Stantec

Memo

Project:	Sandstone Lands Building	**Project No:**	29212-4
To:	Kylie Chu	**Date:**	23 September 2020
From:	Joseph Walsh		

RE: Lands Services Corridor

This memo outlines the design progression of services reticulating within the services corridor of the Lands Building. Stantec commenced the design in May 2016 and the corridor void was identified at that stage as an area of critical significance for the services design

The Lands Buildings has a number of very restrictive heritage design conditions which dictates some of the services design solutions. The preliminary design and the developed design for the first iteration of the project looked to achieve the following:

- Minimal impact on ceilings
- Minimal impact on cornices and doorways
- Minimal exposed services.

Stantec have been involved in the project since the design inception. In the initial design developed the scheme had the majority of services reticulating within the Lands' corridor services void. The section of the void can be seen in Diagram 1

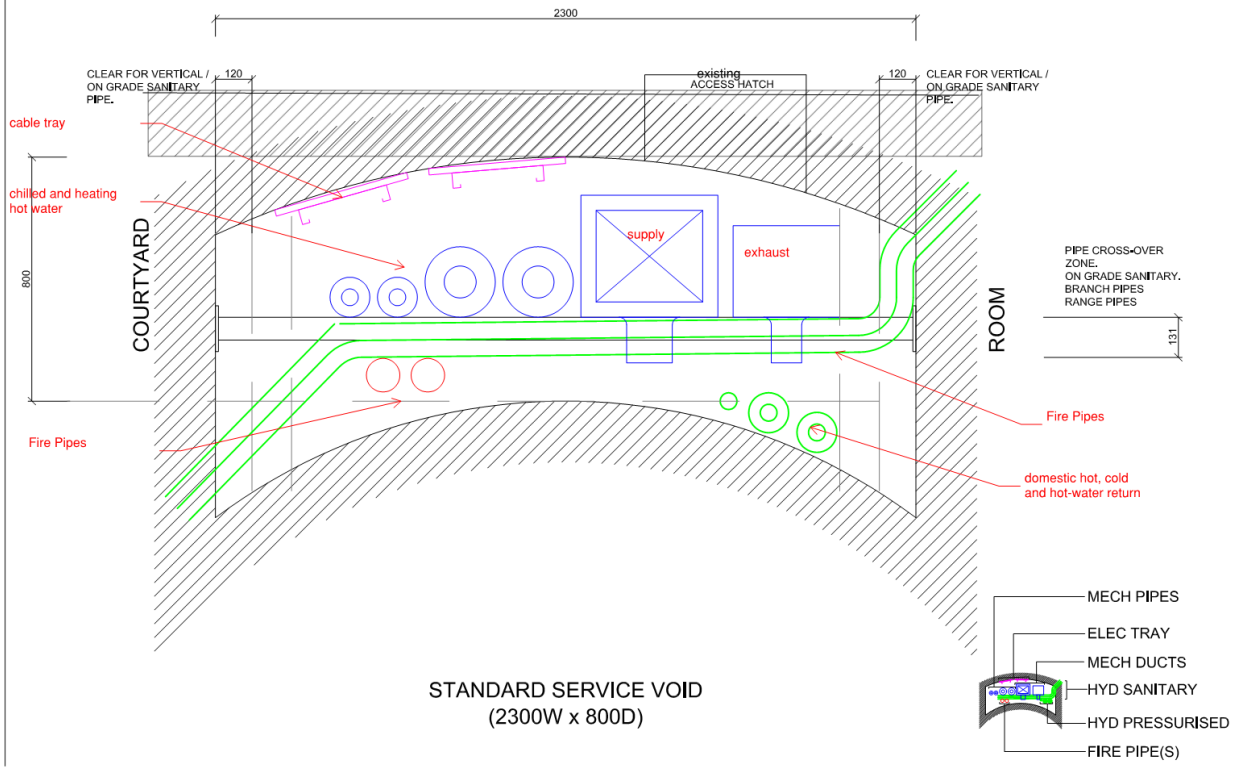

Diagram 1 (April 2018)

As can be seen from Diagram 1 the services void was going to be very congested and although possible theoretically it provided some obstacles practically.

1. Once an Early Contractor Involvement (ECI) Contractor was engaged to became apparent that this installation would be very difficult to install as the space would be classified as a confined space
2. As the areas is a confined space the number of workers required to be available to install the systems would have doubled a traditional installation.
3. Access required to enable the installation of services would have required significant demolition of the floor above each void area (See Diagram 2)
4. Later, it was revealed that the structural integrity of the arched section means it cannot carry any weight and additional bracing was required to stabilise the walls on either side. The addition of a structural bracing element meant the services could no longer fit within the void space. In addition, personnel could not work on the arch without risk of the arch failing.

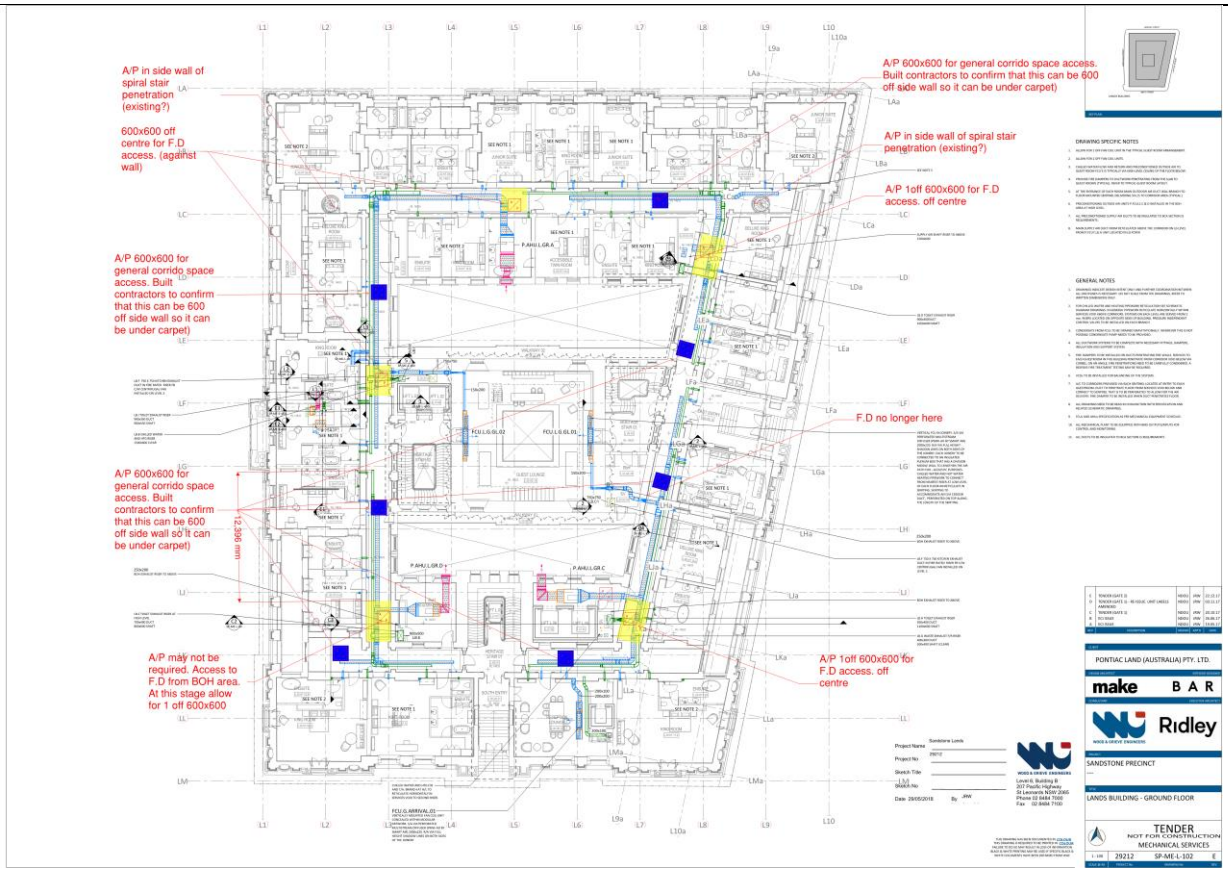

Diagram 2 May 2018. Highlighted zones indicate the extent of demolition of floor above the void required.

Other design options were considered to reduce the effect of the corridor services void. When the project was still populated significantly by hotel rooms, other options were considered, including running vertical risers within the hotel rooms to reduce the number of services within the corridor. Ultimately the change in scheme to less rooms and more community spaces limited this design. In all cases, it proved impossible to remove all services from the corridor void.

The southern corridor in particular is difficult to access with less access points being available at the corridor ends and the free space between horizontal services is less than the northern corridor.

Later in the development of the Lands scheme the number of rooms were removed and larger open areas were installed instead, so that the services within the corridor area were reduced somewhat as can be seen in Diagram 3. The scheme now allowed space for the structural cross bracing and the reduced services. However, the complications with access, the amount of demolition required to the floor above to allow installation of services and the safety and buildability issues were still significant.

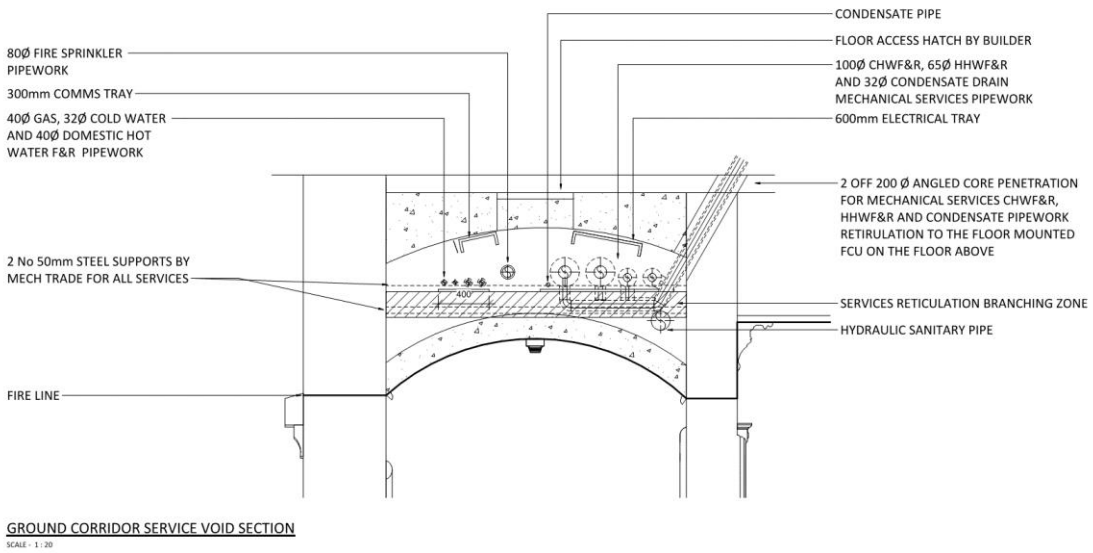

Diagram 3 Dec 2019. Services within the corridor void have been reduce but structural bracing increased

Given the numerous iterations that occurred over the 3 year design period, taking advice from the ECI contractor and reducing the demolition impact on the floor above the Southern Corridor it was determined that the services could not be installed safely, without undue demolition to floors above, and without working extensively in a confined space. Particularly in the southern portion where access is minimal and the void space smaller, it became apparent that despite all the best intentions it would not be possible to install the services without removing the arched ceiling.

The main obstacles preventing the retention of the original ceiling are:

- The limited height of the corridor void.
- Working in a confined space, limits the ability to install services.
- Retaining the ceiling would require significant impractical removal of floors directly above the void.
- Safety of personnel
- The structural integrity of the existing arch.

Therefore, over the 3.5 years of design all care and was taken to try to minimise the impact on heritage elements and ceilings. The removal of the southern corridor ceiling is unavoidable.

Yours sincerely

Stantec Australia Pty Ltd

Joseph Walsh
Principal