

SITE PHYSICAL ADDRESS

[REDACTED]
St. Louis (St. Louis Co.), MO 63110

SITE NO., LAT/LONG, & ELEVATION

Location ID: MO55
N 38° 37' 22.44"
W 90° 14' 20.93"
713 feet (estimated)¹

DATE OF INSPECTION

April 16, 2015

PROPONENT'S POINT-OF-CONTACT

Robert Hicks, Director of Facilities
St. Louis University Hospital
[REDACTED]
St. Louis, MO 63110



GENERAL AREA DESCRIPTION

The St. Louis University Hospital Heliport is a private (PPR) landing site located atop the hospital building; 1.88 nm WSW of the center of St. Louis, MO, on a true north bearing (*from* the city center) of 256.32°. The entire area surrounding the hospital complex is densely residential and mixed use with a scattering of vacant lots to the N. Other than the hospital itself, and surrounding clinical facilities, no especially noise sensitive areas are identified.

The site is located 9.73 nm SE of Lambert-St. Louis International Airport and underlies the 2500-foot floor of the St. Louis Class B airspace area. There are numerous PPR heliports in the vicinity.

HELIPORT/HELIPAD DESCRIPTION

The helipad is a 47.5-foot-square unpainted aluminum plank surface elevated to approximately 178 feet above the street, atop a multi-story building. It is surrounded on all sides by a 4.5-foot chain link safety net. The landing surface is in good condition. The design helicopter is the Eurocopter BK–117 (D = 42.7'; RD = 36.1'; MGTOW = 7,385 lbs.).

Except for walkway access, the entire surface of the structure comprises the TLOF and is marked with a non-standard white triangle. There is no hospital cross, “H” symbol, size/weight limitation box, or TDPC. The TLOF perimeter is marked with a dashed white line which appears to have—at one time—incorporated non-standard internal lighting (not functioning at the time of inspection). The triangle marking is in fair condition; the perimeter marking is in poor condition. The TLOF is oriented 015°–195° & 105°–285°, relative to true north. The TLOF corners are lighted with perimeter/flood lights incorporating 2 flood lamps and one amber

¹ For the purposes of this study, the elevation of the helipad was estimated by subtracting the measured height-above-TLOF of a cell tower 1,341 feet SSE from its known MSL height as recorded in the OE/AAA database (2001–ACE–2188–OE).

perimeter lamp in a single unit (4 total units; one in each corner). The TLOF surface also contains 6 flush-mounted aircraft tie-down fixtures.

NOTE: For the purposes of this study, it is assumed that the proponent would be willing to repaint the TLOF surface to conform to the recommendations of AC 150/5390–2C, Par. 414, and associated figures. The minimum TLOF recommended by the advisory circular for an elevated heliport is 1 times the overall length of the design helicopter (D), or 42.7 feet (4.8 feet smaller than the currently marked space). Since the size of the FATO/safety area, and obstruction penetrations calculated from them, are based on the size of the TLOF, use of the absolute minimum affords the greatest advantage to the proponent.

The minimum FATO required to accommodate the minimum TLOF is a 70.7-foot square. This reflects a 14.0-foot margin at all points along the TLOF boundary, as recommended by AC 150/5390–2C, Par. 407(b)(2).

The corresponding safety area is a 94.7-foot square. This reflects a 12.0-foot margin on all sides of the FATO, in accordance with the formula found in AC 150/5390–2C, Table 4–1, and assumes that the proponent will take full advantage by installing the required markings. As is typical with elevated structures, the FATO and Safety Area partially extend into the open air, and are unmarked and unlighted.

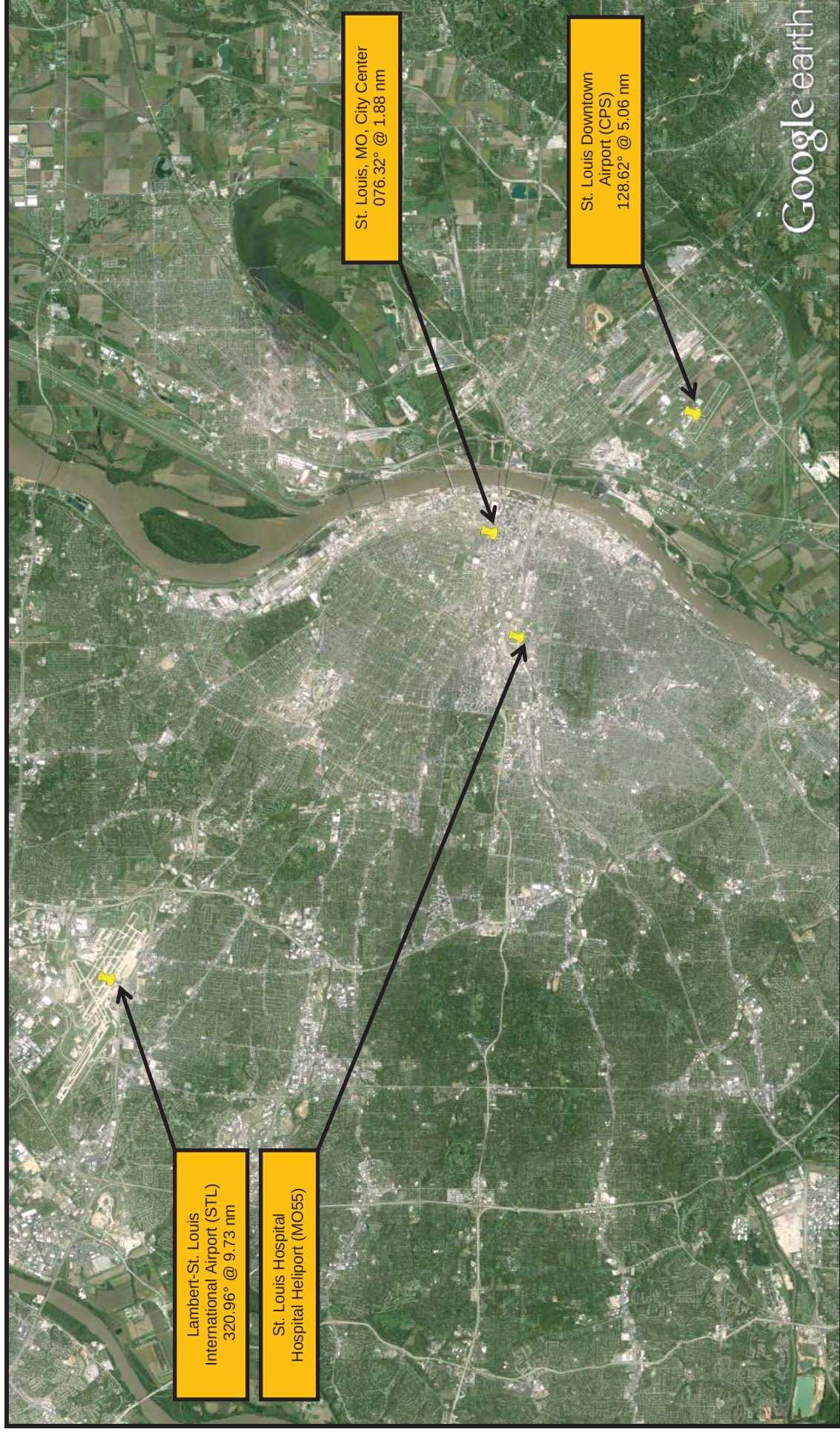


Figure 1: Area Overview



Figure 2: Airspace Overview

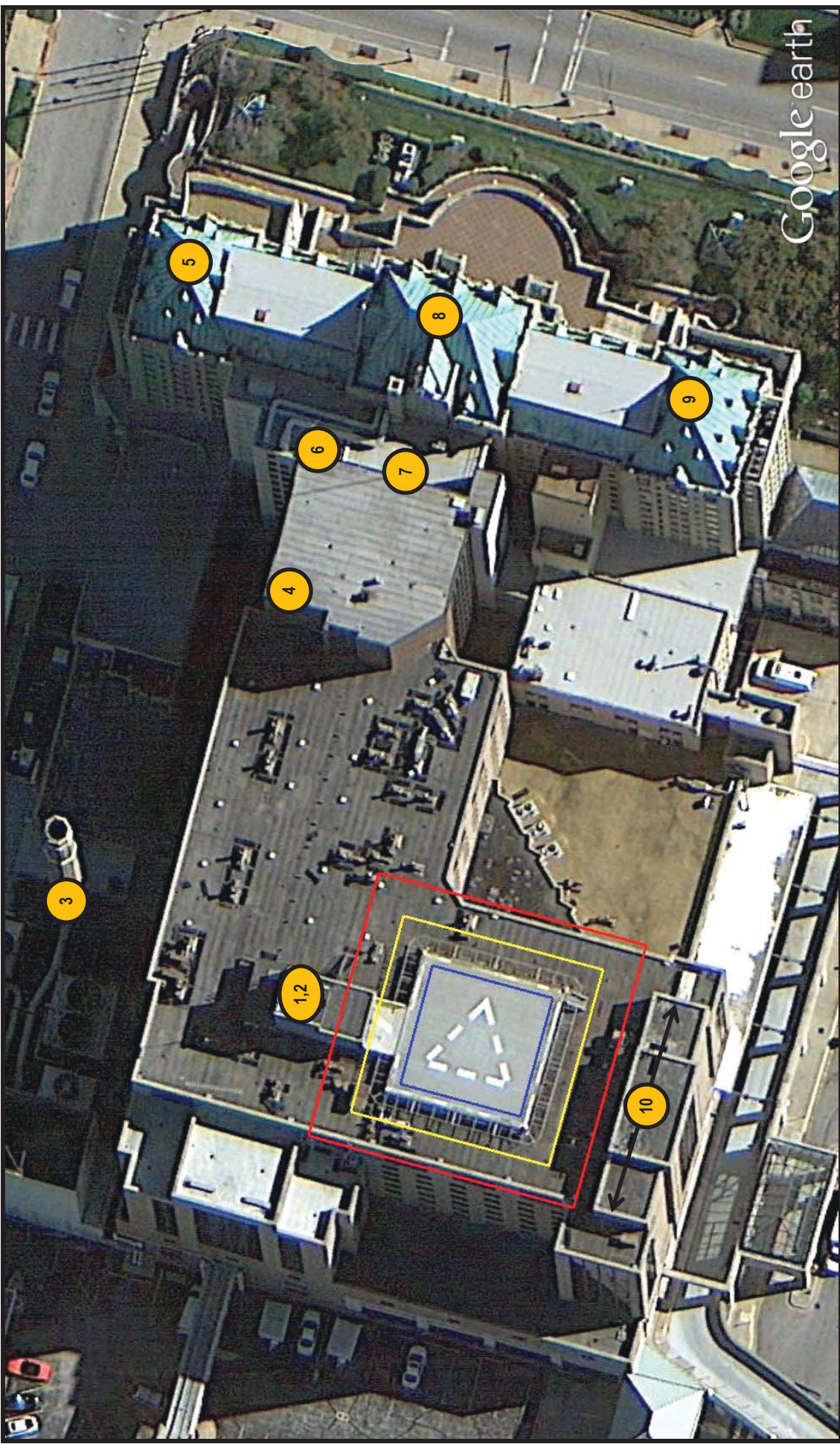


Figure 3: Obstructions Outside the Safety Area

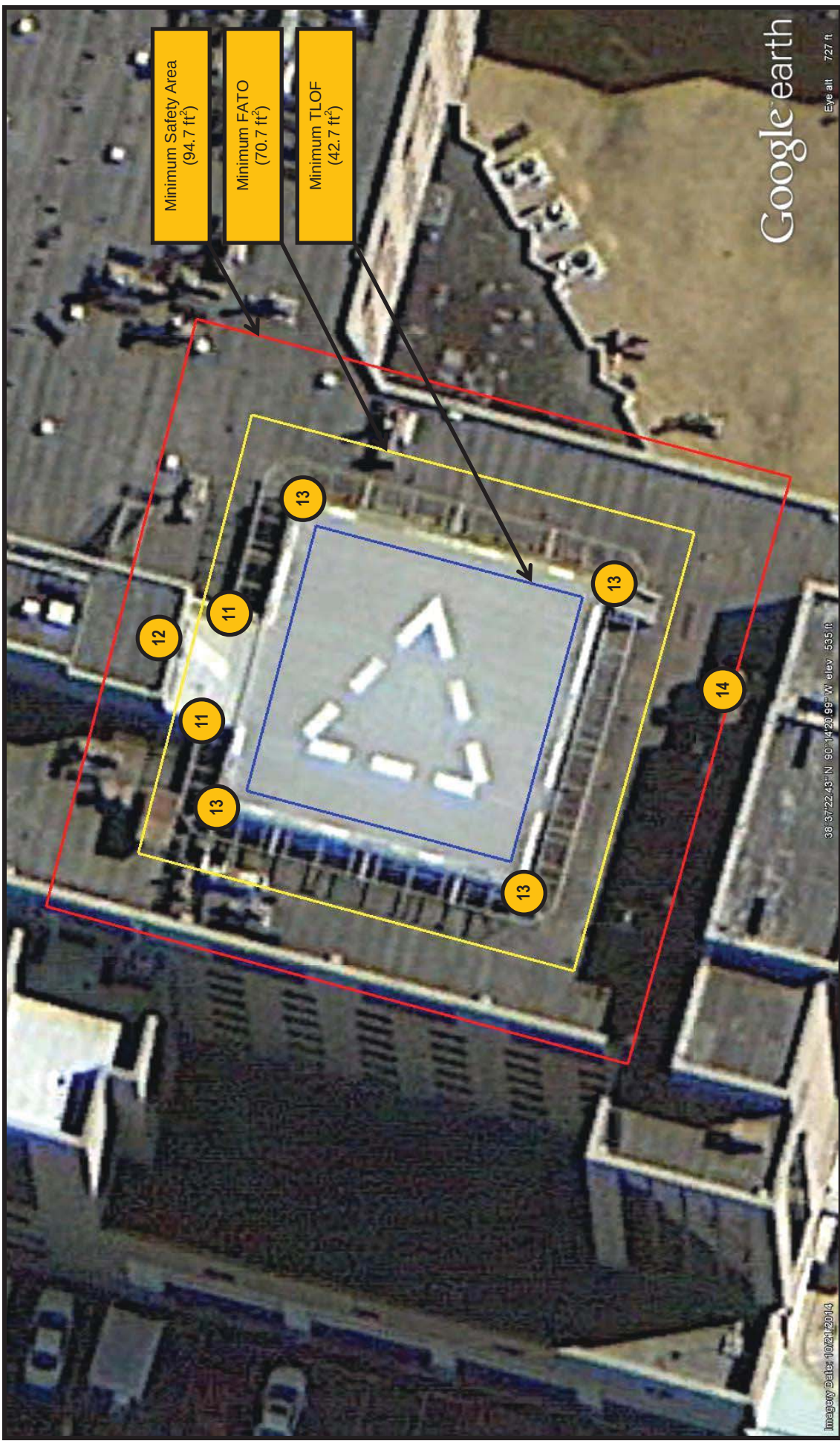


Figure 4: Obstructions Inside the Safety Area

Table 1: Obstructions Outside FATO/Safety Area¹

NO.	OBSTRUCTION TYPE	AZIMUTH FROM TLOF CENTER (TRUE NORTH) ²	HEIGHT ABOVE TLOF ELEV	DISTANCE FROM FATO	MAXIMUM PENETRATION
1	Elevator Shaft	005°–020°	25'	17'	22.8'
2	Wind Cone	011°	40'	33'	35.9'
3	Smoke Stack	018°	54'	106'	40.8'
4	Building	064°–094°	33'	84'	22.5'
5	Church Spire	069°	65'	230'	36.3'
6	Antenna	075°	70'	161'	49.9'
7	Antenna	083°	105'	149'	86.4'
8	Church Spire	087°	≅ 75'	246'	44.3'
9	Church Spire	108°	65'	224'	37.0'
10	Building	164°–236°	7'–14'	19'	11.7'

Table 2: Obstructions Inside FATO/Safety Area

NO.	OBSTRUCTION TYPE	AZIMUTH FROM TLOF CENTER	HEIGHT ABOVE TLOF ELEV ³	DISTANCE FROM TLOF CENTER	EXCEEDS MAX HEIGHT BY
11	Hand Rail (2)	351° & 026°	3.5'	29' & 27'	3.2'
12	Elevator Shaft Foyer	357°–024°	≅ 11.0'	37'	10.8'
13	Raised Flood/Perimeter Lights (4)	All Quads	1.5'	35'	1.3'
14	Building Ventilation Equipment	178°	5.0'	47'	4.8'

OBSTRUCTION NOTES

¹ Except where otherwise noted, all obstructions listed in Table 1 penetrate the obstruction-free approach/departure surface ratio of 8:1 (7.125°).

² Except for objects within the FATO or Safety Area, penetrating obstructions are cataloged from due N of the center of the TLOF, clockwise through NNW.

³ Unless otherwise noted, objects listed in Table 2 exceed the maximum recommended height above FATO elevation of 2 inches (AC 150/5390–2C, Pars. 407[e] & 408[c]).

INGRESS/EGRESS

The heliport FATO/safety area is obstructed by permanent and semi-permanent objects that pose a serious hazard to helicopter operations. The most serious obstructions cannot be easily lowered or removed. Flight Standards cannot recommend an approach/departure route into or out of a hazardous area that does not appear to have reasonable alternatives for mitigation. Therefore, no recommendation for ingress/egress is made in this case.

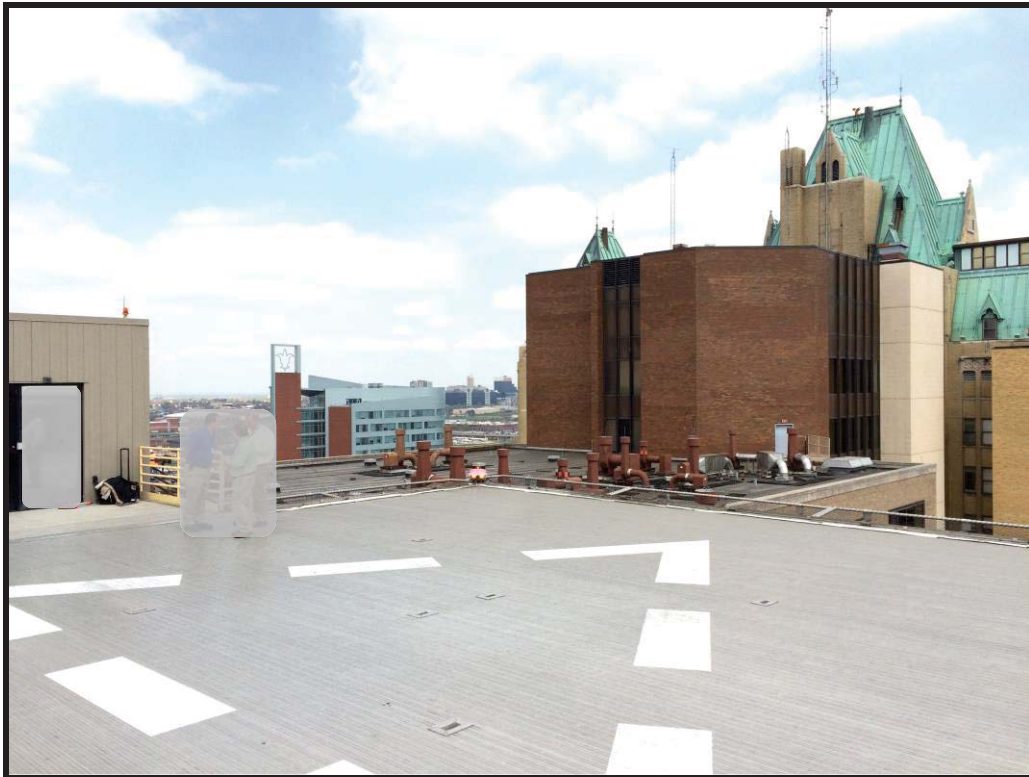


Figure 5: TLOF Overview, Looking NE



Figure 6: TLOF Overview, Looking SE



Figure 7: TLOF Overview, Looking SW

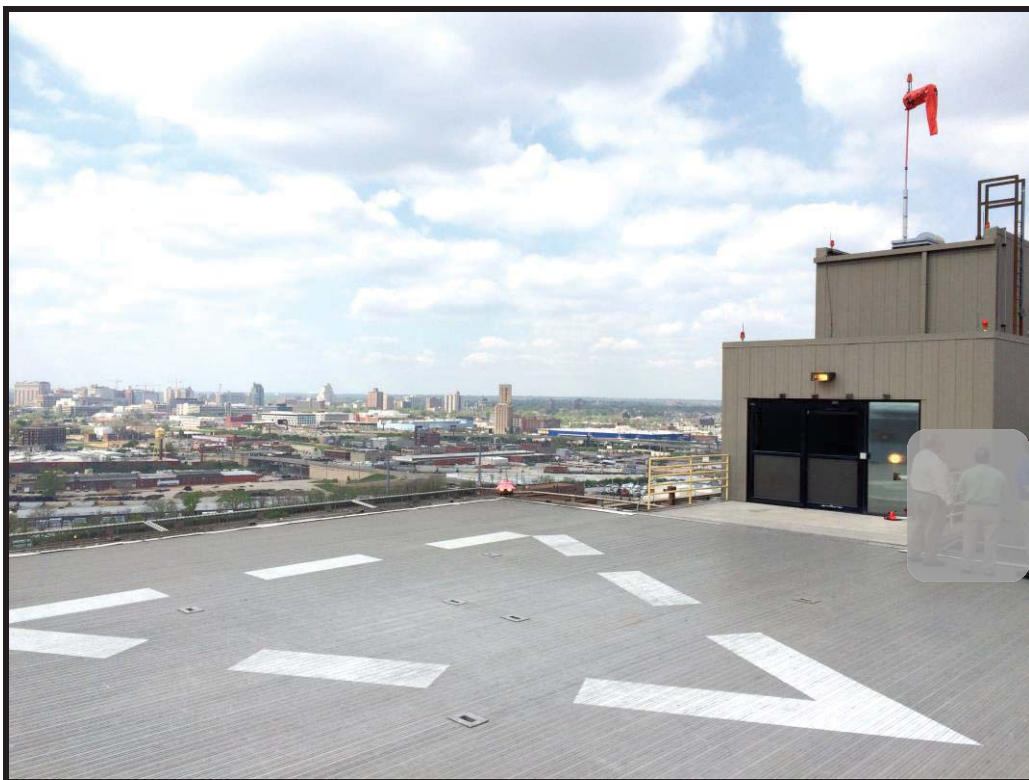


Figure 8: TLOF Overview, Looking NW

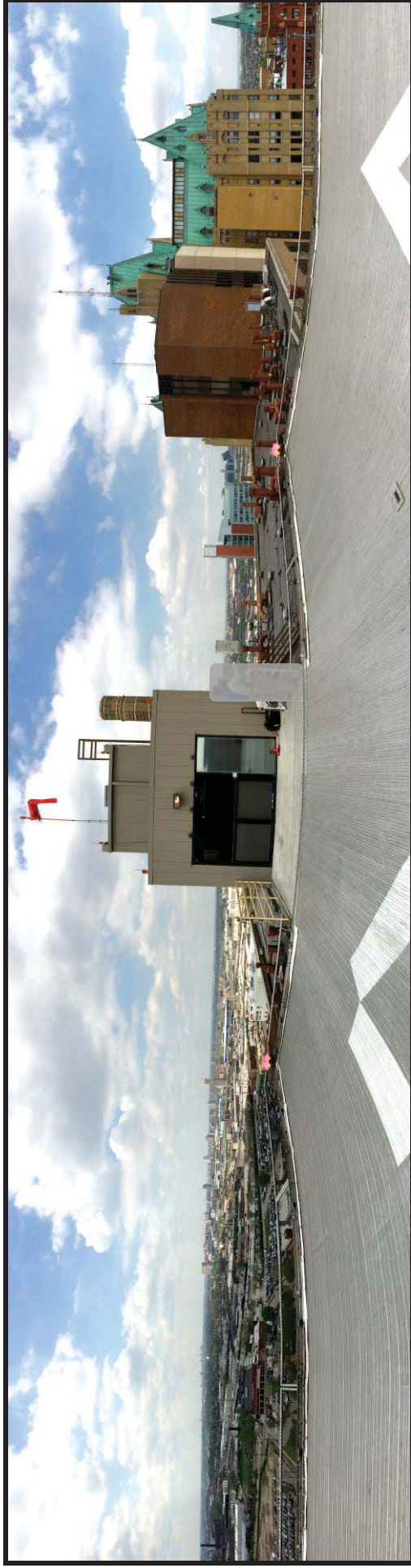


Figure 9: Panoramic View, W Clockwise Through E (L to R)

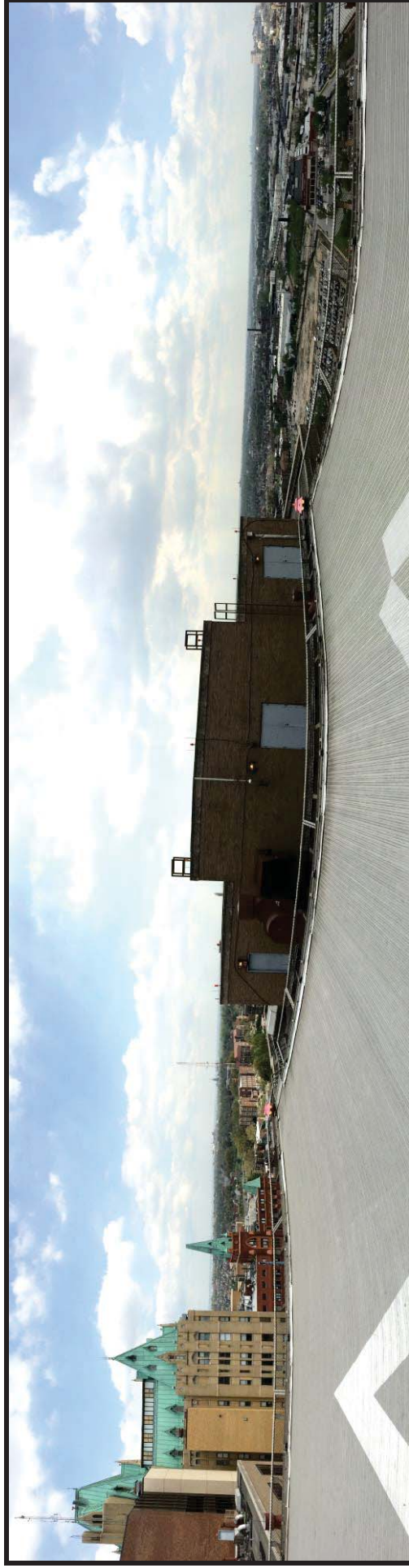


Figure 10: Panoramic View, E Clockwise Through W (L to R)



Figure 11: From TLOF Center, Looking N

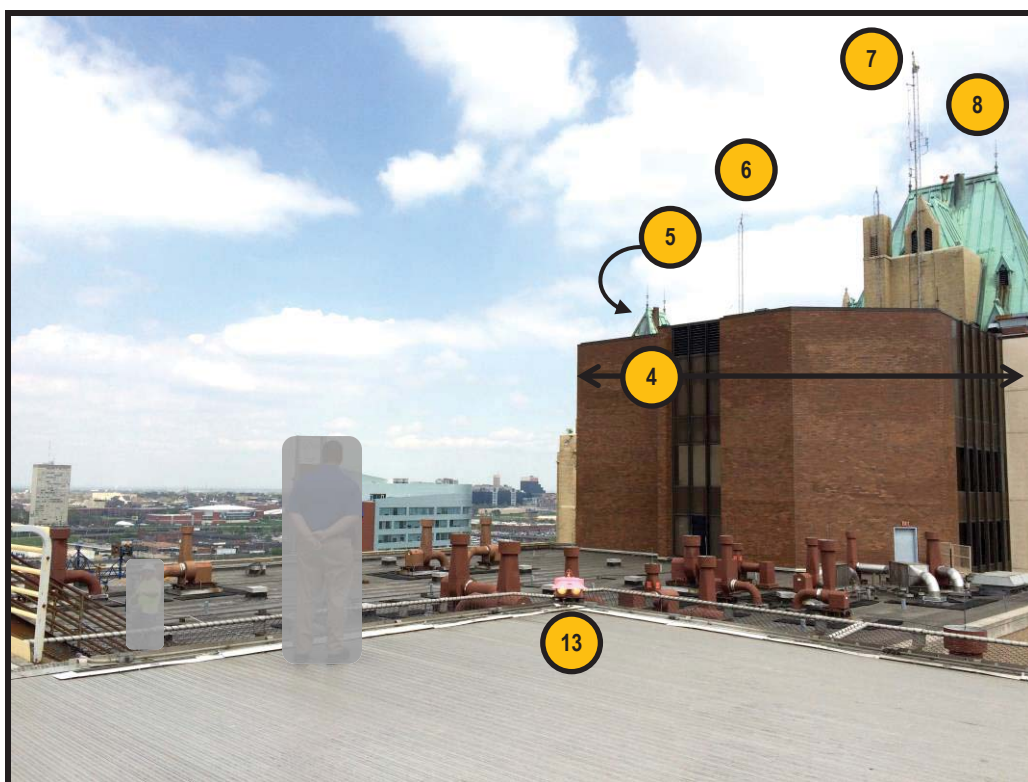


Figure 12: From TLOF Center, Looking NE

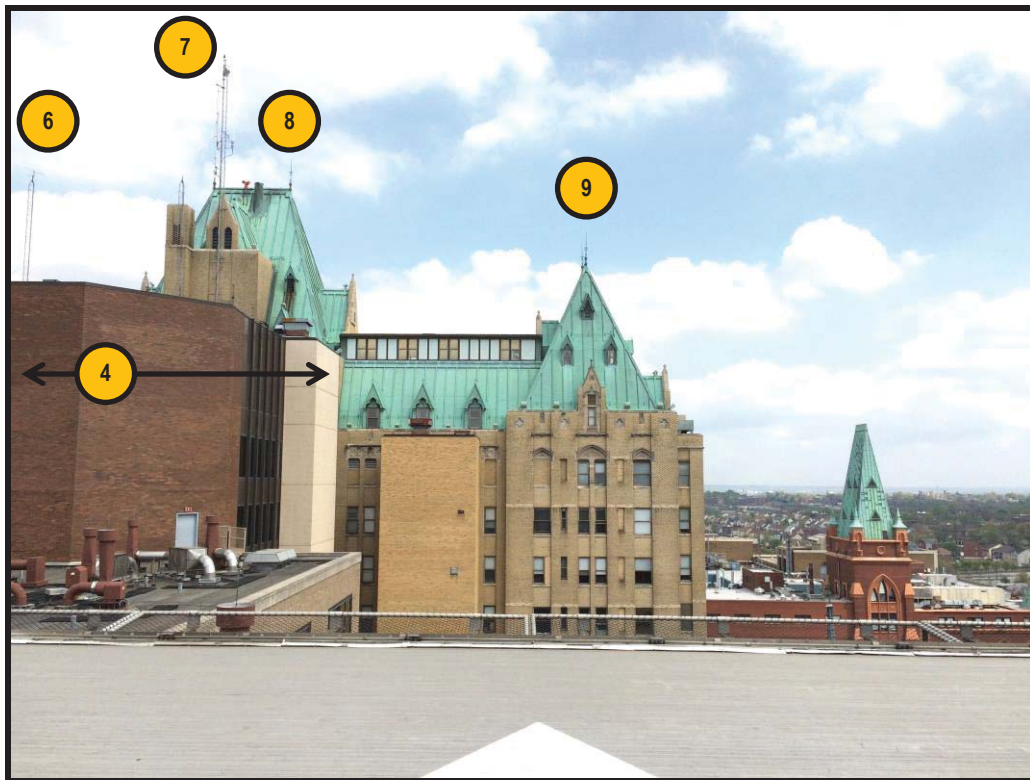


Figure 13: From TLOF Center, Looking E



Figure 14: From TLOF Center, Looking SE



Figure 15: From TLOF Center, Looking S

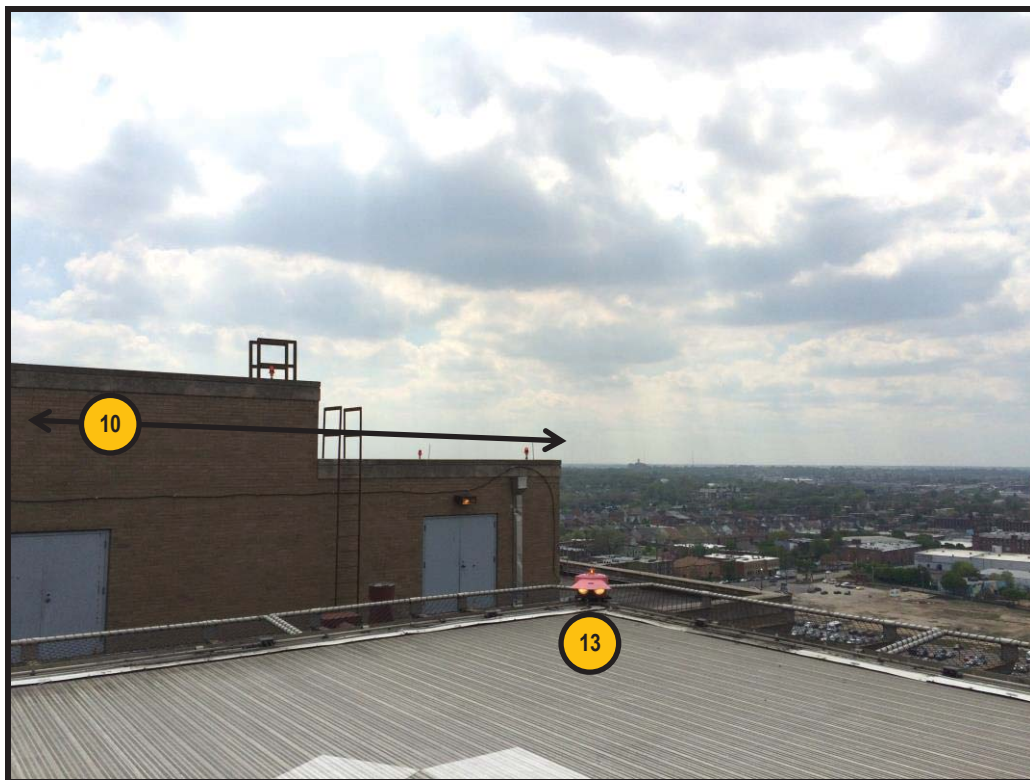


Figure 16: From TLOF Center, Looking SW



Figure 17: From TLOF Center, Looking W

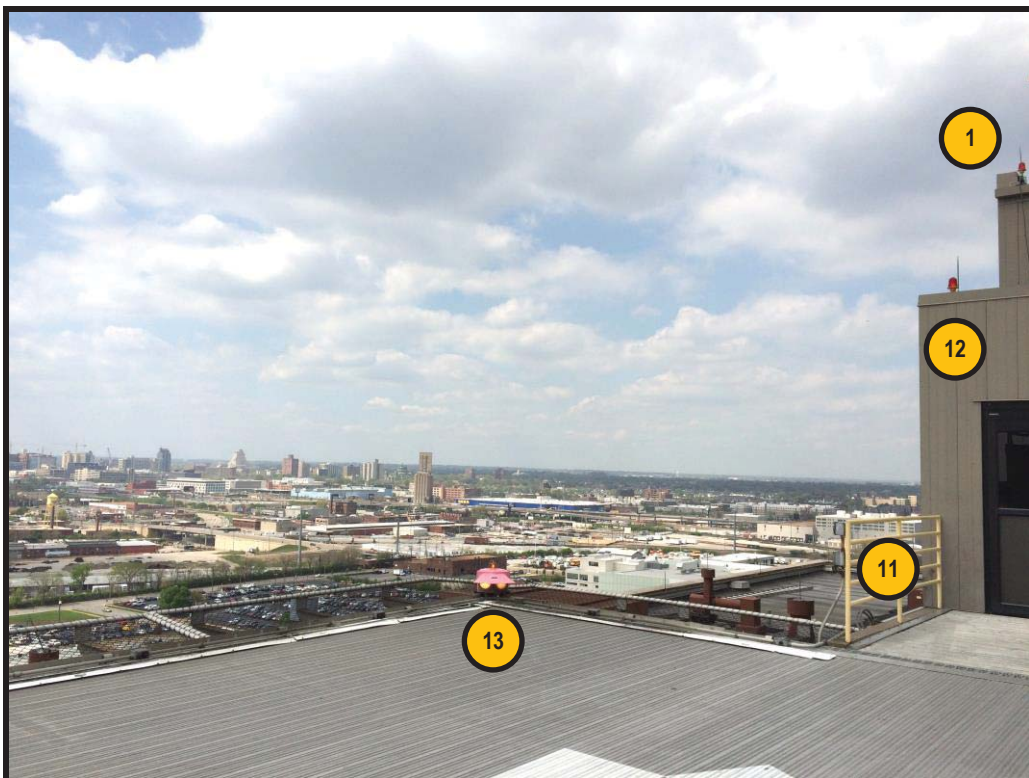


Figure 18: From TLOF Center, Looking NW



Figure 19: Raised TLOF Perimeter/Flood Light (Table 2, Item 13)

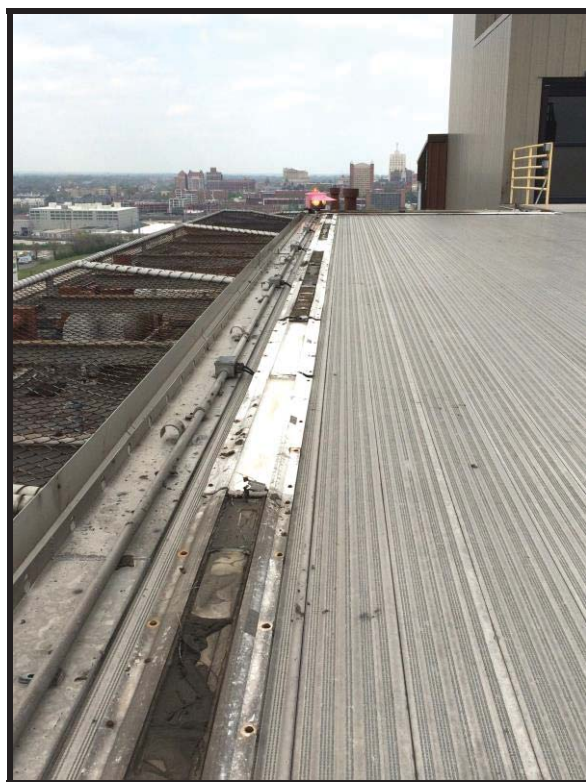


Figure 20: TLOF Perimeter Marking; Safety Net

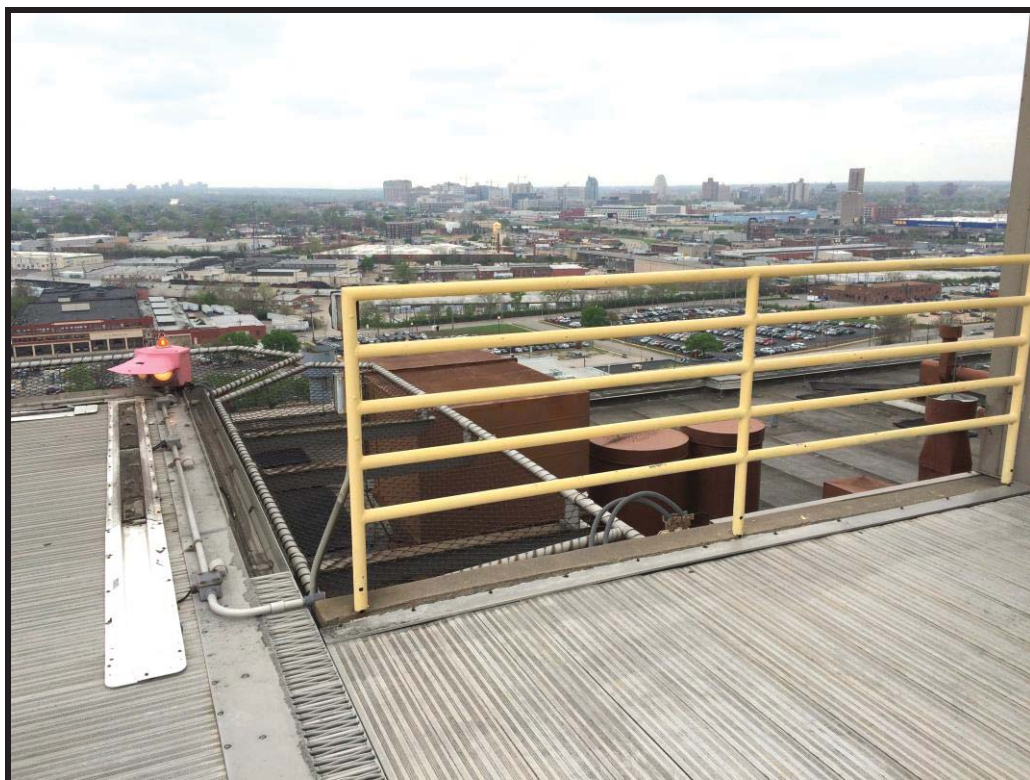


Figure 21: Hand Rail (Table 2, Item 11); Safety Net; Perimeter Marking

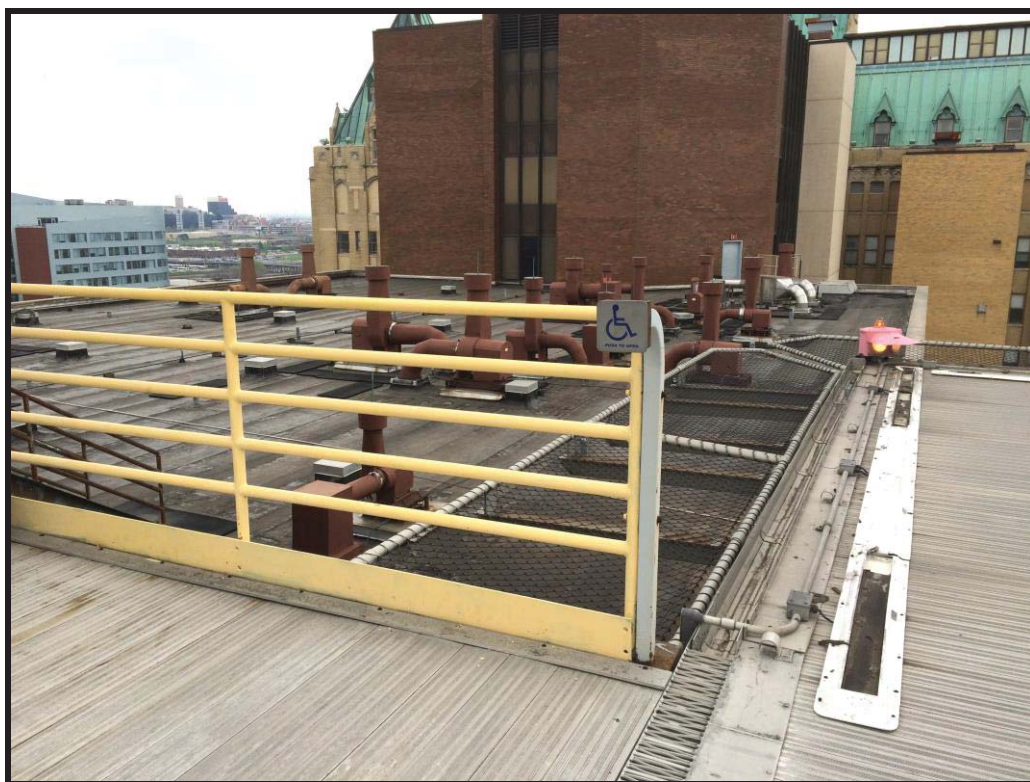


Figure 22: Hand Rail (Table 2, Item 11); Safety Net; TLOF Perimeter Marking



Figure 23: Building Ventilation Equipment (Table 2, Item 14)

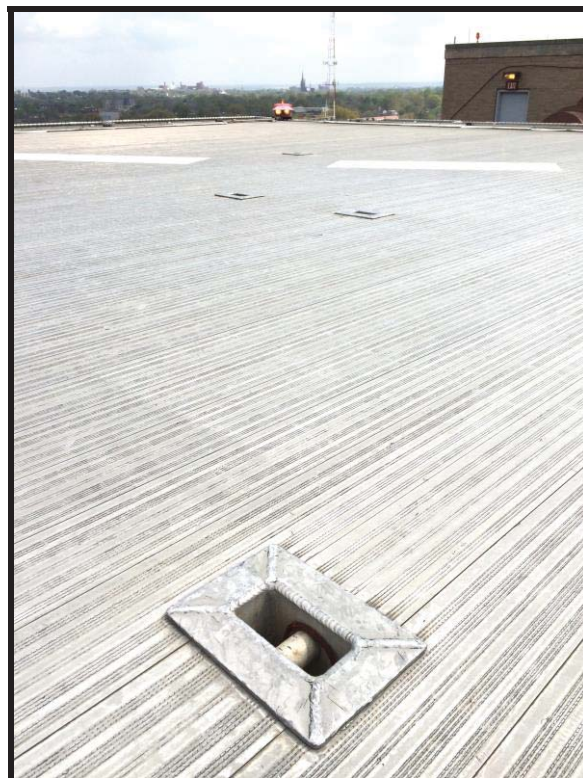


Figure 24: Aircraft Tie-down Fixtures

OBJECTION

It is the position of the Flight Standards Division that helicopter operations cannot be conducted from this site with an adequate margin of safety. We therefore recommend a finding of “objectionable” for this landing area. In arriving at this recommendation, we cite the following:

1. The final approach and takeoff area (FATO) and its associated safety area contain obstructions which significantly exceed the maximum height recommended for objects within this area: Notably, the structures and ductwork associated with the building ventilation systems, 4 raised perimeter/flood lights, an adjacent structure that houses an elevator shaft, and 2 handrails that extend from the entrance of the elevator shaft to the edge of the touchdown and liftoff area (TLOF).

In addition, we note the following:

1. The heliport is not marked in accordance with the recommendations of AC 150/5390–2C, Par. 414, and associated figures.
2. The heliport is not lighted in accordance with the recommendations of AC 150/5390–2C, Par. 415(a)(2).

X



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Eric E. Jaderborg
All-Weather Operations Program Manager
Central Region NextGen Branch, ACE–220