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RE: TOTE Truck Scale Canopy Roofs

Project Overview:

OAI was asked to investigate the condition of the canopy roofs at the TOTE freight yard. The two canopies are located at the North end of the yard and cover the entry truck scales as illustrated in Exhibit A below. Each canopy consists of a main roof over structural steel framing, along with a smaller roof at the catwalk below.

Exhibit A – Aerial View of Canopy Roofs

Observations – Upper Main Roofs:

The existing roof assembly consists of standing seam metal roof panels installed directly over 8" structural "zee" purlins spaced at 5'-0" on center. All roofs are of low slope (approximately 1:12) and subject to harsh marine conditions within 300' of the shoreline. Significant deterioration of the roof panels was observed in spots from the underside as shown in Exhibit B. Widespread flaking of the panel finish is also seen on the underside, exposing the bare substrate of the metal panel in some locations per Exhibit C. The canopy structure itself appears to be in generally good condition, however structural channels along both rake edges were found to have considerable corrosion (Exhibit D).

Exhibit B – Deterioration at Underside of Panel

Exhibit C – Flaking and Exposed Panel Substrate

Deterioration of the existing metal panels becomes more apparent from the roof level. Exhibit E illustrates the standing seam portion of the panel corroded to the point of disintegration. This is generally more prevalent along the roof eaves however similar damage is observed near the panel edge at the ridge line. This author also encountered several nests with hostile, unabated seagulls while on the roof.

Exhibit D – Corrosion at Structural End Channel

Exhibit E – Corrosion at Existing Roof Panel

Observations – Lower Catwalk Roofs:

Lower roofs above the catwalk area are much smaller in size (approximately 5') and are in generally good condition (Exhibit G). Panels in this area have a different profile and appear to have been installed more recently than the main roof above. Panels extend beneath translucent wall panels at the peak and have no gutter at the eave.

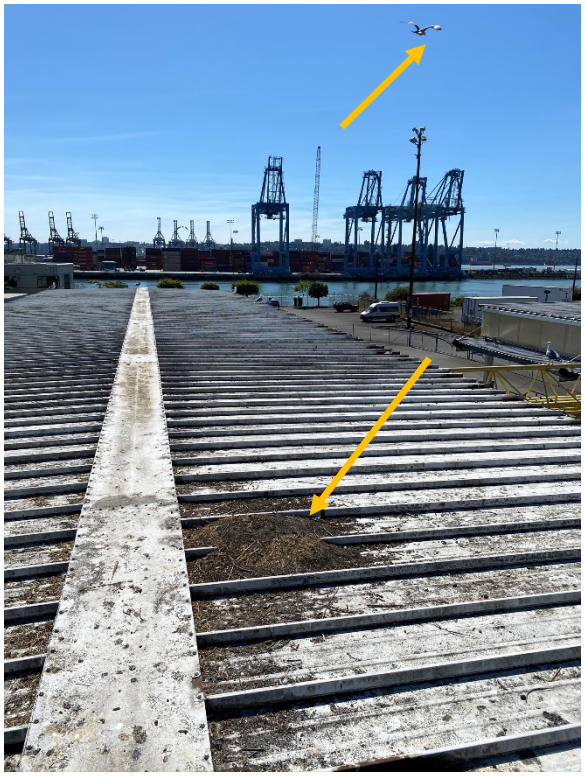

Exhibit F – Bird Nests at Canopy Roof

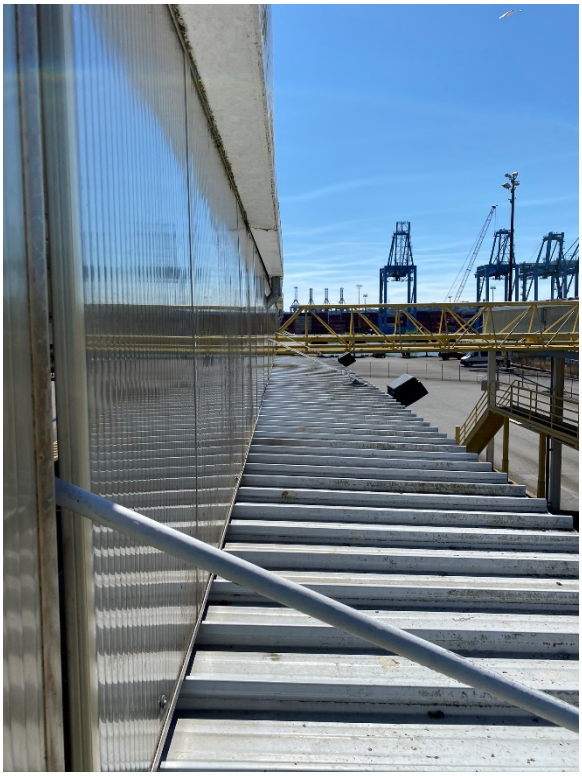

Exhibit G – Lower Catwalk Roof

Summary and Recommendations:

Deterioration of the upper main roof panels is widespread and generally beyond repair. A complete tear-off and replacement of the metal roofing at both canopies is recommended to protect the main structure below. In addition, c-channels are the rake edge of the canopy should also be replaced. Replacement roof panels should have a high-build Kynar finish suitable for marine conditions. The installation of bird deterrent at both canopies is also strongly recommended.

Panels above the lower catwalk area appear to be in good shape and show no signs of deterioration. At this time, no work is recommended in these areas.

Main Canopy Roof Replacement (+/- 10,500 sqft):

ROM Construction Cost Estimate:

Replace metal Panels:	$168,000
Grid-wire Bird Deterrent System:	$32,000
Total Construction Cost Estimate:	**$200,000**