State Building Code, as cited in State Code Modification Request Response 21-0489 NEW HAVEN 155 Burr Street.

The Applicant seeks Variances on Section 5: SECTION 5. - PROVISIONS FOR FLOOD HAZARD REDUCTION generally, notwithstanding any non-applicable sections, variances for the following sections:

*5.1.2 New construction and substantial improvements shall be constructed with materials resistant to flood damage;*

*5.1.3 New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;*

*5.1.4 Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within components during flooding conditions;*

*5.1.5 New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;*

*5.1.6 New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the system into flood waters;*

*5.1.7 On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding;*

*5.1.8 In any portion of a watercourse which is altered or relocated the flood carrying capacity shall be maintained;*

*5.1.10 Compensatory storage. The water holding capacity of the floodplain, except those areas which are tidally influenced, shall not be reduced. Any reduction caused by filling, new construction or substantial improvements involving an increase in footprint to the structure, shall be compensated for by deepening and/or widening of the*

*floodplain. Storage shall be provided on-site, unless easements have been gained from adjacent property owners; it shall be provided within the same hydraulic reach and a volume not previously used for flood storage; it shall be hydraulically comparable and incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Compensatory storage can be provided off-site if approved by the municipality.*

*5.1.11 Equal conveyance. Within the floodplain, except those areas which are tidally influenced, as designated on the flood insurance rate map (FIRM) for the community, encroachments resulting from filling, new construction or substantial improvements involving an increase in footprint of the structure, are prohibited unless the applicant provides certification by a registered professional engineer demonstrating, with supporting hydrologic and hydraulic analyses performed in accordance with standard engineering practices, that such encroachments shall not result in any (0.00 feet) increase in flood levels (base flood elevation). Work within the floodplain and the land adjacent to the floodplain, including work to provide compensatory storage shall not be constructed in such a way so as to cause an increase in flood stage or flood velocity.*

*5.1.12 Above-ground storage tanks. Above-ground storage tanks (oil, propane, etc.) which are located outside or inside of the structure must either be elevated above the base flood elevation (BFE) on a concrete pad, or be securely anchored with tie-down straps to prevent flotation or lateral movement, have the top of the fill pipe extended above the BFE, and have a screw fill cap that does not allow for the infiltration of flood water.*

*5.1.13 Portion of structure in flood zone. If any portion of a structure lies within the special flood hazard area (SFHA), the entire structure is considered to be in the SFHA. The entire structure must meet the construction requirements of the flood zone. The structure includes any attached additions, garages, decks, sunrooms, or any other structure attached to the main structure. Decks or porches that extend into a more restrictive flood zone will require the entire structure to meet the standards of the more restrictive zone.*

*5.1.14 Structures in two flood zones. If a structure lies within two or more flood zones, the construction standards of the most restrictive zone apply to the entire structure (i.e., V zone is more restrictive than A zone; structure must be built to the highest BFE). The structure includes any attached additions, garages, decks, sunrooms, or any other structure attached to the main structure. (Decks or porches that extend into a more restrictive zone will require the entire structure to meet the requirements of the more restrictive zone.)*

*5.1.15 No structures entirely or partially over water. New construction, substantial improvements, and repair to structures that have sustained substantial damage cannot be constructed or located entirely or partially over water unless it is a functionally dependent use or facility.*

*5.3.1 Special flood hazard areas (A and AE). In all areas of special flood hazard A and AE where base flood elevation data has been provided, the following provisions shall apply in addition to all general standards contained in section 5.1*

*5.3.1.2 Non-residential construction.*

*5.3.1.2.1 “New construction or substantial improvement to any commercial, industrial, or non-residential structure located in Zone A and AE shall have the lowest floor, including basement, elevated to at least one foot above the base flood elevation; or*

*5.3.1.2.2 Non-residential structures located in all A zones may be floodproofed at least one foot above the base flood elevation in lieu of being elevated provided that together with all attendant utilities and sanitary facilities the areas of the structure below the required elevation are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.*

*5.3.2.2. Electrical, plumbing, and other utility connections are prohibited below the base flood elevation; and*

*5.3.2.3 Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator).*

*5.3.4 Coastal high hazard areas (Zone VE). Located within the areas of special flood hazard established in section 3.2 are areas designated as coastal high hazard area VE. Since these areas have special flood hazards associated with high velocity waters, including hurricane wave wash, the following provisions shall apply:*

*5.3.4.1 All new construction or substantial improvement shall be located 25 feet landward of the reach of the mean high tide Connecticut Coastal Jurisdiction Line as defined in Connecticut General Statutes 22a-359 as amended by Public Act 12-101;*

*5.3.4.2 All new construction or substantial improvement shall be elevated so that the bottom of the lowest supporting structural horizontal member (excluding pilings or columns) is located no lower than one foot above the base flood level, with all space below the lowest supporting member open so as not to impede the flow of water;*

*5.3.4.3 All new construction or substantial improvement shall be securely anchored on pilings or columns;*

*5.3.4.4 All pilings or columns and the attached structures shall be anchored to resist flotation, collapse, and lateral movement due to the effect of wind and water loads acting simultaneously on all building components. The anchoring and support system shall be designed with wind and water loading values which equal or exceed the 100 year mean recurrence interval (one percent annual chance floods and winds);*

*5.3.4.5 A registered professional engineer or architect shall review and/or develop structural design specifications and plans for construction and shall certify that the design, specifications, and methods of construction are in accord with acceptable standards of practice for meeting the provisions contained in sections 5.3.4.2—5.3.4.4 of this ordinance;*

In order to grant a Flood Damage Prevention Ordinance Variance, the Commission must consider the following factors in Section 7.5.1 of the FDP Ordinance. These have been addressed by applicant in the Variance application.

	Ordinance text	Applicant Response	
7.5.1.1	<i>The danger that materials may be swept onto other lands to the injury of others</i>	The modular trailers will be installed elevated above the existing grade. The trailers include a structural foundation designed to anchor the structures. The anchoring will prevent the structures from being swept downstream. See the memorandum by K. Elaine Rogers, P.E. of Henderson Rogers Structural Engineers, LLC, dated 9/16/2021, submitted herewith, which explains HRSE’s approach to designing the foundations and hold-down anchors for the modular buildings and storage units. In the event of a major storm, the modular trailers could be disconnected and moved	

		offsite until the event is over. The trailers will be removed from the site at the end of the three-year period.	
7.5.1.2	<i>The danger to life and property due to flooding or erosion damage;</i>	<b>Section 7.5.1.2.</b> The development property is located in a coastal flood zone (Zone AE). The Base Flood Elevation (BFE) for the area is 12. Due to the tidal nature of the flooding, there will not be an increase in BFE. The modular trailers will be installed on existing paved surfaces, and as such, will not create an increased risk of downstream flooding or erosion. Existing pavement will be removed to offset the installation of new pavements, to avoid flooding or eroding downstream areas.	
7.5.1.3	<i>The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;</i>	The modular trailers are not floodproofed by their manufacturer. In a flooding event, the structures would be susceptible to being damaged. The trailers will be leased and include conditions to be insured to cover losses or damages.	
7.5.1.4	<i>The importance of the services provided by the proposed facility to the community;</i>	The airport provides a key service to the region by facilitating air traffic. The New Haven Vision 2025 indicates that the “The vision for the next decade is to attract commercial service to Florida and two to three hub cites.” The temporary expansion of the existing terminal facilities will allow for an expansion of this service. The 3-year period will allow for the planning and construction of a new facility on the east side of the airport.	
7.5.1.5	<i>The necessity of the facility of a waterfront location, in the case of a functionally dependent facility;</i>	The airport is not a functionally dependent facility.	
7.5.1.6	<i>The availability of alternative locations which are not subject to flooding or erosion damage for the proposed use;</i>	The location of the modular trailers is dependent on the location of the existing airport facilities. The hold room and office trailers must be interconnected with the Terminal and Administrative Buildings to meet operational and security requirements. The Airline support trailers must be located on the aircraft apron in order to meet the airline operational requirements. There is no realistic or practical alternative location for the modular trailers outside of the flood hazard area.	
7.5.1.7	<i>The compatibility of the proposed use with</i>	The existing property is zoned and operates	

	<i>existing and anticipated development;</i>	as an airport, as it has for nearly a century. The proposed modular trailers will support the existing uses.	
7.5.1.8	<i>The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;</i>	The New Haven Vision 2025 references Air Transportation in Chapter V. The report notes that “the facility is substantially below its operational capacity for scheduled services.” This expansion will allow for an increase in scheduled services. The Commission has already approved a site plan and coastal site plan for this project; in those applications, the Avports team demonstrated that this temporary project will reduce impervious surface on the airport property and will not increase flood levels in the area.	
7.5.1.9	<i>The safety of access to the property in times of flood for ordinary and emergency vehicles;</i>	The primary access to the property is from the intersection of Burr St. and Fort Hale Rd. Emergency access to the property is at this intersection. Burr St. is located outside of the 100-year flood zone and would not be flooded in a storm event.	
7.5.1.10	<i>The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and</i>	The publicly available information provided by FEMA only includes the Base Flood Elevation and does not include the information requested by this section. The airport is located in a depression within the landscape and that depression is drained by Tuttle Brook and Morris Creek. Any flooding on site is more related to rising tidal waters and storm surge. For the approach to the structural design of the tie downs, refer to the Henderson Rogers memo submitted herewith. See also discussion in Section 7.5.1.1, above.	
7.5.1.11	<i>The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, and streets and bridges.</i>	The airport does not typically rely on city resources to address flooding. Cleanup and remediation are contracted out. The airport would only request city resources in instances of life safety emergencies, or if assistance is needed from the office of emergency management. The cost to provide utility services to the trailers is \$30,000. Tweed-New Haven Airport is currently revising its FAA- required and approved Airport Emergency Plan (AEP). The AEP addresses, among other things, natural	



		<p>disaster protocols.          Additionally, the airport is developing a supplement that will address life and safety protocols for flooding at the commercial terminal complex.</p>	
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Granting of the variances will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create a nuisance, cause fraud on or victimization of the public, or conflict with existing laws or ordinances

**FLOOD PLAIN VARIANCE FINDINGS**

The Commission hereby grants the requested variances with the following notations and conditions:

- The structures that require a variance are temporary and will be removed from site after 36 months. The Flood Plain Development Permit will expire after a period of 36 months from issuance of building permit.
- Temporary Structures are not specifically defined in the Flood Protection Ordinance. However, they are noted in American Society of Civil Engineers (ASCE) 24-14, Flood Resistant Design and Construction ACSE 24: Temporary structures must be anchored to prevent flotation, collapse, or lateral movement and have openings.
- Pursuant to section 7.5.3.3 of the New Haven Flood Damage Prevention Ordinance, “[a]ny applicant to whom a FDP variance is granted shall be given a written notice specifying the difference between the base flood elevation and the elevation to which the structure is to be built and stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation up to amounts as high as \$25 for \$100 of insurance coverage.” (See section 7.5.3.3 of the New Haven Flood Damage Prevention Ordinance). This report shall serve as the written notice for this requirement. The structures subject to this variance application differ from base flood elevation by 4.78 feet, 7.4 feet, and 7.3 feet.

**CONDITIONS OF APPROVAL**

1. The buildings subject to this variance shall be removed on expiration of the code modification (36 months).
2. The temporary structures shall be adequately anchored to prevent flotation, collapse, or lateral movement to the satisfaction of the Building Inspector.
3. In advance of a storm event the proposed operation shall be cleared of occupancy and any material at risk of becoming waterborne shall be secured according to HVN Flood Emergency Protocols document
4. The applicant shall record on the City land records an original copy of this Flood Damage Prevention Variance report (to be provided by the City Plan Department) and shall furnish written evidence to the City Plan Department that the document has been so recorded (showing volume and page number), prior to City Plan signoff on detailed plans for issuance of building permit.
5. At the time of application for a building permit, a FEMA Elevation Certificate shall be filed with the building official.

**ADOPTED:** September 22, 2021  
Leslie Radcliffe  
Chair

**ATTEST:** Aicha Woods  
Aicha Woods  
Executive Director, City Plan Department

Review of the Flood Damage Prevention Variance, based upon the application and materials submitted by the applicant, was conducted at hearing by the City Plan Commission of the City of New Haven in accordance with the Connecticut General Statutes (Section 7-148(c)(7)) The Building Official hereby receives the above written findings, and any conditions thereof are made conditions of the building permit.

**ADOPTED:** September 15, 2021,

**ATTEST:** Jim Turcio  
Jim Turcio  
Building Official