

Hydraulic & Fire Services

Part 3a Application

Hunter New England Regional Cancer Care Centre

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1 INTRODUCTION

1.1 Background

Health Infrastructure have engaged SPP Group Pty Ltd in the capacity of Hydraulic and Fire Services Engineer, for the Part 3A application stage of the proposed Hunter New England Regional Cancer Care Centre (CCC) development at Tamworth.

1.2 Aims

The aim of this report is to provide information regarding Hydraulic and Fire Services to support the Part 3a application to Planning NSW. The report outlines the different services to be installed within the proposed development and how they connect to the existing infrastructure around the site.

Specifically this report identifies and evaluates the proposed design concepts relating to the following hydraulic and fire services;

- Sanitary Drainage
- Trade Waste Drainage
- Stormwater Drainage
- Cold Water Supply
- Hot Water Supply
- Gas Supply
- Fire Hydrants
- Fire Hose Reels
- Fire Sprinklers
- Fire Smoke Detection Systems
- Emergency Warning and Intercommunication Systems (EWIS)

1.3 Location

The proposed CCC development will occur on the existing Tamworth Hospital site.



Tamworth Hospital Site indicating Proposed Cancer Care Centre

The proposed CCC building will be bounded by the following:

- Existing Brudelin Building and Emergency Department on the West
- Johnston House and car park to the South
- Existing entry road on the East
- Existing “Blood Bank” on the North.

The majority of the existing site is landscaped area and there is a substantial slope across the site from the north-west to the south-east.

1.4 Integration with Existing Elements

The proposed development will be constructed so that there is a direct covered connection with the existing Brudelin Building and the areas surrounding the current Emergency Department entrance to the hospital will be modified slightly to incorporate this.

The existing Tennis Court will be demolished as part of the project to accommodate new parking spaces.

While the existing “Blood Bank” is required to remain operational throughout the construction of the proposed CCC project, it is anticipated that this building will be removed shortly after the completion of this project.

1.5 Authorities & Regulations

The following Authorities and regulations have been identified for compliance with regard hydraulic and fire services aspects of this project;

- NSW Department of Health
- Hunter New England Area Health Service
- Tamworth Regional Council
- NSW Fire Brigades
- Environmental Protection Authority
- Building Code Of Australia
- Relevant Australian Standards
- NSW Code Of Practice – Plumbing & Drainage
- NSW Department of Health - TS11 Engineering Services Guidelines
- Hosplan Code Of Practice - Thermostatic Mixing Valves
- NSW Department Of Health Circular 98/44 - Technical Requirements for Cold & Heated Water

2 SERVICES CONCEPTS

2.1 Sanitary Drainage

Existing

There is an existing sanitary drainage network across the site with the main service affecting this development running below the existing Brudelin Building and continuing to the south down to Johnston Street, wrapping around the eastern side of the existing Johnston House. The service is 150mm VCP pipe and is estimated to have adequate capacity due to the falls on the pipe.

The sewer service connects into the existing 150mm authority sewer drainage within Johnston Street. We have had written confirmation from Tamworth Council that the existing sewer drainage in Johnston Street has adequate capacity for the proposed development. This will be confirmed with a formal application to the Authority following the Part 3A approval.

Proposed

The proposed building footprint will be located above the existing sanitary drainage pipework and this pipework will need to be diverted/relocated around the southern side of the proposed building footprint before reconnecting to the existing drainage. The sewer drainage from the new building will discharge into this diverted sewer service on the southern side of the proposed development.

2.2 Trade Waste Drainage

Existing

There are a number of existing trade waste pre-treatment devices on the existing site. However, the proposed development will not affect the location of these, nor will it connect to any of the existing devices.

Proposed

The proposed CCC development will include the installation of two linear accelerators for the treatment of cancer patients. The waste produced by these machines is not considered to have any radiation content and will therefore discharge directly to the authority sewer.

2.3 Stormwater Drainage

Existing

There is an existing stormwater drainage network across the site with the main service affecting this development running adjacent to the existing Brudelin Building (on the western side) and continuing to the south down to Johnston Street, wrapping around the eastern side of the existing Johnston House. The service is 600mm concrete pipework and is estimated to have adequate capacity due to the falls on the pipe.

The stormwater service connects into the existing 675mm authority stormwater drainage within Johnston Street. It is assumed that the existing authority stormwater drainage has capacity for the new development. This will be confirmed with the authority following the Part 3A approval. We have had written confirmation from Tamworth Council that the existing stormwater drainage in Johnston Street has adequate capacity for the proposed development.

Proposed

The proposed building footprint will be located very close to the existing stormwater drainage pipework and this pipework may need to be relocated around the southern side of the proposed building footprint before reconnecting to the existing drainage. Additional survey is currently being carried out to confirm the exact location of the stormwater drainage. Depending on the investigation, one of the following two options will be carried out:

- The stormwater drainage will be diverted to ensure that it is not affected by the proposed building.
- The stormwater will remain as installed and the proposed building will be constructed to ensure that the existing pipework is not located within the zone of influence from the proposed building.

The stormwater services for the proposed building will be a mixture of conventional stormwater drainage and siphonic stormwater drainage. The systems will be run throughout the building to collect all areas open to atmosphere. All roof areas collected will discharge into a rainwater reuse tank for reuse within the hospital grounds. All surface areas and the overflow from the rainwater reuse tank will then discharge into the Civil stormwater drainage system.

The rainwater reuse tank shall be connected to a non-potable cold water system and will be reused for irrigation and toilet flushing.

2.4 Cold Water Supply

Existing

There is an existing cold water network throughout the hospital grounds with the main incoming service located in the access road from Johnston Street which runs past the existing "Pathology" Building, Tennis Court and "Blood Bank". The existing service is 100mm diameter and is in good condition.

The cold water service connects into the existing 150mm authority water main within Johnston Street. We have had written confirmation from Tamworth Council that the existing water main in Johnston Street has adequate capacity for the proposed development. This will be confirmed with a formal application to the Authority following the Part 3A approval.

Proposed

The proposed CCC development will make a new connection to the existing 100mm cold water service on site and extend to the new building. The new connection will pass through a "private" sub-meter and adequate zone backflow prevention as required.

2.5 Hot Water Supply

Existing

The new CCC development will not be connecting to any of the existing hot water services on site.

Proposed

A new hot water plant will be provided for the proposed CCC development. The hot water plant will be a solar system with gas boost.

2.6 Non-Potable Cold Water Supply

Existing

The new CCC development will not be connecting to any of the existing non-potable water services on site.

Proposed

The new development will be collecting roof water for reuse on site for:

- Irrigation
- Toilet flushing within the new CCC building.

The non-potable water system will be installed with adequate pre-storage and post-storage filtration and treatment to ensure good quality of reuse water.

2.7 Gas Supply

Existing

The new CCC development will not be connecting to any of the existing gas services on site. Many of the existing gas usages on site are supplied from LPG bottles.

However, there is an existing 400kPa natural gas main in Johnston Street available for connection. We have had written confirmation from the Tamworth Natural Gas Company that the existing gas main in Johnston

Street has adequate capacity for the proposed development. This will be confirmed with a formal application to the Authority following the Part 3A approval.

Proposed

The proposed CCC development will include a new connection to the gas main in Johnston Street which will run adjacent to the access road to the emergency department. The gas supply will serve all gas appliances and mechanical heating plant in the new CCC building as required. It may include a provision for future extension to the main hospital.

2.8 Fire Hydrants

Existing

There is an existing fire service network throughout the hospital grounds with the main incoming service located in the access road from Johnston Street which runs past the existing "Pathology" Building, Tennis Court and "Blood Bank". The existing service is 150mm diameter and is in good condition.

The fire service connects into the existing 150mm authority water main within Johnston Street.

The addition of the new CCC building to the site will not affect the required flow for the fire service. The new building will still require two fire hydrants to operate at any given time, requiring 20L/s. Therefore, we confirm that the existing fire service will have adequate capacity. Pumps will be provided to boost pressure if required.

Proposed

The proposed CCC development will make a new fire hydrant connection to the existing 150mm fire service on site and extend to the new building. The new connection will pass through adequate backflow prevention and fire brigade booster valve as required. Pump will be provided to boost pressure if required.

2.9 Fire Hose Reels

Existing

The new CCC development will not be connecting to any of the existing fire hose reel services on site.

Proposed

All proposed fire hose reels will be connected to the metered cold water supply within the proposed CC building.

2.10 Fire Sprinklers

Existing

The new CCC development will not be connecting to any of the existing fire sprinkler services on site.

It is assumed that the existing authority water main has capacity for the new development. This will be confirmed with the Authority following the Part 3A approval and will be heavily dependent on the outcomes proposed in the Fire Engineered Solution.

Proposed

The proposed CCC development will make a new fire sprinkler connection to the existing 150mm fire service on site and extend to the new building. The new connection will pass through adequate backflow prevention and fire brigade booster valve as required. Pump will be provided to boost pressure if necessary.

2.11 Fire Smoke Detection Systems

Existing

There is an existing smoke detection system within the Brudelin Building on site.

Proposed

It is currently proposed that a smoke detection system will be installed in the new CCC building. The extent of the system and interconnection with existing services will be determined following the Part 3A approval and will be heavily dependent on the outcomes proposed in the Fire Engineered Solution.

2.12 Emergency Warning and Intercommunication Systems (EWIS)

Existing

There is an existing EWIS system within the Brudelin Building on site.

Proposed

It is currently proposed that an EWIS system will be installed in the new CCC building. The extent of the system and interconnection with existing services will be determined following the Part 3A approval and will be heavily dependent on the outcomes proposed in the Fire Engineered Solution.

3 ESD STRATEGIES

3.1 ESD Strategies Generally

The proposed CCC development at Tamworth will be aiming to achieve 4 Stars under the Green Star rating system. As such, the project will incorporate a number of ESD solutions. The ESD initiatives currently targeted are outlined in this section.

3.2 Rainwater Harvesting and Reuse

Rainwater will be collected from roof areas of the proposed building and collected into a rainwater tank. The rainwater will be treated and reuse for irrigation and toilet flushing purposes.

3.3 Solar Hot Water

The proposed development will incorporate solar hot water plant with gas boost. Current design philosophies aim for a 50% contribution to hot water generation from the solar system.

3.4 Water Efficient Fixtures and Tapware

All fixtures and tapware installed in the proposed building will confirm to the Water Efficiency Labelling Scheme (WELS). Star rating of particular fixtures and fittings will be nominated following the Part 3A approval.

3.5 Metering

The proposed building will be provided with authority meters as required for billing purposes.

In addition to this, the building will be installed with sub-meters for water and gas supply as required to achieve Green Star points.