

Department of Planning and Environment
GPO BOX 39
Sydney, 2001
Australia

Tokyo, 08 May 2019

Re: Heat Rejection System of Sydney Modern

This note is in regard to the design modification of the heat rejection system serving Sydney Modern.

Description of Modification

The modification is an amendment from the previous sea water heat exchange system to an on-site cooling tower system. There are three closed circuit cooling towers required for the heat rejection system of the new building. Each of these cooling towers are about 3.5mx2.5m in plan and 8.5m in height. To mitigate visual impact, these cooling towers are placed above the loading dock, where there is an existing excavation within the landscape. The cooling towers require a grille of 48m² for air intake and exhaust. The air intake and exhaust grille follows the slope of the landscape. Though it reduces the landscaped site area, the surrounding landscape is maintained to reduce the visibility of the grille.

Rationale for Modification

Numerous options have been considered for the location of the new cooling towers. Due to the size of the cooling towers and the shape of the site, it is not advisable to place the cooling tower on surface level of the development site. There were two underused spaces within the development which were considered. One is the top half of the double height fire egress path from Gallery 8 to Lincoln Crescent Road. However, in this location, it was not possible to contain the full height of the cooling tower within the available space. It was also deemed inappropriate for exhaust to be located adjacent to a public path, so this option was abandoned. The final solution utilizes the excavated zone above the loading dock. There is enough foot print and height to conceal the cooling towers.

The rooftop of the existing building was also considered for the location of the new cooling towers. Though there is available space, this option was not pursued due to risk in connection and visual impact on a heritage building.

No Change to Design Intent

All air intake and exhaust are all separate elements from the main building. By keeping the shape of the air intake and exhaust grille for the cooling tower independent from the architecture, we think we reached a reasonable solution. This system has been investigated with the relevant consultants and has been concluded that it is a satisfactory solution to serve Sydney Modern.