JUNIPERINA/MARY WADE CC
SERVICES INFRASTRUCTURE REPORT
NSW DEPARTMENT OF JUSTICE

<table>
<thead>
<tr>
<th>REV</th>
<th>DATE</th>
<th>DETAILS</th>
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<tbody>
<tr>
<td>1</td>
<td>24 February 2017</td>
<td>Report prepared for REF</td>
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<td>2</td>
<td>28 February 2017</td>
<td>Report Updated</td>
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AUTHOR, REVIEWER AND APPROVER DETAILS

Prepared by: BO’B & RP                  Date: 28/02/2017    Signature:  
Reviewed by: SM                         Date: 28/02/2017                      
Approved by: SM                         Date: 28/02/2017                      

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1 PROJECT BACKGROUND

1.1 General

This report considers the expected impact on existing electrical and hydraulic services infrastructure, arising from the proposed repurposing of the existing Juniperina Juvenile Centre at Lidcombe, NSW to a Maximum Security Female Remand Centre.

The Centre’s population numbers are expected to increase from 40 inmates to 94 inmates, and 30 staff to 57 staff.

The increase in inmate population is due to the construction of 3 new double cells, and changing existing cells to double-occupancy. The installation of new electrical appliances and hydraulic fixtures is limited.

This report has been prepared in consideration of existing infrastructure and utility connections, and indicates that the proposed development should not have an adverse impact on authority services in the area.
2 ELECTRICAL SERVICES

2.1 General

The existing site is supplied via a 600kVA, 835A transformer. As existing usage figures were unavailable, this section has been completed using estimation of a maximum demand, with 100% of lighting load and each GPO being assigned a generic 100W usage.

The only significant change to the electrical services infrastructure is the introduction of a new 15kVA UPS unit, to replace the existing 10kVA unit located in the Equipment room of Block A, level 2 and a new 10kVA unit (which will have an actual load of 5.2kVA. It has been sized in this manner in order to eliminate the need to fire rate the room in which it is housed). Both of these loads are significantly offset by the demolition of the Training Kitchen in Block A.

In all other areas of works existing fluorescent type lighting has been replaced with more efficient LED type and where possible the aim is to reuse any/all power outlets.

2.2 Predicted Net Usage

<table>
<thead>
<tr>
<th>LOAD TYPE</th>
<th>PREVIOUS USE</th>
<th>NEW</th>
<th>NET DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIGHTING</td>
<td>12A</td>
<td>10A</td>
<td>2A</td>
</tr>
<tr>
<td>GEN POWER</td>
<td>40</td>
<td>15A</td>
<td>25A</td>
</tr>
<tr>
<td>UPS</td>
<td>14A(10kVA)</td>
<td>*36A</td>
<td>-22A</td>
</tr>
<tr>
<td>MECH</td>
<td>**0</td>
<td>20A</td>
<td>-20A</td>
</tr>
<tr>
<td>TOTAL</td>
<td>66A</td>
<td>81A</td>
<td>-15A</td>
</tr>
</tbody>
</table>

NOTE: all values have been calculated as 3ph current.

* New 15kVA, 10kVA(with 5.2kVA actual load) and 2 x 3kVA units. All other existing 3kVA units are to be replaced with new 3kVA units, so have been left out from this calculation. These values are rated values, therefore this calculation is a worst case scenario, with the actual load is expected to be less.

** As there is no information as to the power ratings of the mechanical equipment to be removed, we can assume a worst case scenario, by only including the new mechanical equipment, which equates to an approximate increase of 20A (see section 2.3 for a breakdown of the new Mechanical load)
2.3 Mechanical Load

Generally the system only required minor modifications with some deletion of existing systems and some minor additions of new systems as follows:

- Addition of two new ducted split systems in A block where the court yards were enclosed, 3.5kWe and 3.0kWe
- Addition of 4 new comms cupboard split system cooling only ac units 0.9kWe each
- Block E, 3 new wall mounted splits 1.7kWe each
- Additional Standby CRAC unit. Standby only and will not run together with existing

Other additions are an intermittent use smoke exhaust fan, 0.55kW, 7 other minor or supply air fans 0.1kW each max

Reduction in Kitchen exhaust and make-up air system and increase in cold room, approximately equal electrical use.

Also existing gas heaters have been deleted.

2.4 Suitability of Existing Infrastructure

The calculation carried out in the previous two sections indicates that as a worst case scenario there would be an increase of approximately 15A over the site as a whole. This figure was calculated assuming that none of the existing mechanical plant has been removed and that 3 of the 4 new UPS units are to be run at their maximum rating.

As this increase in maximum demand, equates to less than 2% of the transformers capacity of 835A and based on the information available, we consider the current electrical infrastructure provisions suitable to accommodate the potential increases in electrical demand.

2.5 Services Drawings

Existing site plan for electrical services is appended to this report.
3 HYDRAULIC SERVICES

3.1 General

Although population numbers at the Centre are expected to double, a limited number of new hydraulic fixtures are being installed as part of the repurposing building works.

A summary of fixtures to be demolished and new fixtures is as follows:

<table>
<thead>
<tr>
<th>FIXTURE</th>
<th>DEMOLISHED</th>
<th>NEW</th>
<th>TRANSPORTABLE STAFF AMENITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WC</td>
<td>1</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>SHOWER</td>
<td>1</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>HANDBASIN</td>
<td>6</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>URINAL</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>LAUNDRY TUB</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SINK</td>
<td>7</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

There are 3 new cells included in the repurposing building works.

3.2 Water and Sewerage

3.2.1 Domestic Water Supply

Existing drawings indicate that the site is serviced by an 80Ø cold water service, direct off a 150Ø Sydney Water authority main in Joseph Street, at the intersection of Lewis Street. This connection was installed in 2005/6 and is expected to be in good condition.

Since there are only 3 new cells to be installed under the provisioning works, the net addition of hydraulic fixtures has no impact on existing internal water reticulation, the capacity of which is determined from hydraulic fixture Loading Units, as per AS/NZS 3500.1 TABLE 3.1.

The existing 80Ø water connection is therefore considered adequate to supply any additional demand arising from the repurposing works.

3.2.2 Fire Services Water Supply

Existing drawings indicate that the site is serviced by a 150Ø fire water service, direct off a 150Ø Sydney Water authority main in Joseph Street, at the intersection of Lewis Street. This connection was installed in 2005/6 and is expected to be in good condition. The connection supplies an on-site booster assembly and 150Ø site ring main.
The repurposing works do not include any new fire appliance fixtures, and therefore the existing fire services connection is considered adequate.

3.2.3 Sewerage

According to engineering services design drawings provided to WSP, the Centre currently drains to the Sydney Water authority sewer network via a 150Ø sewer connection in Joseph Street, at the intersection of Cutliffe Avenue, at the NW boundary of the site. This connection was installed in 2005/6 and is expected to be in good condition.

The net addition of hydraulic fixtures has no impact on existing internal gravity sanitary drainage, the capacity of which is determined from hydraulic Fixture Unit Ratings, as per AS/NZS 3500.2 TABLE 6.1.

The existing 150Ø sewer connection is therefore considered adequate to receive any additional flows arising from the repurposing works.

3.2.4 Sydney Water Authority

On contacting Sydney Water, the authority responsible for water and sewerage services to the area, WSP were advised that since no new or augmented service connections were required to the site, existing infrastructure would be adequate to support the repurposing works.

3.3 Natural Gas

3.3.1 Existing Gas Connection

Existing drawings indicate that the site is serviced by a high-pressure natural gas connection, direct off an authority main in Joseph Street, at the intersection of Lewis Street. This connection was installed in 2005/6 and is expected to be in good condition. A regulator at the meter assembly reduces pressure to 35KPa for reticulation about the site.

The repurposing works will result in the net reduction of connected gas appliances with the removal of 4 existing gas heaters, and the addition of no new appliances, and therefore the natural gas services connection is considered adequate.

3.3.2 Jemena Gas Authority

WSP have advised Jemena Gas of the repurposing project, however do not expect that any application for adjustment of the existing connection will be necessary for the repurposing works.

3.4 Stormwater Drainage

Repurposing building works do not include any new buildings, and no significant increase to hardened or paved areas is expected. The existing stormwater drainage system is therefore unaffected.

3.5 Services Drawings

Existing hydraulic services drawings are appended to this report.