

# Appendix 6 – Technical Specifications – Leichhardt Public School – Block B

## Document Control

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### Version History

| Version | Date       | Description | Prepared by                |
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# LEICHHARDT PUBLIC SCHOOL BLOCK B

EXTERNAL REPAIRS

TECHNICAL SPECIFICATION

24<sup>th</sup> March 2025



Prepared by Joy Singh Heritage Pty Ltd  
for School Infrastructure, Department of Education

**LEICHHARDT PUBLIC SCHOOL**  
**BLOCK B**  
**EXTERNAL REPAIRS**

**TECHNICAL SPECIFICATION**

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## SECTION 1 GENERAL REQUIREMENTS

### 1.1 GENERAL

All work under this contract must be carried out in strict accordance with the details shown on this Technical Specification and associated drawings, with the requirements of the General Conditions of Contract and to the satisfaction of the Principal's Authorised Person and Heritage Specialist.

### 1.2 SCOPE OF WORKS

The works at Block B Leichhardt Public School shall comprise the provision of all materials, labour, transport, tools, plant, applications, payment of fees and everything else necessary for the construction, installation, testing, commissioning, of the works as detailed in this specification, together with all minor and incidental work not specifically mentioned herein, to the true intent and meaning of this specification and the accompanying drawings. The works of the contract include but are not limited to the following:

| BLOCK B<br>LEICHHARDT PUBLIC SCHOOL<br>EXTERNAL REPAIRS SCHEDULE OF WORKS                                                  |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Refer to drawings A01-A06 and the Technical Specification.<br>Scope of Works is to be confirmed from close scaffold access |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Building Element                                                                                                           | Repair Type                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Roofing &amp; Drainage</b>                                                                                              |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Stormwater lines                                                                                                           | Jet blast drains                  | <ul style="list-style-type: none"> <li>Jet blast all downpipes and storm water lines to clear blockages and ensure all rainwater goods are running free and discharging away from the building.</li> <li>Provide a CCTV report that includes a plan locating all site drainage services and identifies any leaks.</li> </ul>                                                                                                                                                                                |
| Main Roof and Tower                                                                                                        | Replace roof with slate           | <ul style="list-style-type: none"> <li>100% replace roofs with 500mm x 250mm Penrhyn Welsh Heather Blue Capital slates, over new battens and breathable sarking.</li> <li>Install 30kg lead rolled ridges over new timber rolls, 30kg lead roof valleys and chimney under-flashings, 20kg chimney over-flashings.</li> <li>Replace all gutters with 125mm quad copper gutters.</li> <li>Replace all downpipes and spreaders with 100mm diameter copper pipes and reuse cast iron downpipe bases.</li> </ul> |
| West Roof                                                                                                                  | Replace roof with Colorbond Ultra | <ul style="list-style-type: none"> <li>Replace with Colorbond Ultra (colour Shale Grey) over new battens, breathable sarking and associated Colorbond flashings.</li> <li>Replace all gutters with 125mm Colorbond quad copper gutters.</li> <li>Replace all downpipes with 100mm diameter Colorbond downpipe.</li> </ul>                                                                                                                                                                                   |
| Lower West Roof                                                                                                            | Replace roof with copper          | <ul style="list-style-type: none"> <li>Replace the existing copper roof with copper and 25kg lead flashings,</li> <li>Replace gutters and dps in copper</li> </ul>                                                                                                                                                                                                                                                                                                                                          |

| Building Element                                         | Repair Type            | Description                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stonework Repairs</b>                                 |                        |                                                                                                                                                                                                                                                                                                                                                                                                     |
| Façade areas including stonework, timberwork and glazing | Cleaning               | <ul style="list-style-type: none"> <li>Clean all façade fabric by water washing using low pressure (mains pressure) according to the technical specification.</li> <li>Apply an approved biocide prior to cleaning on bio-stained stonework prior to cleaning. Re-apply biocide following cleaning to these areas.</li> </ul>                                                                       |
| Stonework Overall                                        | Repointing             | <ul style="list-style-type: none"> <li>Repoint 100% stonework with lime mortar, including the joints between the masonry and timberwork.</li> <li>Allow to carefully rub back stone arris where required to prepare the joint for repointing, subject to an approved sample.</li> <li>Remove all metal and plastic plug fixings and patch holes with SSR, separate to the SSR work list.</li> </ul> |
| Façade Stone units                                       | Refix Existing Indents | <ul style="list-style-type: none"> <li>Remove all existing indents (previous repairs), remove bedding mortar, provide a punched surface texture, and pin and re-fix according to Engineer's details.</li> </ul>                                                                                                                                                                                     |
| North Stone Wall                                         | Desalinate Stone       | <ul style="list-style-type: none"> <li>Desalinate the north wall stones, both sides.</li> <li>Allow for 3 passes.</li> </ul>                                                                                                                                                                                                                                                                        |
| <b>Stone Replacement &amp; Indents:</b>                  |                        |                                                                                                                                                                                                                                                                                                                                                                                                     |
| Façade Stone units                                       | Stone Indents          | B4, B9, B14                                                                                                                                                                                                                                                                                                                                                                                         |
| Façade Stone units                                       | Stone Indents          | C1, C5, C7, C17                                                                                                                                                                                                                                                                                                                                                                                     |
| Façade Stone units                                       | Stone Indents          | D2, D7, D8, D12, D17                                                                                                                                                                                                                                                                                                                                                                                |
| Façade Stone units                                       | Stone Indents          | E1, F2, E3, E4, E6, E7                                                                                                                                                                                                                                                                                                                                                                              |
| Façade Stone units                                       | Stone Indents          | F2, F3, F4, F6, F7, F12, F14, F16                                                                                                                                                                                                                                                                                                                                                                   |
| Façade Stone units                                       | Stone Indents          | G4, G7                                                                                                                                                                                                                                                                                                                                                                                              |
| Façade Stone units                                       | Stone Indents          | H5, H7, H10                                                                                                                                                                                                                                                                                                                                                                                         |
| Façade Stone units                                       | Stone Indents          | I1, I4, I5, I6, I9                                                                                                                                                                                                                                                                                                                                                                                  |
| Façade Stone units                                       | Stone Indents          | J1, J7                                                                                                                                                                                                                                                                                                                                                                                              |
| Façade Stone units                                       | Stone Indents          | L7                                                                                                                                                                                                                                                                                                                                                                                                  |
| Façade Stone units                                       | Stone Indents          | M3, M6, M8, M11                                                                                                                                                                                                                                                                                                                                                                                     |
| Façade Stone units                                       | Stone Indents          | N1, N8, N9N11, N12, N13, N14                                                                                                                                                                                                                                                                                                                                                                        |
| Façade Stone units                                       | Stone Indents          | O1, O5, O6, O7, O8, O9                                                                                                                                                                                                                                                                                                                                                                              |
| Façade Stone units                                       | Stone Indents          | P1, P6, P16                                                                                                                                                                                                                                                                                                                                                                                         |
| Façade Stone units                                       | Stone Indents          | Q4, Q5, Q9, Q10                                                                                                                                                                                                                                                                                                                                                                                     |
| Façade Stone units                                       | Stone Indents          | R1, R4, R5, R7, R9                                                                                                                                                                                                                                                                                                                                                                                  |
| Façade Stone units                                       | Stone Indents          | S8, S9, S10                                                                                                                                                                                                                                                                                                                                                                                         |
| Façade Stone units                                       | Stone Indents          | U92                                                                                                                                                                                                                                                                                                                                                                                                 |
| Façade Stone units                                       | Stone Indents          | V1, V12, V42, V43, V44, V45                                                                                                                                                                                                                                                                                                                                                                         |
| Façade Stone units                                       | Stone Indents          | W10, W15, W23, W24, W26, W28, W30, W33, W34, W55                                                                                                                                                                                                                                                                                                                                                    |
| Façade Stone units                                       | Stone Indents          | X9, X10, X12, X18, X22, X36                                                                                                                                                                                                                                                                                                                                                                         |
| Façade Stone units                                       | Stone Indents          | Y17, Y20, Y23, Y43, Y91                                                                                                                                                                                                                                                                                                                                                                             |
| Façade Stone units                                       | Stone Indents          | Z3, Z4, Z5, Z6, Z22, Z27, Z33, Z42                                                                                                                                                                                                                                                                                                                                                                  |
| Façade Stone units                                       | Stone Indents          | AA17, AA24, AA44                                                                                                                                                                                                                                                                                                                                                                                    |
| Façade Stone units                                       | Stone Indents          | AB15, AB21, AB38                                                                                                                                                                                                                                                                                                                                                                                    |
| Façade Stone units                                       | Stone Indents          | AC18, AC19, AC21, AC23, AC25, AC26, AC29, AC40, AC48, AC61                                                                                                                                                                                                                                                                                                                                          |

| Building Element                                          | Repair Type                              | Description                                                                                                                                                                                                                                       |
|-----------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Stone Replacement &amp; Indents, <i>continued</i>:</b> |                                          |                                                                                                                                                                                                                                                   |
| Façade Stone units                                        | Stone Indents                            | AD22, AD24, AD25, AD 29, AD30, AD41, AD56, AD69, AD91                                                                                                                                                                                             |
| Façade Stone units                                        | Stone Indents                            | AE1, AE19, AE24, AE25, AE28, AE29, AE30, AE34, AE42, AE50, AE52, AE63, 76                                                                                                                                                                         |
| Façade Stone units                                        | Stone Indents                            | AF13, AF20, AF21, AF23, AF26, AF31, AF52, AF67, AF78                                                                                                                                                                                              |
| Façade Stone units                                        | Stone Indents                            | AG2, AG17, AG30, 57, AG65, AG71                                                                                                                                                                                                                   |
| Façade Stone units                                        | Stone Indents                            | AH2, AH3, AH4, AH5, AH13, AH21, AH22, AH25, AH53, AH54, AH63, AH65, AH68, AH75                                                                                                                                                                    |
| Façade Stone units                                        | Stone Indents                            | AI11, AI12, AI16, AI24, AI25, AI30, AI32, AI33, AI36, AI41, AI54, AI65                                                                                                                                                                            |
| Façade Stone units                                        | Stone Indents                            | AJ6, AJ21, AJ26, AJ30                                                                                                                                                                                                                             |
| Façade Stone units                                        | Stone Indents                            | AKa, AK3, AK12, AK13, AK17, AK19, AK21, AK27                                                                                                                                                                                                      |
| Façade Stone units                                        | Stone Indents                            | AL6, AL7, AL10, AL12, AL14, AL16, AL18, AL19, AL20, AL24,                                                                                                                                                                                         |
| Façade Stone units                                        | Stone Indents                            | AM3, AM4, AM5, AM11, AM17, AM18                                                                                                                                                                                                                   |
| Façade Stone units                                        | Stone Indents                            | AN3, AN4, AN5, AN18, AN23, AN26                                                                                                                                                                                                                   |
| Façade Stone units                                        | Stone Indents                            | AO20, AO63, A064                                                                                                                                                                                                                                  |
| Façade Stone units                                        | Stone Indents                            | AP4, AP5, AP21, AP22, AP27                                                                                                                                                                                                                        |
| Façade Stone units                                        | Stone Indents                            | AQ16, AQ17, AQ22, AQ34                                                                                                                                                                                                                            |
| Façade Stone units                                        | Stone Indents                            | AR18, AR23, AR27, AR28, AR30, AR31                                                                                                                                                                                                                |
| Façade Stone units                                        | Stone Indents                            | AS16, AS25, A626, AS27, AS28, AS29, AS26, AS77, AS79                                                                                                                                                                                              |
| Façade Stone units                                        | Stone Indents                            | AT2, AT3, AT22, AT25, AT26, AT27, AT33, AT71, AT78,                                                                                                                                                                                               |
| Façade Stone units                                        | Stone Indents                            | AU17, AU20, AU22, AU23, AU25, AU39, AU42, AU44, AU47, AU70, AU71                                                                                                                                                                                  |
| Façade Stone units                                        | Stone Indents                            | AV1, AV2, AV3, AV25, AV39, AV41, AV44, AV64, AV66                                                                                                                                                                                                 |
| Façade Stone units                                        | Stone Indents                            | AW2, AW3, AW4, AW19, AW22, AW23, AW27, AW28, AW62, AW67, AW68, AW74                                                                                                                                                                               |
| Façade Stone units                                        | Stone Indents                            | AX1, AX6, AX54, AX60, AX71                                                                                                                                                                                                                        |
| North Gable                                               | Stone Indents                            | Stones around gable vent                                                                                                                                                                                                                          |
| West Gable                                                | Stone Indents                            | GD2, GD3, GE2, GE3, GG2, GG4, GH1, GH3,                                                                                                                                                                                                           |
| North Wall                                                | Stone Replacement and Indents            | GA1GB1, GB2, GB3, GB4, GB5, GC1, GC2, GE3, GF3, GC4GJ3, GJ4, GJ5                                                                                                                                                                                  |
| 3 Chimneys                                                | Stone Replacement                        | 100% replace stone chimneys                                                                                                                                                                                                                       |
| <b>Synthetic Stone Repair (SSR):</b>                      |                                          |                                                                                                                                                                                                                                                   |
| Stone Facade                                              | Stone patching, pinning & filling cracks | Patch stone in location indicated on the drawings and confirmed from scaffold.                                                                                                                                                                    |
| Stone Facade                                              | Patch Holes                              | Remove all metal and plastic plug fixings from the stone and patch holes with SSR.                                                                                                                                                                |
| <b>Metal Chimney Covers</b>                               |                                          |                                                                                                                                                                                                                                                   |
| Chimney Caps (1-3)                                        | Stainless steel covers                   | <ul style="list-style-type: none"> <li>Remove existing lead covers and install ss316 3mm cover plate with a 10mm breathable gap secured using existing fixing holes. Secure using 5mm dia. ss316 anchors in epoxy min. 50mm embedment.</li> </ul> |

| Building Element                                                                    | Repair Type                                    | Description                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Timberwork &amp; Painting</b>                                                    |                                                |                                                                                                                                                                                                                                                                                                                  |
| Overall Timberwork (including fascias, gable barge boards, window frames)           | Repair defective and replace rotten timberwork | <ul style="list-style-type: none"> <li>Allow to splice replace rotten timber, allow 6 lineal metres.</li> <li>Patch repair timber where required prior to painting using a timber filler (Timbabuild or equivalent)</li> <li>Seal non-operable windows to provide a watertight finish before painting</li> </ul> |
| Windows                                                                             | Ease and adjust                                | <ul style="list-style-type: none"> <li>Ease and adjust all currently operating windows to ensure they open easily and replace broken sash cords.</li> </ul>                                                                                                                                                      |
| All painted elements of all elevations                                              | Repaint                                        | <ul style="list-style-type: none"> <li>Repaint all existing painted elements including gable barges, fascias, soffits, wall vents, windows &amp; doors, paint colours to be advised.</li> </ul>                                                                                                                  |
| East Entry Awning                                                                   | New Awning                                     | <ul style="list-style-type: none"> <li>Remove the existing awning and provide a new awning, timber framing to match Block E.</li> <li>Awning roof is to be Colorbond Ultra, colour Shale Grey.</li> <li>Roof is to extend beyond the width of the ramp.</li> </ul>                                               |
| <b>Leadwork</b>                                                                     |                                                |                                                                                                                                                                                                                                                                                                                  |
| Tower Cornice Course T                                                              | Install Lead Weathering                        | <ul style="list-style-type: none"> <li>Install Lead Weathering to tower cornice, Course T</li> </ul>                                                                                                                                                                                                             |
| <b>Bird Proofing</b>                                                                |                                                |                                                                                                                                                                                                                                                                                                                  |
| String Courses and Hood Moulds                                                      | Birdproof wires                                | <ul style="list-style-type: none"> <li>Install ss316 post and spring tensioned wire bird proofing in locations indicated on the drawings.</li> </ul>                                                                                                                                                             |
| <b>Structural Works</b>                                                             |                                                |                                                                                                                                                                                                                                                                                                                  |
| Refer to Structural Engineer's documents for roof and chimney seismic stabilisation |                                                |                                                                                                                                                                                                                                                                                                                  |
| <b>END OF SCOPE OF WORKS</b>                                                        |                                                |                                                                                                                                                                                                                                                                                                                  |

### 1.3 INTERPRETATION

Unless the context otherwise requires, the following definitions apply to this specification only:

- Supply: "Supply", "furnish" and similar expressions mean, "supply only".
- Provide: "Provide" and similar expressions mean "supply and install".
- Approved: "Approved", "reviewed", "directed", "rejected", "endorsed" and similar expressions mean "approved (reviewed, directed, rejected, endorsed) in writing by the Principal".
- Give notice: "Give notice", "submit", "advise", "inform" and similar expressions mean "give notice (submit, advise, inform) in writing to the Principal".
- Obtain: "Obtain", "seek" and similar expressions mean "obtain (seek) in writing from the Principal".
- Proprietary: "Proprietary" means identifiable by naming manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
- Samples: Includes samples, prototypes and sample panels.
- The Contractor means whoever is carrying out the work.
- The Contractor also means the Contractor's Authorised Person.

- Principal's Authorised Person : Contract Manager from Heritage Stoneworks.
- Heritage Consultant/Conservation Specialist : Heritage Specialist appointed by School Infrastructure, Department of Education

#### 1.4 DRAWINGS

##### General

The drawings supplied with the specification are diagrammatic only. These drawings, however, together with the specification, are intended to be mutually explanatory and to show the scope of the work required. Where ambiguity exists, it is the tenderer's obligation to request clarification. Before commencing work obtain measurements and other necessary information.

##### List of Drawings/Documents

Drawings accompanying this part of the specification and forming part of the work are listed below.

##### Leichardt Public School Building B:

|     |                                 |             |
|-----|---------------------------------|-------------|
| A01 | Roof Plan                       | 1:100 at A3 |
| A02 | West and South Tower Elevations | 1:100 at A3 |
| A03 | East and North Tower Elevations | 1:100 at A3 |
| A04 | West and South Elevations       | 1:100 at A3 |
| A05 | East a Elevation                | 1:100 at A3 |
| A06 | West and North Elevations       | 1:100 at A3 |

#### 1.5 ADDITIONAL WORK

Due to the continued deterioration of the building fabric further work may be uncovered which requires additional repair not covered by the scope of works. Any additional work must be referred to the Principal and gain approval prior to being carried out.

#### 1.6 DILAPIDATION RECORD

##### Requirement

Record the condition of the works area, adjacent internal rooms and site establishment areas prior to work commencement. The Principal's Authorised Person shall be notified in writing of any defects. Defects not recorded and notified prior to work commencement shall be deemed to be the Principal Contractor's responsibility and shall be made good at the Principal Contractor's own costs.

##### Joint Inspection

Before commencement of work on site, arrange a joint inspection with the Heritage Specialist and Principal's Representative.

##### Records

Make written, photographic or digital video records of the condition of the buildings in this contract and adjoining areas, facilities, surfaces, etc., which are in a damaged condition or may be damaged during the Works. Furnish one endorsed copy of each record to the Principal's Representative and keep another set on the Site.

##### Damage Assessment

Use the dilapidation record amongst other things as a means of assessing the responsibility for damage and/or making good arising out of the performance or work under the contract. Keep a copy of the record on site and make it available for inspection when required.

## SECTION 2 QUALITY

### 2.1 QUALITY ASSURANCE

The Principal Contractor is required to prepare a Quality Management System applicable for the whole of the works including all subcontract packages. The Inspection and Test Plan (ITP) is to form part of the Quality Management System and incorporates the ITP schedule.

The Principal Contractor is responsible for all WH&S and quality issues on site. Contractor's site nominated supervisor / foreman is to be on site each day. The Principal Contractor's site supervisor is to inspect work prior to pre-handover inspections and to aim for nil defects.

Site copies: Keep site copies of all up to date technical specifications, drawings, Inspection and Test Plans and Quality Plans.

Records: Retain quality records for not less than seven years from the date of the final certificate. Records include checklists, certificates of compliance, written approvals.

### 2.2 INSPECTION AND TEST PLANS SCHEDULE

The listed Hold and Witness Points require attendance by the Principal Contractor (Site Supervisor) and those undertaking the work.

The Principal Contractor must maintain the Inspection and Test Plans Schedule during the contract period. The Inspection and Test Plans Schedule must be progressively signed off by the Principal Contractor (Site Supervisor) and the Principal's Authorised Person, as each of the Hold Points and Witness Points are attended and to the satisfaction of the Principal's Authorised Person, Heritage Specialist and Structural Engineer.

- C Principal Contractor
- P Principal's Authorised Person
- H Heritage Specialist
- E Structural Engineer

Hold Point - refers to a mandatory verification point beyond which work cannot proceed without authorisation by a designated authority.

Witness Point – refers to an identified point in the process where the work may be witnessed by a designated authority.

| DRAWING          | ACTIVITY REQUIRING INSPECTION                                                                       | STAGE OF WORK REQUIRING INSPECTION        | HOLD POINT (H) OR WITNESS POINT (W) | ATTENDANCE BY CONTRACTOR (C) / PRINCIPAL'S AUTHORISED PERSON (P), HERITAGE SPECIALIST (H), ENGINEER (E) |
|------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Section 1</b> | <b>GENERAL REQUIREMENTS</b>                                                                         |                                           |                                     |                                                                                                         |
| A01 – A06        | Site meeting, to clarify scope, order & heritage intent form the scaffold.                          | Prior to commencement of work & approvals | H                                   | C, P, H, E                                                                                              |
| A01 – A06        | Undertake joint inspection & submit dilapidation record as specified in Section General, Clause 1.6 | Prior to commencement of work.            | H                                   | C, P                                                                                                    |

| Lead             | ACTIVITY REQUIRING INSPECTION                                                   | STAGE OF WORK REQUIRING INSPECTION        | HOLD POINT (H) OR WITNESS POINT (W) | ATTENDANCE BY CONTRACTOR (C) / PRINCIPAL'S AUTHORISED PERSON (P), HERITAGE SPECIALIST (H), ENGINEER (E) |
|------------------|---------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Section 3</b> | <b>ROOFING AND RAINWATER GOODS</b>                                              |                                           |                                     |                                                                                                         |
| A01              | Site meeting to clarify scope                                                   | Prior to commencement                     | H                                   | C, P & H                                                                                                |
| A01              | Inspect samples of sarking, gutter profile, all fixings.                        | Prior to the works                        | H                                   | C, P & H                                                                                                |
| A05              | Shop drawings for new East entry awning                                         | Prior to the works                        | H                                   | C, P & H                                                                                                |
| A01              | Inspections throughout the progress of the works                                | during of works                           | W                                   | C, P & H                                                                                                |
| A01              | Inspection on completion of the works                                           | At completion of works                    | W                                   | C, P & H                                                                                                |
| <b>Section 4</b> | <b>STONEWORK</b>                                                                |                                           |                                     |                                                                                                         |
| A02 – A06        | Site meeting to clarify scope & heritage intent for stonework repairs           | Prior to commencement of work.            | H                                   | C, P & H                                                                                                |
| A02 – A06        | Sample water clean                                                              | Prior to commencement of Cleaning         | H                                   | C, P & H                                                                                                |
| A02 – A06        | Completion of masonry cleaning                                                  | On completion of Cleaning                 | H                                   | C, P & H                                                                                                |
| A05              | Stone Wall Desalination                                                         | During the work                           | W                                   | C, P & H                                                                                                |
| A02 – A06        | Substrate prepared to receive stone replacement and indents, temporary propping | Prior to fixing stone                     | H                                   | C, P, E & H                                                                                             |
| A02 – A06        | Stones fixed prior to pointing.                                                 | Prior to pointing                         | W                                   | C, P & H                                                                                                |
| A02 – A06        | Sample of previous indents removed, prepared and refixed                        | Prior to refixing indents                 |                                     | C, P, E & H                                                                                             |
| A02 – A06        | At regular intervals during the stone installation period                       | Ongoing during the works                  | W                                   | C, P, E & H                                                                                             |
| A01              | Sample ss316 chimney cover plate                                                | Prior to installation                     | H                                   | C, P & H                                                                                                |
| <b>Section 5</b> | <b>SYNTHETIC STONE REPAIR</b>                                                   |                                           |                                     |                                                                                                         |
| A02 – A06        | Site meeting, to clarify scope & heritage intent for synthetic stone repair     | Prior to commencement of work & approvals | H                                   | C, P & H                                                                                                |
| A02 – A06        | Unsound stone cut out to receive synthetic stone                                | Prior to patching                         | H                                   | C, P & H                                                                                                |
| A02 – A06        | Reinforcement for the stone patch in position                                   | Prior to applying synthetic stone         | H                                   | C, P & H                                                                                                |
| A02 – A06        | Filling in holes and the profiles completed                                     | Prior to completion of the work           | W                                   | C, P & H                                                                                                |
| A02 – A06        | Completion of synthetic stone patches                                           | At completion of works                    | H                                   | C, P & H                                                                                                |

| DRAWING          | ACTIVITY REQUIRING INSPECTION                                                    | STAGE OF WORK REQUIRING INSPECTION               | HOLD POINT (H) OR WITNESS POINT (W) | ATTENDANCE BY CONTRACTOR (C) / PRINCIPAL'S AUTHORISED PERSON (P), HERITAGE SPECIALIST (H), ENGINEER (E) |
|------------------|----------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Section 6</b> | <b>POINTING &amp; RE-POINTING</b>                                                |                                                  |                                     |                                                                                                         |
| A02 – A06        | Clarify extent of repointing                                                     | Prior to commencement of work                    | H                                   | C, P & H                                                                                                |
| A02 – A06        | Joint and stone preparation & cleaning ready for pointing and repointing         | Prior to pointing/ repointing                    | H                                   | C, P & H                                                                                                |
| A02 – A06        | Sand, lime & oxide proposed for pointing/ repointing                             | Prior to the preparation of samples              | W                                   | C, P & H                                                                                                |
| A02 – A06        | Mortar & elastomeric sealant pointing & repointing samples for approval          | Prior to commencement of work.                   | H                                   | C, P & H                                                                                                |
| A02 – A06        | Pointing & repointing work complete                                              | At completion of works.                          | H                                   | C, P & H                                                                                                |
| <b>Section 7</b> | <b>LEAD WEATHERINGS</b>                                                          |                                                  |                                     |                                                                                                         |
| A02-A04          | Site meeting to clarify scope                                                    | Prior to commencement of work                    | H                                   | C, P & H                                                                                                |
| A02-A04          | Position of the copper clips                                                     | Prior to the laying of the lead                  | H                                   | C, P & H                                                                                                |
| A02-A04          | Completion of paper underlay and the continuous copper strips in position        | Prior to the laying of the lead                  | H                                   | C, P & H                                                                                                |
| A02-A04          | Installation of felt underlay and set out of lead weatherings                    | Prior to fixing the lead                         | H                                   | C, P & H                                                                                                |
| A02-A04          | The commencement of the laying of the lead                                       | During works                                     | W                                   | C, P & H                                                                                                |
| A02-A04          | The proposed backing rod prior to installation of the elastomeric sealant        | Prior to installation to the elastomeric sealant | W                                   | C, P & H                                                                                                |
| <b>Section 8</b> | <b>PAINTING &amp; TIMBERWORK</b>                                                 |                                                  |                                     |                                                                                                         |
| A02 – A06        | Site meeting, to clarify scope & heritage intent for timber repairs and painting | Prior to commencement of work & approvals        | H                                   | C, P & H                                                                                                |
| A02 – A06        | Paint system, colour scheme and samples for approval                             | Prior to commencement of work                    | H                                   | C, P & H                                                                                                |
| A02 – A06        | Finial prepared for installation                                                 | Prior to refixing                                | H                                   | C, P & E                                                                                                |
| A02 – A06        | Sample of replacement timbers with species report                                | Prior to timber replacement                      | H                                   | C, P & H                                                                                                |
| A02 – A06        | Completion of wood filler and surface preparation                                | Prior to priming                                 | H                                   | C, P & H                                                                                                |
| A02 – A06        | After application of primer                                                      | Prior to topcoats                                | H                                   | C, P & H                                                                                                |
| A02 – A06        | Completion of painting                                                           | At completion of works                           | W                                   | C, P & H                                                                                                |

| DRAWING                                                                                                                                                     | ACTIVITY REQUIRING INSPECTION                                      | STAGE OF WORK REQUIRING INSPECTION        | HOLD POINT (H) OR WITNESS POINT (W) | ATTENDANCE BY CONTRACTOR (C) / PRINCIPAL'S AUTHORISED PERSON (P), HERITAGE SPECIALIST (H), ENGINEER (E) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Section 9</b>                                                                                                                                            | <b>BIRD PROOFING</b>                                               |                                           |                                     |                                                                                                         |
| A02-A06                                                                                                                                                     | Site meeting, to clarify scope & heritage intent for bird proofing | Prior to commencement of work & approvals | H                                   | C, P & H                                                                                                |
| A02-A06                                                                                                                                                     | During the progress of the works                                   | During the works                          | H                                   | C, P & H                                                                                                |
| A02-A06                                                                                                                                                     | At completion of installation                                      | At completion of works                    | W                                   | C, P & H                                                                                                |
| <b>COMPLETION OF ALL WORKS</b><br>(If progressive removal of scaffold is necessary, then inspection of completed work should be carried out progressively.) |                                                                    | Prior to removal of scaffold.             | H                                   | C, PR / HA                                                                                              |

### 2.3 INSPECTION NOTICE

**Hold Points:** The Contractor is to give reasonable notice to the Principal's Authorised Person at the stage of work when the Hold point items listed in the schedule require inspection. Do not conceal those parts of the works or proceed without approval.

**Witness Points:** The Contractor is to give reasonable notice to the Principal's Authorised Person at the stage of work when the Witness point items listed in the schedule require inspection.

Minimum notice for inspections to be made: 5 working days for on-site inspections.

### 2.4 SAMPLES

**Timing:** Coordinate submissions of related samples. Do not cause delays by making late submissions or submitting inadequate samples.

**Quantity:** Submit samples as requested or as required by the heritage specialist of each designated item and 2 copies of supporting documentation. Include any ancillary items.

**Identification:** Identify the project, contractor, subcontractor or supplier, manufacturer, applicable product, model number and options, as appropriate and include pertinent contract document references. Include service connection requirements and product certification. Identify non-compliances with project requirements, and characteristics that may be detrimental to successful performance of the completed work.

**Approval:** Do not commence work affected by samples until the samples have been approved. Submit further samples as necessary.

**Retention:** Keep approved samples in good condition on site, until practical completion.

**Incorporation:** Incorporate in the works samples that have been approved for incorporation. Do not incorporate other samples.

**Criteria:** Match approved samples throughout the works.

**Authorship:** The person who made the approved sample must carry out the work or train others and supervise the works at all time.

## 2.5 HERITAGE REQUIREMENTS

The building is of heritage significance and all work shall be performed and completed without any damage to the heritage fabric of the building. The Contractor shall be familiar with the current conservation philosophy of the *ICOMOS Burra Charter* and the *NSW Heritage Act*.

Leichhardt Public School is listed on the Department of Education s170 Register and the Leichhardt Local Environment Plan 2013, item No.1676. Leichhardt Public School is a significant landmark of townscape value and demonstrates an evolution of architectural styles. Designed by William Kemp who was the Chief Architect in the Department of Public Instruction, Building B is a sandstone building with an Italianate tower on the corner of Marion and Norton Streets

## 2.6 HERITAGE APPROACH TO REPAIRS

The aim of the works is to carry out backlog maintenance and address safety risks. Guiding conservation principles include:

- retention of as much significant fabric as possible; repairing rather than replacing, i.e. minimal disturbance
- the use of reversible processes wherever possible
- each item to be recorded to the satisfaction of the Heritage Specialist before, during and after the work
- repairs are 'like for like' and simplification of detailing is not permitted

## 2.7 MANDATORY HERITAGE WORK INDUCTION

The Principal Contractor must attend a mandatory heritage induction by the Principal's Heritage Specialist before commencing work on site and ensure that all workers carrying out work under this Contract have also attended a mandatory heritage induction. And to supply documented proof that the heritage induction has been completed by all contractors onsite.

## 2.8 PROTECTION OF HERITAGE FABRIC

Provide and maintain all necessary protection against the ongoing work to avoid damage to the building, contents or landscape. Allow to make good any damage caused during the works on completion at no additional cost.

Provide all necessary protection of building surfaces from damage resulting from the provision, use and removal of all scaffolding and hoists etc. Isolate scaffold points of contact or potential contact with the façade. Tubes shall be wrapped in carpet or spaced with non-staining plastic coated timber blocks. Do not attach scaffold directly to stonework without approval. Use ties through semi-open windows breaking no glass and seal the openings against dust and weather. Tie in using well-padded tube kept clear of any joinery, architraves etc. bearing against timber pads onto the plaster. Fit temporary plywood weather protection panels over the open window area. Cut neat holes in panel to take scaffold tube and provide an approved weather seal.

Where scaffold cannot be secured without attachment to stonework, provide and insert stainless steel chemical scaffold anchors into stonework, all attachments to be approved by Heritage Specialist and located in agreed concealed locations. Anchors are to be capped off on completion of works with brass screw in caps, for use in future works. Provide sole plates to scaffolding legs so as to cause no damage to the original paving and membranes.

## 2.9 INSPECTION OF THE SITE

Contractor to wash externally entire area of works prior to commencement to enable inspection by the Principal's Authorised Person and Heritage Specialist to confirm the scope.

Inspect the site and ascertain all factors affecting execution of the works.

**2.10 ORDER OF WORK**

The identification and removal of all hazardous materials is to occur first. For external repairs organise the order of work to take place from the top down or as agreed and approved.

**2.11 APPROVED SUB-CONTRACTORS**

All trades involved in the repair works shall be carried out by contractors, sub-contractors and personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

## SECTION 3 ROOFING AND RAINWATER GOODS

### 3.1 EXTENT OF WORK

The following roof and rainwater water goods repairs include, but are not necessarily limited to:

- Jet blast all storm water lines to clear blockages and ensure all rainwater goods are running free and discharging away from the building. Provide a CCTV report that includes a plan locating all drainage services and identifies any leaks.
- Main Roof - Replace with 500mm x 250mm Welsh Penrhyn Capital slates, over new battens and breathable sarking. Install new 30kg lead rolled ridges over new timber rolls. 30kg valleys and chimney under-flashings, 20kg chimney over-flashings. Replace all gutters with 125mm quad copper gutters. Replace all downpipes and spreaders with 100mm diameter copper pipes and re-use cast iron downpipe bases.
- West roof - Replace with Colorbond Ultra (colour Shale Grey) over new battens and new breathable sarking. For Colorbond roof sheeting, provide associated flashings in Colorbond. Replace all gutters with 125mm quad Colorbond Ultra gutters. Replace all downpipes with 100mm diameter Colorbond Ultra downpipes.
- Lower west roof – Replace the copper roof with copper to match existing with 25kg lead flashings, provide copper 125mm quad gutters and 100mm diameter downpipes.
- Remove existing brick dish drain (north and west elevations only) and install a precast composite fibrous cement dish drain, provide sample for approval.
- All works are to be carried out in accordance with the relevant Australian Standards and manufacturer's recommendations.

Refer to the following sections:

- Section 1: General Requirements
- Section 2: Quality

### 3.2 STANDARDS

AS/NZS 3500.3.2 Gutters  
AS 1562 Metal Roof Sheetting  
AS 2179 & 2180 Metal Rainwater goods  
AS 2904 Flashings

### 3.3 APPROVED CONTRACTOR AND SUBCONTRACTOR

**Requirement:** All roofing and rainwater goods repairs shall be carried out by contractors, sub-contractors or personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

### 3.4 QUALITY

#### Heritage Requirements

Leichhardt Public School is a heritage significant item. The approach to all aspects of roof repairs is 'like for like' including materials, layout and techniques unless written approval is received by the Heritage Specialist.

#### Samples

Submit samples of the following for approval:

- All screws and fixing, gutter profile, sarking

**Inspections** – The proposed work shall be jointly inspected in detail by the Principal Contractors Nominated Representative, the Principal's Authorised Person and the Heritage Specialist to approve the work in each location. The Principal Contractor shall co-ordinate with the Principal's Authorised Person so that works may be inspected in the following stages;

- Prior to commencement of work to clarify the extent of repairs (Hold point)
- During the progress of the works (Witness point)
- On completion of the work (Witness point)

### 3.5 MATERIALS

#### **New Slates**

New slates shall be Welsh Penrhyn of Capital grade and the edges are to be guillotined, not sawn.

#### **Fixings**

For slates – use 35mm copper or stainless steel clouts, with large heads to BS1202 Part 2. (2.8x30mm copper clouts or 2.8x40mm copper clouts).

For timber rolls and battens – Fastenings long enough to embed a minimum of 35 mm into the thickness of the timber without piercing the underside. Use galvanised steel nails to BS1202.

#### **Timber Battens**

Softwood treated with preservative in accordance with relevant Australian Standard AS. Size of battens shall match existing. All battens shall be free of any sign of decay, insect attack, shakes, splits, knots or knotholes greater in size than one third of the width of the batten. Battens shall be spaced so that they support either end (head and tail) and centre of all the slates on slate roof areas and to match original fixing points on corrugated steel roof areas. Where existing battens are generally satisfactory, replace only those ones that are defective.

#### **Flashings, Roof Vents, Flat Dormer Roofs (east elevation)**

All flashings, roof vents and flat dormer roofs (east elevation) associated with the slate roof are to be lead to relevant Standards, and to match original. Weights, lengths and detailing shall be as indicated in *Lead Sheet In Building - A Guide To Good Practice* by the Lead Development Association. All flashings associated with the Colorbond roof are to be Colourbond Ultra.

#### **Sarking**

Sarking underlay should be a vapour permeable roofing underlay (Bradford Enviroseal™ ProctorWrap™ HT-R or equivalent). Install according to the manufacturer's instructions and AS/NZS 4200,2:2017, under the roofing material to form a continuous membrane over the entire area of the roof, allowing any water to drain down to the gutters.

### 3.6 EXECUTION

#### Slates

Each slate shall be inspected and the thicker end selected for the tail (or bottom) of the slate. Slates shall be holed either by hand or by machine from the bed (or underface) towards the face (onto exposed face) thus leaving a small countersunk hole which takes the head of the fixing nail.

Lay a double course with undercourse of short slates head nailed to the bottom batten. Fix with bottom edges in line. The eaves course slates shall be supported by a continuous tilting piece of fascia or batten with the slate overhanging by 50mm to ensure that water discharges into the gutter.

Where the underlay or sarking may sag and form a water trap behind the fascia, it shall be supported by a wedge shaped timber fillet.

#### Colorbond Roof Sheeting

Take up existing Colorbond sheets and lay new Colorbond Ultra corrugated roof sheeting. Fix generally in accordance with the manufacturer's printed instructions. Include new rolled top ridge rolls and accessories to complete the installation.

#### Jointing

Soldered joints to gutters and rainwater goods. All jointing to match original details.

#### Lead flashings

Provide and fix new sections of 30kg lead (20kg for over-flashings). Fit neatly to roof and chimney profiles with edge turned into existing joint, secure with lead wedges and point using an approved elastomeric sealant. Lap joints 150mm in running lengths. Provide matching expansion joints at intervals indicated in *Lead Sheet In Building - A Guide To Good Practice* by the Lead Development Association.

#### Gutters

All new gutter brackets to be located to match existing and fixed with heavy dip galvanised screw with slotted dome head. Straps to be installed under steel roofing and not through or fixed on top. Overstraps to be located every second bracket.

#### Downpipes

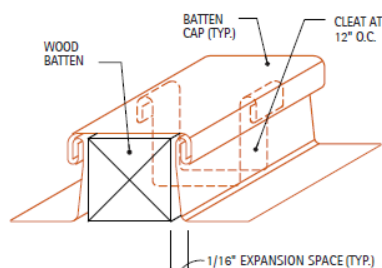
Dress downpipe into outlets. Provide supports and fixings for downpipes to original locations. All astragals, fixings and shoes to match downpipe materials. Astragals are to be at 2 metre centres and expanding or chemical masonry anchors.

#### Protect Against Galvanic Reaction

Copper downpipes and spreaders are not to come into direct contact with Colorbond roofs. Provide an approved physical non-conductive barrier if no alternative is possible.

#### Copper Roof

Detailing is to match the existing, using 0.6mm thick copper sheets dressed over timber rolls with copper batten caps and 25kg lead flashings.



Typical Copper roof batten seam, CDA Publication A4050-8/24: Copper In Architecture Design Handbook 2024

**3.7 PROTECTION**

Keep the roofing and rainwater system free of debris and loose material during construction and leave them clean and unobstructed on completion. Provide temporary covers to prevent water penetration to areas of the building exposed by removal of roofing.

## SECTION 4 STONEMWORK

### 4.1 EXTENT OF WORKS

Works include, but are not necessarily limited to the following stone masonry works, to be executed on site:

- 100% cleaning of facades including stonework, timberwork & glazing.
- Apply an approved biocide prior to cleaning on bio-stained stonework prior to cleaning. Re-apply biocide following cleaning to these areas to prevent regrowth.
- Desalination of the north wall, both sides.
- Chimneys Covers (3) - Install ss316 3mm cover plate with a 10mm breathable gap secured using existing fixing holes. Secure using 5mm dia. ss316 anchors in epoxy min. 50mm embedment.
- Remove all existing indents (previous repairs), remove bedding mortar, provide a punched surface texture and pin and re-fix according to Engineer's details.
- Stone replacement and indents as indicated in Section 1.2 Scope of Works and on the drawings
- Provide adequate restrain and temporary support of the structure throughout the works, to nominated structural engineer's satisfaction
- Provide temporary weather proofing during the work to prevent water ingress
- Take delivery of replacement and new indent stone units
- Fixing of all nominated stone units, complete with all associated materials and including, bedding, jointing, associated pointing and repointing, and all associated stone masonry
- All work as indicated and listed on the drawings

Note: Masonry units are Principal supplied.

Refer to the following sections:

- Section 1: General Requirements
- Section 2: Quality
- Section 5: Synthetic stone and lime mortar repair
- Section 6: Pointing and Repointing

### 4.2 STANDARD

STANDARD: AS3700: Masonry in Buildings, (known as the SAA Masonry Code).

### 4.3 QUALITY

#### Stone Fixing Methodology

The Principal Contractor is to submit a Stone Fixing Methodology at the commencement of the works that outlines the order of work, proposed method of temporary propping, extent of cutting back etc. Arrange to check the condition of all replacement stones in conjunction with the Principal's representative, prior to installation.

#### Transportation and Handling of Processed Stone by Successful Tenderer

Do not damage any processed stone. Damaged stone may not be accepted and any stone damaged due to transport and handling must be made good at the Principal Contractor's expense, to the satisfaction of the Principal's Authorised Person.

Arrange each stone for handling and transportation to take its own weight without support from adjoining stones, and without damage to the stones. Keep all straps and slings etc, free of all arises, mouldings etc.

#### Stone Protection and Storage

Store stone so that it is protected from the weather, clear of the ground on its natural bed, on supports which do not locally overstress it, and in conditions suitable without staining, marking or damage, and which allow room for slings to be put around units or blocks for future use or movement.

**Approved Banker/Fixer Masons**

All masonry cleaning, fixing, site adjustment of joints and surface finishing shall be carried out by contractors, sub-contractors or personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

**Additional Defective Bricks and Stones**

The Principal Contractor must advise the Principal's Authorised Person of any additional defective bricks and stones discovered during the works. Notification of when the dismantling process should be given, with at least 5 days' notice, so the nominated Heritage Specialist or Principal's Authorised Person can be on site if required.

**4.4 INSPECTIONS**

**Requirement:** The Principal Contractor shall coordinate with the Principal's Authorised Person so that all work may be inspected in stages indicated on the Inspection Test Plan Schedule in Section 2.2 of this specification and as follows:

- Prior to the commencement of any work confirm all stones to be cut out or removed prior to cutting out and/or dismantling, to confirm the works. (Hold point)
- Sample location selected prior to stonework cleaning (Hold point)
- Approval of sample clean (Hold point)
- Completion of stonework cleaning (Witness point)
- Substrate prepared to receive the stone, temporary propping. (Hold point)
- Stones fixed prior to pointing (Hold point)
- Sample of replacement bricks (Hold point)
- At regular intervals during the stone installation period. (Witness point)

**Note:** The Principal Contractor shall allow the Principal's Authorised Person and the Heritage Specialist access for the duration of the contract to inspect the masonry works.

Final sized stone blocks shall be inspected in a free standing condition so that all surfaces (with exception of the bed) are visible.

The Principal Contractor is to notify two weeks in advance when delivery to the site is required. Give sufficient notice for inspections.

**4.5 MASONRY CLEANING****Requirement**

Generally, clean 100% of masonry and facade surfaces of all particle soiling, stains, bird debris and biological soiling. Determine, with the Principal's Authorised Person, the nature and extent of the dirt and deposits to be removed.

**Sample Cleaning Area**

Location to be directed by the Principal's Authorised Person (Hold point). Provide a sample area (300mm x 300mm) using the nominated method.

**Water Cleaning Method**

Complete a general wash initially by wetting the affected area well with water low (mains) pressure and nylon bristle brushes. Do not use severely worn brushes. A fan jet spray is acceptable on sound stone. Use cold water at first and then hot water if cold is not effective. A water captive rinsing system is

acceptable. The use of a neutral non-ionic detergent which contains no salts may be acceptable following the water only sample clean and only with written approval by the Heritage Specialist.

Use the minimum amount of water necessary to wash the deposits away. Clean from the top down to avoid washing dirt onto previously cleaned surfaces.

Do not overclean. Do not damage the stone or building during cleaning. Do not attempt to produce a 'new' appearance. **Do not use acids. Do not use cleaning agents unless approval in writing has been given by the Heritage Specialist, and then on areas specified in the approval.**

**Biocide Treatment:** Allow to apply an initial application of biocide to the blackened masonry areas to remove micro-biological growth during the cleaning process. Refer to clause 4.6. Apply a final application following cleaning, where indicated on the drawings.

**Completion:** Complete the clean where further detailed or "spot" cleaning is required.

#### **Protection**

Take all necessary precautions to prevent damage to the building, stonework or nuisance to the occupants.

### **4.6 BIOCIDES TREATMENT**

#### **Requirement:**

Apply biocide to areas affected by microbiological growth. Two applications are required in total, first to kill the biological growth prior to cleaning and secondly after cleaning to prevent future biological growth.

#### **Materials:**

Apply biocide OSMOSE Boracol 100 RH or equivalent. All chemicals shall require written approval prior to use. **DO NOT USE BORACOL 200 (diluted or otherwise) as the active ingredients are not suited for masonry biological growth. Products older than 12 months from date of manufacture will not be accepted.**

#### **Surface Preparation**

Remove all traces of biological growth, previous bird proofing, glues, bird guano and generally soiling. Refer to Section 3 Stonework for cleaning method. Ensure stones are thoroughly wet using a water spray mist prior to the application of biocide to ensure penetration of the biocide.

#### **Biocide Application**

The intention of this application is to kill biological growth prior to cleaning. Apply biocide evenly to the surface of the stone using a mist spray (as per manufacturer's instructions). Do not dilute the biocide solution. Allow for approx. 200ml/m<sup>2</sup>. Note that on application the biocide will be milky in colour, but will dry clear.

### **4.7 STONE CUTTING BACK**

#### **Requirement**

Where stone indents have been scheduled, cut out the existing stone and replace it with matching indents, supplied by others.

#### **Cutting Back**

Cut back the face of decayed stone where scheduled and/or as shown in the tender drawings to a firm sound surface, but generally not less than 100mm deep, in preparation for inserting the replacement stone. Provide chamfers, tongues, undercut edges and the like as shown or as required.

Existing joint lines shall be maintained unless otherwise scheduled. Cutting shall be carried out under the supervision of an experienced Banker Mason. Carefully bag debris and remove as soon as possible to keep area clear of debris and prevent overloading of scaffold.

**In-Situ Work**

Carry out in-situ work to existing stonework by methods which do not disturb the bed or damage the arises or exposed faces of the adjacent stonework.

Wash down the newly excavated or worked stone surfaces to remove stone dust etc.

The Principal Contractor is responsible to remove from the site all materials not required by the Principal's Representative / Heritage Specialist for re-use or storage. The Principal Contractor is to keep the site clean on a daily basis.

**4.8 TEMPORARY SUPPORT****Requirement**

Until permanent support is provided, provide temporary support to Engineer's details and instructions, for sections of the structure which are to be altered and which normally rely for support on work to be dismantled.

**Propping and Packing**

Use non-staining softwood wedges, supports and spacers or approved equal for propping and packing stone. Metal pinches shall not bear directly on worked faces or no closer than 75mm to worked arises.

**4.9 PROTECTION****Weather Protection**

All newly excavated surfaces, exposed walls or roofs shall be immediately covered and protected from exposure to the weather. Provide covers to protect existing plant and equipment and materials intended for re-use.

**Dust Protection**

Provide dust-proof screens, bulkheads and covers to protect existing finishes and the immediate environment from dust and debris.

**Security**

If a wall or roof is opened for repair, provide security against unauthorised entry to the building. The building is to be secured at the completion of each day's work.

**4.10 BEDDING AND FIXING****Requirement**

Bed and fix all indent stone units, with nominated structural engineer's input if required.

**Bedding**

Set stone on its natural or quarry bed. The beds, face and back joints of every stone throughout shall be worked square and true from end to end to existing lines and be free from hollow or rough surfaces. Where possible, stone shall be bedded and jointed in one operation.

Before bedding any stone, the replacement stone and the excavated area of existing stone shall be cleaned free of all dust and impurities, and shall be thoroughly wetted or dampened down before the mortar is laid. After any stone is bedded and adjusted to its correct position it shall be solidly grouted at its back and at the joints.

**Fixing**

No stone shall be fixed against work surfaces which, because of an irregularity or defect may prevent the proper execution or permanency of the mason's work. Each stone shall be fixed to take its own weight without support from adjoining stones, unless otherwise specified.

Prior to the stonework grouting, all stone shall be set and packed out as necessary. Joggles, cramps, pins and dowels shall be used in the fixing of the replacement stone in accordance with the Engineers drawings and best masonry practice and shall be 316 grade stainless steel unless otherwise noted (iron and steel shall not be used).

In the setting of the stone, care shall be taken to ensure that no mortar or grout, either from spillage or from over filling, shall come in contact with the external face of the stone. Non staining softwood wedges soaked in water or laths shall be used for fixing stone. Metal pinches shall not bear directly on stone.

Sill indents are to have an upturn to match the original, where the timber sill sits on the stone. Adjust on site according to the individual sills needs to maintain the upturn and allow to shed water.

#### **Damaged Stone**

Where prior written permission to attempt repairs has been given, satisfactorily repaired stone may be accepted.

#### **Cleaning**

Clean all the brickwork and stonework progressively as the work proceeds without using acid and without damage to the work, as necessary to remove mortar smears, stains discolouration, and the like, and leave the stonework clean on completion. Mortar stains to be washed off the stone at the end of each days work. Remove all debris off the scaffolding, and prepare the area as required ready for further stonework.

#### **Scaffold Adjustment**

To be the Principal Contractors responsibility.

### **4.11 FIXING CRAMPS AND PINS**

#### **Requirement**

Provide and fit all necessary fixings, cramps and pins as is required to fix the stone in accordance with the best masonry practice or as directed by the Principal's Representative, Heritage Specialist or Engineer.

The metal fixings shall be of stainless steel of approved 316 grade alloy in accordance with the requirements of the appropriate codes. The tying back and together (restraint) fixings shall be 316 grade stainless steel, as required in accordance with the Engineers drawings and the appropriate codes.

The load bearing fixings shall be of 316 grade stainless steel, all to the appropriate AS Codes. Cramps, pins, bolts, ties and all other fixings shall be designed and fixed to effectively support each stone.

### **4.12 REPLACEMENT STONE JOINTING**

#### **Requirements**

Provide all new joints of a width and appearance exactly matching the original existing joints. Maintain all existing joint lines.

Set all stones on a full bed of mortar and tap home. All joints and joggles shall be completely filled with mortar, and all mortices and cramps must be completely grouted to ensure that no cavities are left.

Rake out new and existing joints as required to take pointing and repointing material. Form all joggles with air escape holes as required, mortises, sinkings or ties, checks, perforations and grooves for flashings.

All stone is to be thoroughly wetted before pointing. Point all joints affected by the stonemasonry work. Pointing and repointing shall be as specified in Section 4 Pointing and Repointing.

#### **4.13 SWEETENING**

##### **Requirement**

Carry out sweetening as required to provide accurate moulding and face lines in order to finish new stonework to match existing.

Sweetening in of replacement stone may be permitted only in areas where existing stones are not plumb and true on the façade. Stone units, indents and inserts requiring excessive sweetening in may be rejected.

#### **4.14 STONE DESALINATION**

Requirement: 1 desalination cycle (3 passes), both sides of the north wall.

Inspections: The Principal Contractor shall coordinate with the Principal's Authorised Person so that work may be inspected in stages as follows:

- Prior to any work, confirm with the client's representative the extent of desalination, the number of cycles of desalination, the nozzle type and water pressure. (Hold point)
- Salt level testing of each of the three washing cycles (Hold point)
- At completion of desalination (Hold point)

Materials: The method of stone desalination is the captive water rinsing system (Blu- Vac or equivalent). Ensure the nozzle type and water pressure are appropriate for the use on unsound or fragile stonework surfaces. Deionized water shall be used with the desalination system. This may be achieved using a filter system attached to the hose.

Preparation: Remove surface salts and dust with a dry vacuum before wet vacuuming.

Desalination: Allow for three (3) passes of wet vacuuming of the stone surfaces and 7 minutes/m<sup>2</sup>. Allow a minimum three days drying time between each pass. Remove the salt contaminated water from the site.

Capturing Samples: Collect the resulting residue during each washing cycle and label for testing of salt levels by others.

## SECTION 5 SYNTHETIC STONE REPAIR

### 5.1 EXTENT OF WORKS

This subsection of the specification applies to the provision of all materials, tools, labour and equipment required for the repair of weathered, decayed and physically damaged sandstone using an approved synthetic stone or mortar. Works include, but are not necessarily limited to the following stone masonry works, to be executed on site:

- Provide synthetic stone repairs to façade areas indicated on the drawings or identified from the scaffold.
- Remove all metal and plastic plug fixings and patch holes with SSR, in addition to the SSR work list.
- Selection of proven synthetic stone material with approved matrix colouring agents and reinforcement.
- Cutting back of defective substrate to sound stone
- Pin cracks as necessary and as directed by the Heritage Specialist or Structural Engineer.
- Reinstatement of stone faces and profiles to an unweathered and/or undamaged moulding by filling with the approved material
- Pointing and repointing of joints affected by the work.
- Provision of all samples for approval, all warranties, tests etc and quality control items.
- All work as indicated on the drawings and listed in section 1.2 Scope of Works
- Ref to drawings A02 – A06

Refer to the following sections:

- Section 1: General Requirements
- Section 2: Quality
- Section 4: Stonework
- Section 6: Pointing and Repointing

### 5.2 STANDARDS

All work shall be in accordance with all the relevant standards and Statutory Authorities requirements, including:

- AS3700: Masonry in Buildings, (known as the SAA Masonry Code);
- AS A123: Mortar for masonry construction;
- AS TM C920 (2001): Standard specification for elastomeric joint sealants;
- AS 1672 (1974): Building limes;
- AS 3972 (1991): Portland and blended cements;
- AS 1141-1974: Methods for sampling and testing aggregates.

### 5.3 APPROVED SUB\_CONTRACTORS

All synthetic stone repair and mortar patching works shall be carried out only by approved contractors, sub-contractors and personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

## 5.4 QUALITY

### Data Submissions

Submit before the work commences the following Supplier's data:

- Supplier's data: Technical data sheets etc, from the supplier stating
- The supplier's experience in the required type of work
- Particulars of established quality control procedures (if any), and the category of the procedures to the relevant standard
- A warranty certifying that the material supplied complies with the specification and is suitable for the intended use
- the physical properties for any material required to produce the synthetic stone
- test data for the material
- Recommendations for installation

### Colour Control Samples

The contractor is to submit samples and obtain approval from the Principal's Authorised Person prior to the commencement of the work. Label all samples. Submit two (2) sets of at least three (3) different 150 x 150 mm synthetic stone colour control samples varying in colour to match the colour range of the weathered sandstone in the project.

One set of approved colour samples will be retained by the Principal's Authorised Person, the other shall be retained by the Contractor. Repairs that vary excessively in colour from the surrounding stone or from the original samples shall be replaced at the Contractors expense.

### Sand Sample

Nominate for each colour control sample, the source of all aggregates, the particle size gradation of aggregates, the binder/aggregate ratio, the binder (resin & hardener) and any other additives.

Tenderer to submit a representative sample of the proposed sand or blended mixture for approval and if required by the Principal's Authorised Person it shall be tested by a NATA registered laboratory at the Contractor's expense. Submit sample in approved clear plastic containers.

Submit a sieve analysis of the sand or sands proposed to be used carried out by a NATA registered laboratory.

### Reinforcement

Submit samples of proposed stainless steel reinforcement for approval prior to installation.

### Random Testing

Random testing may be undertaken during the progress of the works to ensure quality and consistency of the synthetic stone and mortar material. Batches prepared in 50mm cubes may be taken and tested for compressive strength and bulk density. Where test results do not meet the required minimum properties, the material will be rejected. The cost of testing shall be met by the Principal Contractor.

Compressive strength is to be in accordance with clause 4.8 Synthetic Stone Mortar Mix

## 5.5 INSPECTIONS

**Requirement:** The Principal Contractor shall coordinate with the Principal's Authorised Person so that all work may be inspected in stages indicated on the Inspection Test Plan Schedule in Section 2.2 of this specification and as follows (refer to Clause 5.9 for the definitions of repair types):

- prior to the commencement of any work confirm the location and extent of the work to be done (Hold point)
- the prepared sample range (Hold point)
- Type A & B repairs - the stone cut out and the sub-base prepared to receive the synthetic stone mortar and concrete patch (Hold point)
- repair Type B reinforcement for the synthetic stone in position (Hold point)
- repair Type C & Type D holes ready for injection and pins ((Hold point)
- Type A & B repairs - filling in holes and the stone profiles completed (Witness point)
- Completed work (Witness point).

**Note:** The Principal Contractor shall allow the Principal's Authorised Person and the Heritage Specialist access for the duration of the contract to inspect the synthetic stone repairs and mortar patching. A minimum of 1 weeks' notice is required for inspections.

## 5.6 SYNTHETIC STONE REPAIR MATERIALS

### Requirement

Synthetic stone repair materials shall be supplied by a recognised manufacturer and used in accordance with the manufacturer's instructions. Successful tenderer to submit manufacturer's recommendations and information sheets. All materials used in the preparation of an epoxy mortar shall be approved by the Principal's Authorised Person.

### Resin And Hardener

The epoxy mortar shall be moisture insensitive. Both components of the resin shall be 100% reactive **without any solvent** content. Where resins change colour within the defects liability period, they will be rejected and made good or replaced at the Contractor's expense.

### Low Viscosity Epoxy Resin

For crack repairs i.e fine cracks, fill with low viscosity epoxy resin especially formulated for this type of application using a hypodermic type syringe and where appropriate a vacuum suction to ensure full penetration of the epoxy resin. Both components shall be 100% reactive **without any solvent** content.

### Health Hazard

There are certain health hazards associated with the use and application of epoxy resins, particularly from skin contact and lack of sufficient ventilation. The contractor shall ensure that the operators are adequately protected and comply with the requirements of the Occupational Health & Safety Act.

### Sand Requirement

The sand used in the preparation of the epoxy mortar shall be clean, well-washed material, free from clay and any other deleterious impurities.

A blended mixture of different sands may be used to produce a suitable mortar. Submit a sieve analysis for approval.

### Colouring Agents Requirement

The colour of the repair mortar shall blend closely with the surrounding sandstone.

Prepare trial samples as specified in Clause 4.4 Quality. Where possible, the colour matching shall be achieved by the careful selection of naturally coloured sands. If it is necessary to use artificial colouring agents, only inorganic pigments approved by the Principal's Authorised Person shall be used. **Organic pigments are not permitted.**

**Reinforcement Requirement**

Reinforcement to be Stainless Steel 316 Grade or equal. Depending on the size and shape of the repair, reinforcement can be provided as a mesh or as individual wires with a minimum diameter of 3mm. A sample of the proposed reinforcement shall be submitted for approval.

**Bond Coat Requirement**

Use approved bond coat between the underlying sandstone substrate and the repair mortar as recommended by the manufacturer of the resin used in the mortar.

**5.7 SYNTHETIC STONE REPAIR SUBSTRATE PREPARATION****Requirement**

Prepare stone substrate to provide a firm base to support the synthetic stone repair and reinforcement as required.

**Cleaning Requirement**

Clean surfaces of all stones to be repaired, in accordance of subsection 3.5 Masonry Cleaning. The aim in cleaning is to provide the approved colour required of the synthetic stone repair. The contact surfaces shall be roughened and then cleaned before being repaired. They shall be free of dust and shall be dry.

**Removal Of Inserts**

Allow to carefully remove all inserts prior to repair work. Check extent of insert removal with the Principal's Authorised Person prior to starting the work. All exposed timber, iron and metal plugs and inserts foreign to the stone shall be carefully extracted where scheduled with a minimum of damage to the stone. All work shall be executed in an approved manner. Once all inserts have been removed, all holes shall be thoroughly cleaned out to provide a good key for the patching material.

**Surface Preparation**

The contact surfaces shall be roughened and then cleaned before being repaired. They shall be free of dust and shall be dry.

**Cutting Back**

Remove all decayed and unsound stone from the repair area to provide a sound base for the repair mortar to adhere to. Use only approved fire sharpened or tungsten tipped chisels. **Feather edges are not permitted.** The edges of the repair area shall be undercut to provide an effective physical key. The minimum depth shall be as specified in Clause 5.9 Synthetic Stone Repair types

**Chemical Consolidants or Solvents**

No chemical consolidates or solvents shall be used. Solvent based chemicals shall not be applied over epoxy mortar repairs

**5.8 SYNTHETIC STONE MORTAR MIX****Requirement**

All work associated with this method of patching shall be carried out strictly in accordance with the technical advice of the product manufacturer. All mixing shall be carried out exactly, using the correct proportions in mechanical mixers.

Mix material with suitably approved clean naturally coloured silica sands to ensure that the patch material used resembles the natural sandstone being replaced as closely as possible in colour and structure.

**Batching And Mixing**

All batching of the mortar ingredients shall be done by weight. All batches must be prepared using an electric mixer. Very small batches may be mixed by hand. Allow for less than 0.25 of a litre.

Resin and hardener shall be premixed strictly in accordance with the technical advice of the product manufacturers. The resin and hardener shall be mixed together to obtain a uniform appearance. A machine mixer shall be operated until a thorough blending of the ingredients is achieved.

**The Mix**

The mix shall consist of not less than 1:10 and not more than 1:12 parts of resin and hardener to sand by weight.

**Aggregate Mixes**

The aggregate mixes shall be carried out off site using the proportions approved for the three (3) nominated colour mixes. Aggregate mix batches shall be preweighed and packaged to suit both the scale of patching undertaken and pot life both on site conditions and each binder/aggregate ratio.

**Additives**

Additives shall not be used to extend pot life. No ultra-violet absorbing liquid coatings shall be used.

**Compressive Strength**

To be not less than 30MPa and the bulk density not less than 1750kg/m<sup>3</sup> for an epoxy based mortar mix of 1:10 and to be not less than 25MPa and the bulk density not less than 1720kg/m<sup>3</sup> for an epoxy based mortar mix of 1:12.

**5.9 SYNTHETIC STONE REPAIR TYPES****Repair Types**

The following methods of repair are divided into the following work methods, depending on the size and location of the proposed patch. Synthetic Work Schedules will be confirmed by the Heritage Specialist following scaffold access and stone cleaning. Refer to the Work Schedules for extent and location of the work.

**Type A – Patching Small Holes Without Reinforcement**

Unreinforced small holes less than 50mm diameter shall be carried out following approval by the Principal's Authorised Person. The minimum depth of any unreinforced repair shall be 6mm.

Following substrate preparation, fill the void with synthetic stone mortar as specified. Finish off flush with the adjacent stone surface.

**Type B - Reinforced Patches (Without Moulds or Precast Elements)**

Repairs over 40mm diameter require stainless steel reinforcement to increase adhesion, prevent cracking or spalling and ensure public safety. The minimum depth of any reinforced repair shall be 30mm for reinforced repairs.

Mortar shall not be placed in any reinforced patches until the Superintendent has inspected and approved the reinforcement.

The patch shall be built up in layers of 10mm maximum. These repairs are completed insitu without mouldings or precast elements. Formwork is to be constructed into which the synthetic stone or lime mortar shall be compacted. The reinforcement is to have a minimum 7mm coverage

**TYPE C - Cracks Injection Filled and Pinned**

Fine cracks in stone which is otherwise sound shall be filled with low viscosity epoxy resin and pinned.

Drill the injection ports perpendicular to the crack. Drill down to sound stone depth plus 30mm. The holes are to be 2mm in diameter and a minimum 20mm from the stone edge. Remove all loose debris in cracks prior to repairs. Compressed air jetting shall be used to remove dust from cracks etc.

Pins shall be stainless steel Grade 316, 2mm in diameter, set in epoxy and located at 75mm centres, unless otherwise directed by the Principal's Authorised Person.

The crack is to be sealed with viscous epoxy injected in the crack at 75mm centre port holes drilled in the crack. The holes to be 2mm in diameter. The holes staggered in reference to the pins.

Ensure the injected epoxy does not run over the face of the stone. Seal the external surface of the crack temporarily with a removable plugging material before the injection treatment, the port hole acting as vents and injection ports.

Pressure inject the resin into the crack using a hypodermic-type syringe with an approved grout of low viscosity resin which is compatible with the stone, flowable, durable and compatible with the approved stainless steel inserts.

During injection, maintain sufficient pressure to enable all cracks and voids to be completely filled., however all care must be taken to avoid any bursting or breaking of the stone.

**TYPE D - Cracks Injection Filled and Pinned, Patch Stone**

This repair type is a combination of Type C filling cracks via injection, installing pins and patching of missing or unsound stone (Type A or B depending on size).

**Type E - Cracks Injection Filled No Pins**

Fine cracks in stone which is otherwise sound shall be filled with low viscosity epoxy resin.

Drill the injection ports perpendicular to the crack at 75mm centres. Drill down to sound stone depth plus 30mm. The holes are to be 2mm in diameter and a minimum 20mm from the stone edge. Remove all loose debris in cracks prior to repairs. Compressed air jetting shall be used to remove dust from cracks etc.

Pressure inject the resin into the crack using a hypodermic-type syringe with an approved grout of low viscosity resin which is compatible with the stone.

During injection, maintain sufficient pressure to enable all cracks and voids to be completely filled, however all care must be taken to avoid any bursting or breaking of the stone.

Ensure the injected epoxy does not run over the face of the stone. Seal the external surface of the crack temporarily with a removable plugging material before the injection treatment, the port hole acting as vents and injection ports.

## 5.10 APPLICATION OF SYNTHETIC STONE REPAIR MORTAR

### Requirement

Repair individual stones separately. Patching shall preserve existing joints and maintain the integrity of individual stones. Pointing between repairs must be carried out separately. Areas should never be repaired as render and joint-scored.

### Application

Prior to any epoxy patching, carry out all preliminary work as specified herein. Provide a minimum of 300 lux lighting level to the working surface during the work. This is particularly important where the working surface is in shade due to scaffolding, hoarding and/or shade cloth etc.

The work shall be kept dry, before, during and after patching.

Treat excessive salt contamination prior to carrying out the repairs.

Place the mortar with a trowel and firmly compact the mortar particularly around reinforcement into corners and around the edges of the repair to prevent voids. It must be applied within the duration of the pot life of the mortar resin/hardener mix. Where required, entire patch planes are to be patched in layers of one application.

The mortar shall be applied in layers in accordance with the Manufacturers data sheets or specifications and may be applied in some cases not more than 50mm thick, where deep repairs are required.

Repairs showing visible changes in layers in compaction or appearance are unacceptable and shall be replaced at the Contractors expense.

The outer surface shall be smoothed with a trowel dipped in solvent such as methylated spirits, in order to achieve a textural match with that of the adjacent stone.

Repairs may not be sanded back after setting to remove feathered edges or finish defects and shall be replaced at the Contractors expense.

Synthetic stone mortar repairs shall be carried out within a temperature range of 10°C to 30°C. They shall not be applied when the relative humidity is in excess of 80%.

### Reinforcement Requirement

All overhanging stone requires reinforcement. Where repairs exceed 50mm diameter or exceed 50mm in depth use reinforcement, which can be provided as a mesh or as individual wires. The reinforcement shall be fixed to sound stone by stainless steel pins or tie wires, whichever is appropriate.

Submit all reinforcement details for approval by the Superintendent prior to commencement of the work.

All anchoring pins or tie wires shall be embedded in drilled holes, a minimum of 50mm deep for in-situ patches and 100mm deep for precast unit fixing in sound stone with an approved epoxy resin of a stiff, paste consistency. Anchoring pins or tie wires shall be attached to the stainless steel reinforcement within moulds before casting. The reinforcement is to be roughened to provide bond, cleaned with methylated spirit to remove grease.

All in situ reinforcement mesh shall be placed in the course of 50mm deep patches and for every extra 10mm depth of patch an extra layer of mesh shall be placed at 10mm centres thereafter. The application or bars must be monitored by the Contractor to ensure sufficient cover as specified above.

**Work Surface Finish**

No in situ work shall be finished off with rollers or plasterer's templates. All work must be confined to the cut out area only and compacted with hand held tools. At no time shall the finished work be smoothed over with trowels or rollers. Completed work shall have an exact textured match with that of the surrounding naturally weathered stone and are to be executed in compliance with approved samples. Any excessively smooth poorly matched finish will be rejected and made good at the Contractor's expense.

**Chemical Reaction**

The chemical reaction between the resin and hardener is exothermic. Large repairs are likely to generate considerable heat which can have harmful effects on the durability of the mortar. Refer to the manufacturer's data sheets or specification.

**Masking Tape**

Use approved masking tape to avoid detrimental staining of adjacent stone.

**Compatibility of Mortar and Stone**

The success of the repairs will be influenced by the degree of compatibility of the mortar and the adjacent stone. It is undesirable to have an excessively strong mortar bonded to a weak stone. Their permeabilities, thermal expansion and moduli of elasticity should also be similar.

**Bond Coat**

An epoxy bond coat recommended by the manufacturer of each resin used in the mortar shall be applied over the stone just prior to the placement of the mortar. The bond coat must be still tacky when the mortar is placed. The bond coat shall not be applied over the whole contact surface, but shall have some regularly spaced areas of stone, approx 40% shall be left uncoated so that the underlying stone can breathe. Where the bond coat has dried prior to the application of epoxy mortar mix, it shall be removed and re-applied. At no time shall one bond coat layer be applied over another.

**Protection**

The Contractor shall ensure that no epoxy resin or other material discolours or stains the surface of adjoining stones. At all times protect all stonework from ongoing work, staining, damage of any kind, sun, wind and inclement weather. The Contractor shall make good all such damage.

**Cleaning Down on Completion**

On completion of all work all stone shall be cleaned down and protected. All mortar stains shall be removed from the stone as soon as possible after they occur, and no later than 12 hours after the time of application. In warm weather, the epoxy could harden soon after mixing.

Clean down all stonework and building areas, free of all debris, stone, dust, stains etc.

## SECTION 6 POINTING AND REPOINTING

### 6.1 EXTENT OF WORK

The following pointing and repointing works include, but are not necessarily limited to:

- Bedding and pointing of all joints affected by new stone replacement or indents
- Repoint 100% Stonework joints, including joints between the stone walls and the timberwork
- Allow to carefully rub back stone arris where required to prepare the joint for repointing, subject to an approved sample.
- Ref to drawings A02 – A06

Refer to the following sections:

- Section 1: General Requirements
- Section 2: Quality
- Section 4: Stonework
- Section 5: Synthetic Stone Repair

### 6.2 STANDARDS

BS1200 ASTM C144 Requirements for Masonry Mortar Sand  
 AS 2758.1:1998 Aggregates and rock for engineering purposes  
 AS 1141.13 Clay content in aggregates  
 AS 3700 Mortar for Masonry Construction  
 AS 1672.1 Limes for Building  
 AS A123: Mortar for masonry construction  
 AS 3972 (1991): Portland and blended cements  
 AS TM C920 (2001): Standard specification for elastomeric joint sealants

### 6.3 APPROVED CONTRACTOR

**Requirement:** All bedding, pointing and repointing shall be carried out by contractors, sub-contractors or personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

### 6.4 GENERALLY

**Generally** - Mortar for pointing and repointing shall as nearly as possible match in colour, texture, strength and porosity, that of the original mortar or approved sample. The mortar shall be more porous and permeable than the adjacent masonry to allow moisture to be released through the joint.

**The term 'grading' refers to the size distribution of aggregate (sand) grains** and is determined by passing samples of aggregate through sieves of a specified size. Aggregate in which the majority of grains are of similar size is termed 'poorly graded' and aggregate with a wide spread of grain sizes is 'well graded'. Refer to the Grain Size Distribution Table in Section 4.6 to the specified gradings.

**Using sands to match the size grading specification** - where no currently available aggregate provides a similar match, a number of aggregates may need to be combined to provide the required grain size distribution. Blending is allowable if necessary to obtain suitable particle size grading. Batching of sharp sand with up to one third more rounded sand for workability is allowed provided the blend corresponds to the overall requirements for grain size distribution.

**Use an approved elastomeric sealant** only in locations specified on the drawings or where directed during the works. Refer to clause 5.9 - Elastomeric Sealant Pointing or Repointing.

**Sequence** - Do not commence pointing or repointing until cleaning and masonry repair work in the vicinity has been completed. Pointing and repointing is to be completed prior to installation of lead weatherings. Protect all stonework and clean-up on completion of the work.

**Additives** – Do not use additives

**Defective pointing** is any mortar that is loose, cracked, crumbling or missing

## 6.5 QUALITY

**Submissions** - Submit methodology for tools and proposed removal method for approval to the Principal's Authorised Person.

**Inspections** – The proposed work shall be jointly inspected in detail by the Principal Contractors Nominated Representative, the Principal's Authorised Person and the Heritage Specialist to approve the work in each location. The Principal Contractor shall co-ordinate with the Principal's Authorised Person so that pointing and re-pointing may be inspected in the following stages;

- Prior to commencement of work to clarify extent of repointing. Submit tools and proposed removal method for approval (Hold point)
- Sample of tuck pointing removal
- Sample of new tuck pointing
- Sand proposed for use is to be inspected on site prior to repointing. Provide sieve analysis data (Witness point)
- Existing pointing removal and joint preparation for pointing and re-pointing (Hold point)
- Mortar pointing and re-pointing samples. (Hold point)
- Elastomeric sealant material and colour, complete with manufacturers data sheets and application recommendations prior to the preparation of samples. (Witness point)
- Elastomeric sealant pointing and re-pointing samples. (Hold point)
- Pointing and re-pointing work completed. (Hold point)

**Samples** - Provide repointing samples of up to 10 lineal metres and obtain approval of the sample before commencing the work. Multiple mortar mix samples may be required. Obtain approval of the final pointing and repointing mix from the Heritage Specialist, before commencing the work.

Colour, texture and finish of the pointing and repointing shall match the approved sample. And be carried out by the personnel undertaking the sample.

**Testing** – During the construction period, random samples of all bedding, pointing and repointing materials may be required to confirm compliance with the specification. All testing will be at the expense of the Principal and may include sand:lime ratio testing, silt tests, sieve analysis and void tests.

**Storage of Materials** is to be in accordance with code requirements. Dry bagged lime shall be stored sealed shut in a dry, ventilated area protected from rain and moisture.

**De-pointing** - Appropriate precautions shall be taken when de-pointing mortar that contains asbestos. Pointing removal and disposal of contaminated material must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety laws and EPA requirements.

## 6.6 POINTING AND REPOINTING MATERIALS

**Requirement:** Provide pointing and repointing materials for stonework as specified and or scheduled and to be either:

- Mortar
- or
- Elastomeric sealant

**Sand:**

**Maximum clay content should be 1%/vol.** No clay is preferred as clay in repointing sands for use in lime mortars increases water demand in the mix, reduces pore size and breathing capacity of the cured mortar, hence affecting its ability to draw moisture and salts away from the sandstone.

**Maximum 'fines' is to be 5%.** 'Fines' includes all material (clays and silts) passing through a 75 µm sieve. A high clay or silt content will affect the performance of a lime mortar and can cause cracking and shrinkage.

**Sand should be washed** and free of salts and organic matter

**Sand should be well-graded**, coarse-medium or medium-fine depending on joint width, working requirements, exposure and existing original pointing. Grading limits are shown in the table below.

| SAND GRAIN SIZE DISTRIBUTION |                                                              |                                                                   |
|------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------|
|                              | Small Joints (3mm nominal joint width)<br>Fine – Medium Sand | Typical Joints (10mm nominal joint width)<br>Medium – Coarse Sand |
| Sieve Size                   | % passing                                                    | % passing                                                         |
| 4.75mm                       | 100                                                          | 100                                                               |
| 2.36mm                       | 100                                                          | 90 - 100                                                          |
| 1.18mm                       | 95 - 100                                                     | 70 – 100                                                          |
| 600µm                        | 70 - 100                                                     | 40 - 75                                                           |
| 300 µm                       | 35 - 70                                                      | 10 - 40                                                           |
| 150 µm                       | 10 - 25                                                      | 2 - 15                                                            |
| 75 µm                        | 0 - 5                                                        | 0 - 5                                                             |

Very narrow joints (2mm and less) may not be possible to effectively repoint. Widening of joints is not acceptable.

**Lime:** Natural Hydraulic Lime 2 - 3.5 (NHL 2 – 3.5).

**Cement for bedding**– off-white cement to AS 3972, Type GP, with iron salt content not exceeding 1%

**Oxide** - BARNES Ferrotint Oxide, Acacia Yellow or equivalent may be used to colour the mortar following written approval.

## 6.7 POINTING AND REPOINTING MIX

**Bedding Mortar** for replacement stone units -the mix shall be in the range of: one part 3.5 NHL lime to three parts Sydney sand (1:3) through to one part off-white cement, one part lime, six parts sand (1:1:6) – to be confirmed with the Heritage Specialist.

**Pointing and Repointing Mortar** – 1 part lime (NHL 2): 2.5-3 parts sand, subject to sample approval.

**Stone Patching Mortar** - in the range of one part lime, to two-two and a half parts sand (1:2-2.5). Lime is to be made of 80% slaked lime and 20% NHL 2. Use Ochre as a colouring agent, subject to sample approval.

## 6.8 METHOD

### Substrate Preparation

- Clean masonry units as specified in Section 3.5 Masonry Cleaning
- Carefully remove the existing pointing where scheduled and square cut to sound mortar, to a minimum depth of twice the width (min 20mm).
- Appropriate precautions shall be taken when de-pointing mortar that contains asbestos. Pointing removal and disposal of contaminated material must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety laws and EPA Act.
- **DO NOT WIDEN JOINTS.** Remove existing mortar using the approved method and without damaging the adjacent masonry and arrises. **No power tools shall be used without written approval.**
- Brush off joint surfaces to remove all dust and debris. Use vacuum suction etc, to remove dust and loose debris. Joints can be washed out with low pressure water.
- Dampen masonry unit joints just prior to mortar application. Dry joints shall not be repointed. The amount of water required will depend on the weather conditions. The masonry should be damp but not saturated.
- Tape all joints with 50mm wide masking tape, after washing down and immediately prior to repointing or pointing. The tape shall be set along the joint arris as close as possible to enable the repointed joint to appear as thin as possible to match the original joint line. Strip off the masking tape when the joint is partially set, so removal does not disturb the new pointing.
- Provide and insert a closed cell backing rod (or approved similar material) under compression, where joints contain voids (eg. where masonry meets timber framing), following written approval. Backing rods shall be located to provide a full repointing mortar depth of 20mm inside the joint, and shall be capable of assisting the pointing mix to be firmly inserted against it to the full depth of the open joint.
- Protect repointing area from rain, sun, high winds and extreme temperatures before, during and after pointing.

### Mixing

- If measuring by weight is not possible, measure out by the full or half bag (weight) to ensure correct quantities.
- Add water cautiously, starting with the minimum quantity. Mortar is to be mixed with water just prior to use. For bedding mortar add enough water to achieve a spreadable consistency.
- Used approved batching boxes for mixing of mortar by volume. Machine mix mortar.

### Application

- The mortar shall be applied in a putty-like consistency, capable of being moulded into a ball so that it can be firmly pushed completely back in several applications into the joint.
- Mortar is to be applied in layers, each depth to be divided evenly for each layer, to completely fill the empty joint
- Compact each layer thoroughly and allow it to become thumbprint hard before applying the next layer.
- Maintain the original joint width and do not finish flush or out to eroded arrises. Finish with a slight 1-2mm rebate and to the approved sample.
- After application of pointing, and once an initial set has been achieved, press the mortar back with a trowel or stiff brush to create an open texture and promote carbonation. The mortar

should not be repeatedly worked, as this can cause an excess of fine surface particles, weakening the mortar beneath.

#### Protection

- Clean off all mortar and mortar droppings on a daily basis. The building fabric, scaffolding, and work area shall be maintained free of all residual or excess pointing or repointing material.

### 6.9 ELASTOMERIC SEALANT POINTING AND REPOINTING

#### Generally

The intention of using the elastomeric sealant is to prevent water penetration into the joints where there is excessive movement. Elastomeric sealant shall not be used without approval from the Heritage Specialist.

#### Extent of Work

Pointing and repointing shall be applied to the areas as specified in the scope of works, as indicated on the drawings or as instructed by the Heritage Specialist.

#### Material

The material is to be equal in all respects to External Grade Soudal Multibond 35 Seal and Stretch in either Sandstone colour or Bostik colour beige Item code 661530. Submit colour sample and details of the sealant proposed to be used for approval prior to use. The sealant shall be applied in accordance with Manufacturer's instructions, using bulk or air gun equipment, foam backing rod, primer etc.

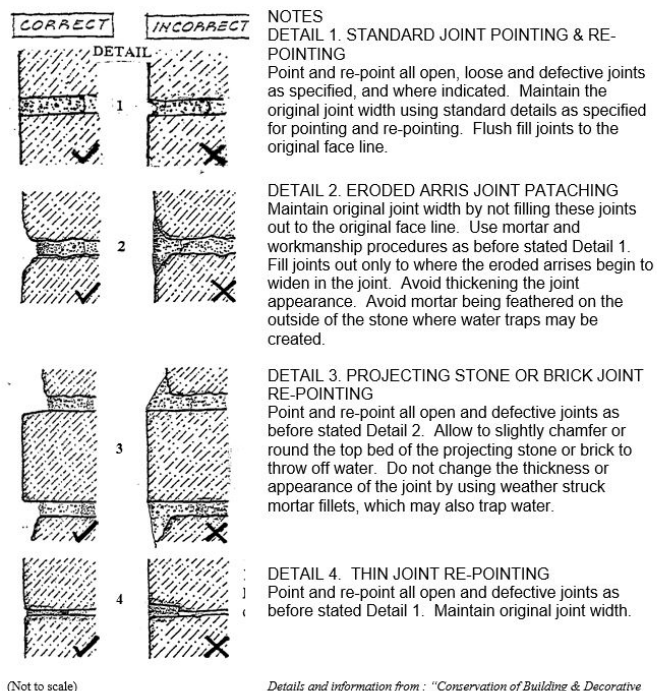
#### Sample Area

Prepare a sample area of approximately two (2) lineal metres. Submit the Manufacturer's recommendations for use and application prior to commencement of the sample.

#### On Completion

Clean away all debris off the site etc.

### 6.10 JOINT FINISH GUIDELINES



## SECTION 7 LEAD WEATHERING

### 7.1 EXTENT OF WORKS

Works include, but are not necessarily limited to the following:

- Supply and install new 30kg lead weathering as indicated on the drawings, tower cornice Course T.
- Provision of underlays, copper stiffeners & clips, fixings, underlays and sealants

Refer to the following sections:

- Section 1: General Requirements
- Section 2: Quality
- Section 4: Stonework
- Section 6: Pointing and Repointing

### 7.2 STANDARDS

BS 1178: Milled Lead Sheet and Strip for building purposes

AS 1804: Lead

AS 1566: for copper clips and sheet

BS 1210: for screws

BS 219: for solder

BS 1521 Class A: Waterproof Building Paper

AS 2904 Flashings

### 7.3 INTERPRETATION

#### Requirement

The associated drawings are diagrammatic only. Before proceeding with the leadwork on site, check dimensions and obtain measurements from the site and other information necessary to carry out the work specified.

The Contractor shall be responsible for the accuracy of the work set out and shall make good and bear the cost of any inaccuracy to the satisfaction of the Principals Authorised Person.

### 7.4 QUALITY

#### Workmanship

All leadwork is to be carried out by suitably skilled and experienced leadworkers and shall be in accordance with the best work practices as recommended in "Lead Sheet in Building – A Guide To Good Practice" 1978 (amended 1984) by the Lead Development Association, London.

Tenderers are to submit with their tender, proof of their experience and workmanship with this type of leadwork and to list names and experience of personnel performing the work. Name at least two referees (with telephone numbers).

#### Inspections

The Principal Contractor shall coordinate with the Principal's Authorised Person so that all work may be inspected in stages indicated on the Inspection Test Plan (ITP) Schedule in Section 2.2 of this specification and as follows:

- Prior to the commencement of any work to confirm the scope, materials and methodology. (Hold point)
- Position of the copper clips (Hold point)

- Completion of the continuous copper strips in position prior to the laying of the lead (Hold point)
- The paper underlay and copper clips in position. (Hold point)
- The second underlay (felt) in position (Witness point)
- Backing rod in position prior to installation of elastomeric sealant (Witness point)
- The lead ready for the patination oil (Witness point)

**Note:** The Principal Contractor shall allow the Principal's Authorised Person and the Heritage Specialist access for the duration of the contract to inspect the lead installation works.

The Principal Contractor is to give sufficient notice (one week in advance) so that the hold and witness points may be inspected.

## 7.5 LEAD WEATHERING MATERIALS

### Lead Underlay

Underlay for all leadwork shall be an approved underlay system which will not adhere to the lead, copper, stone or timber substrate under temperature changes. Two layers of underlay are required. The first layer between the stone and the copper and the second layer shall be placed between the copper edge and the lead. Underlay is to be A class building paper (Novia BS1521 Grade A1F or equivalent) and geotextile.

### Patination Oil

To be equal to "Patination Oil" as manufactured by "Valspar" (Paint Product UN No. 1263) and as supplied by such suppliers as Thomas Thoms Pty Ltd Lead Products, 16 Jurnal Pl Smithfield NSW.

### Copper Fixing Clips

Copper minimum thickness 24 gauge, not less than 50mm wide.

### Copper

Use 24 gauge for the continuous copper strip on medium projections along the front edge of the stone to stiffen the lead covering along that edge and for the continuous copper strip along the rear edges of coping and coping/cornice areas. Use 22 gauge for stiffening clips for wide projections. Fix copper with copper ring shanked nails 35mm into red plug, finished flush.

### Sealant

To be an approved elastomeric sealant material, the material to be equal in all respects to External Grade Soudal Multibond 35 Seal and Stretch in either Sandstone colour or Bostik colour beige Item code 661530. Submit colour sample and details of sealant proposed to be used for approval prior to any work being carried out on site. The sealant shall be applied in accordance with manufacturer's instructions, using bulk or air gun equipment, foam backing rod, primer, etc. Note: the sealant shall only be used to seal the first joint above the cornice or as detailed.

## 7.6 LAYING LEAD WEATHERINGS

### Requirement

Lay lead in accordance with the details and specification. Lead sheets shall be laid on an approved underlay, laid over a clean, smooth stone surface, free of any sharp edges, objects or debris. A second sheet of underlay shall be laid over the continuous fixing strips, as shown in the drawings.

### Substrate Preparation

Before commencing, ensure all surfaces are clean, dry, smooth and that falls are correct. Where surfaces are uneven, allow to provide a mortar topping to be 3 sand:1 lime mix.

### Laying

Turn the lead sheet down 25mm to form a drip clear of the wall. Lead weatherings shall be of No. 5 DM 25.4 kilograms per square meter lead sheet in maximum lengths of 900mm. Dress and boss to the necessary profiles without reducing the thickness of the lead by more than 25%. Where necessary boss to approximate shape before fixing. Do not dress so tightly or fix leadwork in any manner that will restrict free thermal movement of the lead.

## 7.7 JOINTING LEAD WEATHERINGS

### Requirement

Join lead sheets in accordance with the details required to suit the width of the projection. Lead sheets are not to be pre-cut. Location and set out of welts is to be agreed with the Heritage Specialist prior to commencement of laying.

### Lead Burning

All internal and external corners shall be lead burned or as detailed in the drawings, all in accordance with the best work practices. Produce solid welds approximately one third thicker than the lead being joined.

### Jointing

Join with flat folded welts or seams with lead edges turned up 50mm for the overlap and 25mm for the underlap and copper fixing clips between the lead laps to fix the welt to the stone. Allow one (1) clip per joint.

The edge of the overlap is to be loosely turned over, lightly folded down and dressed away from the prevailing weather. Line the welts generally with the stone joints.

The copper fixing clips are to be 50mm x 24 gauge copper, twice brass or stainless steel screwed with brass washers, screwed into approved plastic inserts set into the stone. Evenly space the copper clip in the middle of the projection width (or girth). The screws to be countersunk 30mm long x 10 gauge. Brass washers to be of a diameter of 6mm size and of 19 gauge.

## 7.8 FIXING LEAD WEATHERINGS

### Requirement

Fix lead weatherings in accordance with the details required to suit the fixings for the widths of the horizontal offsets, surfaces and projections.

The edging of the lead is to be held and stiffened by turning it back under to form a neat continuous welted drip edge of 25mm below the top of the brickwork.

Fix and stiffen the edges of the lead by turning it back under to form a neat continuous welted drip edge of 25mm below the top of the brickwork. Provide 50mm wide by 24 gauge copper clips at 450mm centres maximum, screw fixed 75mm back from the leading edge and turned down the depth of the lead face, with the copper clips engaged inside the lead welting.

## 7.9 PATINATION OIL

### Requirement

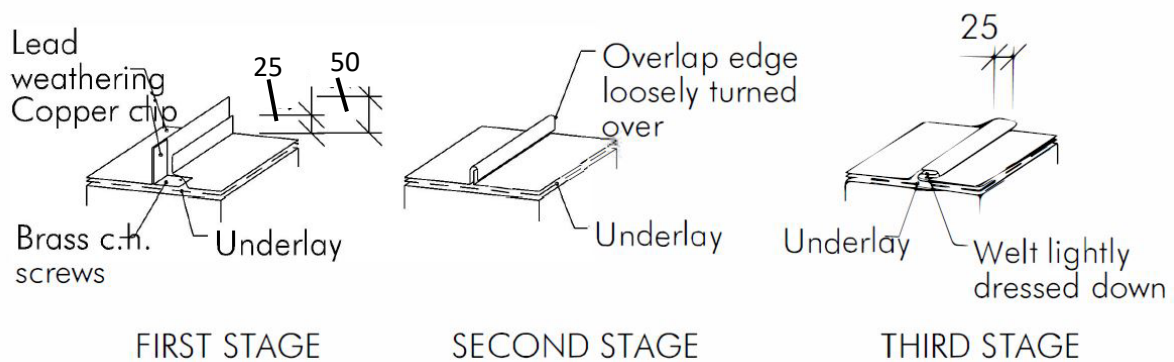
On completion of laying the lead covering, the lead shall be finished with one coat of approved patination oil. The treatment shall be carried out before any rain and no later than the end of the day's work

## 7.10 PROTECTION

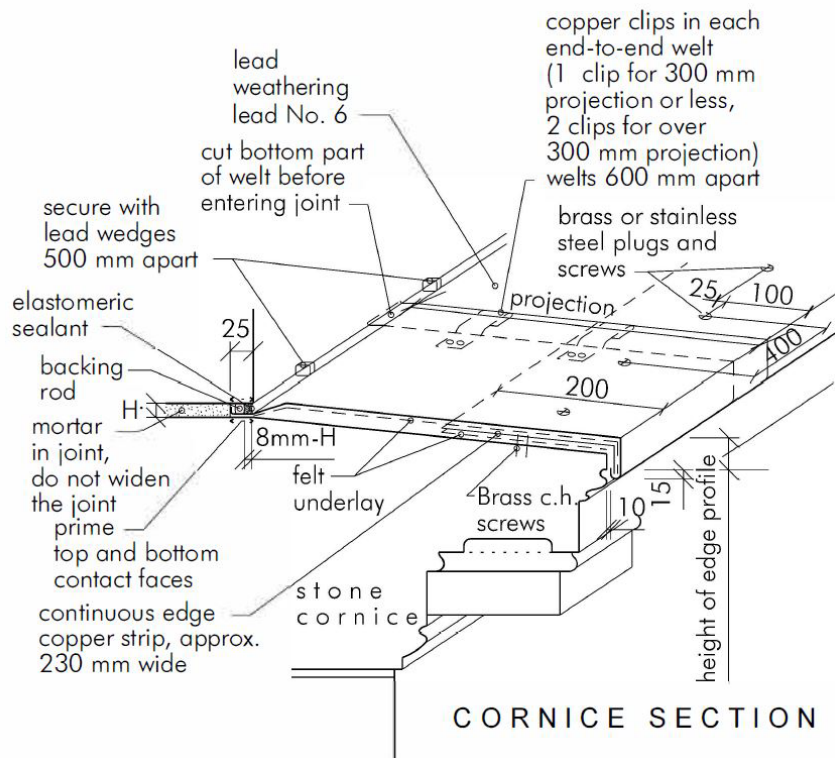
### Requirement

The lead sheeting, lead covering and lead work shall be protected at all times from damage throughout the duration of the contract.

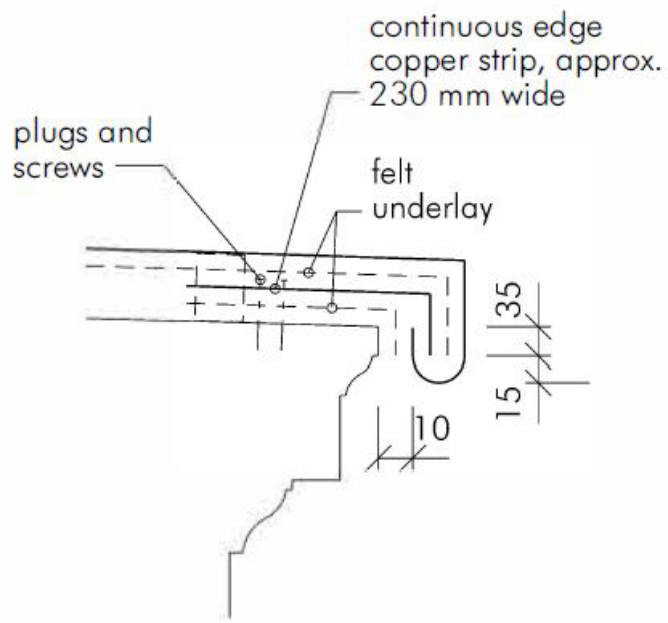
## 7.11 TYPICAL LEAD WEATHERING DETAILS



### 7.11.1 Welt Details



### 7.11.2 Cornice Detail



**7.12.3 Leading Edge Detail**

## SECTION 8 PAINTING & TIMBERWORK

### 8.1 EXTENT OF WORKS

- Timber elements - Patch repair timber where required prior to painting using a timber filler (Timbabuild or equivalent).
- Allow to splice repair defective or rotten timberwork prior to repainting, allow 6 lineal metres, in locations confirmed from the scaffold.
- Remove the existing awning and provide a new awning, timber framing to match Block E. Awning roof is to be Colorbond Ultra, colour Shale Grey. Roof is to extend beyond the width of the ramp. Provide shop drawings for approval.
- Repaint all existing external painted elements including gable barges, fascias, soffits, windows & doors, paint colours to be advised.
- Ease and adjust all currently operating windows to ensure they open easily and replace broken sash cords.
- Replace cracked, defective and missing glazing putty and re-putty to affect a weather seal.
- Seal non-operable windows to provide a watertight finish before painting
- Remove metal gate from north wall, sandblast, treat, paint and reinstate.

### 8.2 QUALITY

#### Requirement

Protect adjacent surfaces and clean off marks, paint spots and stains progressively. Apply according to manufacturer's specifications.

#### Approved Contractors and Sub-Contractors

All trades involved in the painting works shall be carried out by contractors, sub-contractors and personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

#### Data Submissions

Before commencing painting the Principal Contractor shall submit the following:

- Manufacturers technical Data specifications (TDS) and material safety data sheets (MSDS) for the materials to be used.
- The painting contractors written statement certifying that the relevant building substrates are satisfactory for receiving the specified finishes.

#### Heritage Approach to Paintwork

Where existing paintwork is sound, leave it undisturbed where possible and use as the base for new paintwork.

Where paintwork between coats of paint and between paint and substrate have broken down, remove defective paintwork to achieve a sound substrate for new paintwork. Remove unsound paint by wet scraping and sanding. Power tools, blast cleaning, hot air strippers, blow lamps and blow torches shall not be used for paint stripping.

### 8.3 INSPECTIONS

**Requirement:** The Principal Contractor shall coordinate with the Principal's Authorised Person so that all work may be inspected in stages as follows:

- Following removal of sill covers (Hold point)
- Completion of surface preparation (Hold point)
- After application of primer (Hold point)
- After application of each subsequent coat (Hold point)

**Note:** The Principal Contractor shall allow the Principal's Authorised Person and the Heritage Specialist access for the duration of the contract to inspect the painting works. The Principal Contractor is to give sufficient notice in advance when an inspection and attendance to the site is required.

#### 8.4 TIMBER PAINTING

##### **Surface Preparation**

For surfaces to be repainted, paint removal is limited to flaking or deteriorated paint to provide a sound substrate for repainting and in accordance with the paint manufacturer's specification. Areas of sound paint shall be retained. Do not paint over rotten timber. Remove damaged timber and patch with an approved wood filler (Repair Type A).

Prepare substrates to receive the painting systems in accordance with the relevant recommendations of AS2311:2017 and paint manufacturer's specification. Clean down the substrate surface in a manner which causes neither undue damage to the substrate nor damage to, or contamination of the surroundings.

**Note:** For new and re-used timbers to be painted, prime before fixing into position.

First Coat – Dulux Precision High Opacity Stain Blocker, or equivalent

Second Coat – Dulux Aquanamel Gloss, or equivalent

Third Coat - Dulux Aquanamel Gloss, or equivalent

Complete the works by removing prior paint marks on the glazing.

#### 8.5 METAL PAINTING

##### **Surface Preparation - DO NOT PAINT OVER RUST**

Remove existing north wall gate, sandblast off site to Class 2.5 in accordance with AS1627. Ensure the surfaces are clean of all contaminants and dust etc prior to priming.

##### **Primer**

Following surface preparation apply the primer within 3 hours of abrasive blasting. Any re-rusting of the surface shall be removed at the Contractor's expense.

First coat: Zincanode 402 (min 75 micron dry film thickness).

Second coat: Duremax DPE MIO (min 200micron dry film thickness).

Topcoat: Dulux Weather MAX HBR, min.75 micron dry film thickness. Colour to be advised.

## 8.6 TIMBER REPAIRS

### Repair Type A - Epoxy Repair Method

Repair all weathered and partially decayed timberwork using an approved epoxy resin wood filling system to match the original profile, soundness and structural integrity. Epoxy patching is for decay up to a maximum depth of 60mm. The epoxy repair system shall be "Timbabuild" or equivalent, following approval prior to use by submitting technical data sheets. It shall be of proven durability and capable of performing in accordance with the manufacturer's recognised quality control system and guarantees.

All repair work shall be performed insitu. Timber members shall only be removed for repair after approval has been obtained from the Principal's Authorised Person. Approval may only be given where insitu repair is impracticable and/or where the timber has to be removed to effect repair behind or in the joint areas.

Prepare the area by removing all paint and decayed, cracked and loose timber. Make free of dirt, dust etc. The timber moisture content should be no greater than 18% (check using a standard moisture meter). Lightly sand the exposed surfaces to ensure adhesion. Treat the bare wood with an approved fungicide (see Section 9.7 and 9.11). Allow a minimum of 48hrs for the fungicide to dry.

Applying the timber repair primer (EWS Timbabuild or approved equivalent). Ensure 100% of surfaces to be patched are coated with the primer.

Fill prepared and primed voids with Timbabuild EHB4 (or approved equivalent) according to manufacturer's instructions. Use formwork to achieved straight edges and angles.

### Repair Type B – Timber Splice Repair

Where decayed timbers are beyond epoxy patching, the repair method is by splicing replacement wood into the original piece or by 'filling' damaged pieces with timber. The timber species, profiles and moisture content shall match the existing timber to be repaired. For clear finished joinery, the colour and grain direction of the infill timber shall match the existing.

All repair work shall be performed insitu. Timber members shall only be removed for repair after approval has been obtained from the Principal's Authorised Person. Approval may only be given where insitu repair is impracticable and/or where the timber has to be removed to effect repair behind or in the joint areas.

Remove defective portions to leave the timberwork in a sound condition. Splice matching wood section onto remainder using brass or stainless steel screws countersunk into edge. Splice contact surfaces to be joined with "Timbabuild EHB4" or equal. Timber to be dressed down to match existing profiles.

### Repair Type C - Replace the whole element or member

For highly decayed timbers, replace the whole timber section to match existing sizes, profiles and construction as confirmed with the Heritage Specialist and Principal's Authorised Person.

## 8.7 GLAZING PUTTY

Glazier's putty shall be used for re-glazing and repairing windows. Putty shall be oil-based (e.g. linseed oil) and lead free. No silicone based sealants are to be used. Cut out all cracked or loose putty and replace with new glazing putty to effect a weather seal. Use steel window glazing putty for the steel framed windows.

Existing Putty may contain lead or asbestos- appropriate precautions should be taken. Contaminant removal must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety laws and EPA requirements.

**8.8 EASE AND ADJUST SASHES**

Ease and adjust all existing operable sashes to ensure that they open easily and provide adequate clearance between stop and beads to accommodate any additional coats of paint. Renew defective or missing hardware to match existing.

**8.9 MANAGEMENT OF LEAD CONTAMINATED PAINT****Lead Safe Practice**

Where assessment by the Principal or testing by the Principal Contractor has established the presence of lead exceeds the permissible level all surface preparation and painting must be carried out in accordance with this specification and the requirements of AS4361.2, Guide to lead paint management.

**Protection of Personnel**

The Principal Contractor must, when working on "lead paint risk" surfaces, ensure that its employees, the Principal's tenants and the public are protected from exposure to lead hazards in accordance with the requirements of section 6 of AS4361.2.

**Painted Surfaces Internal and External**

When working on "lead paint risk" surfaces, all necessary precautions must be taken to ensure the containment of all debris, dust and contaminants in accordance with the requirements of AS4361.2, Section 5. All blistered, flaked and peeling paint must only be removed by safe methods as described in AS4361.2, Section 3.4.4(a). Allow surfaces to dry. Voids and imperfections are then to be filled, sanded smooth, dusted off and spot sealed (unless specified otherwise). Remove lead paint debris during the process and at the end of every day.

New paint is to be applied in accordance with the relevant requirements of the specification.

All paint scrapings and residue are to be collected up into sealed bags and properly disposed as required by the Environment Protection Authority.

The above procedures should be carried out for both internal and external surfaces requiring repainting. The main aim in the above process is to minimise dust, fumes and lead contaminated spores entering the surrounding atmosphere, soil and waterways or causing health problems for people or animals.

Ensure that no waste from the site is conveyed to or deposited at any place that cannot lawfully be used as a waste facility for that waste.

**Monitoring**

Monitor waste volumes and record their method and location of disposal and whether or not that location is a place that could lawfully be used as a waste facility for that waste. Submit a progress report every two months, and a summary report before Completion, on the implementation of waste management measures, including the total quantity of material purchased, quantity purchased with recycled content and the total quantity of waste generated, total quantity recycled, total quantity disposed of and the method and location of disposal.

Report immediately the details of any waste from the site which has been conveyed to or deposited at any place that cannot lawfully be used as a waste facility for that waste.

## SECTION 9 BIRD PROOFING

### 9.1 EXTENT OF WORKS

Works include, but are not necessarily limited to the following:

- Install bird proofing to areas indicated on the drawings.
- Bird proofing is to a post and spring tensioned single wire system.

Refer to the following sections:

- Section 1: General Requirements
- Section 2: Quality
- Section 3 Stonework

### 9.2 QUALITY INSPECTIONS

**Requirement:** The Principal Contractor shall coordinate with the Principal's Authorised Person so that all work may be inspected in stages indicated on the Inspection Test Plan Schedule in Section 2.2 of this specification and as follows:

- Site meeting to clarify scope, approve fixing method and post locations (Hold point)
- During the progress of the works (Witness point)
- At completion of installation (Hold point)

**Note:** The Principal Contractor shall allow the Principal's Authorised Person and the Heritage Consultant access for the duration of the contract to inspect the birdproof installation works. The Principal Contractor is to provide a minimum 1 weeks' notice for inspections.

#### APPROVED SUB-CONTRACTORS

Bird proof installation shall be carried out only by approved contractors, sub-contractors and personnel experienced and skilled in the type of work specified.

Submit for approval prior to commencement of work a list of personnel proposed to be used for the work, complete with details of experience, previous work on heritage buildings, etc. List referees who can establish that the nominees have executed the same work to that specified. This information will be taken into account when assessing tenders. Any changes to the nominated sub-contractors as listed under schedule of proposed selected contractors require approval by the Principal's Authorised Person.

### 9.3 MATERIALS

#### Requirement

All bird proofing supports and wires are to be Marine Grade 316 stainless steel. The stainless steel base plate is to be 3mm thick and 30mm wide. The wires are tensioned by springs attached to anchor posts. Nylon coated wires are to be 0.6mm dia. Submit sample of the bird proofing system for approval by the heritage specialist prior to installation.

### 9.4 INSTALLATION

#### Surface Preparation

Remove all traces of biological growth, previous bird proofing, glues, bird guano and generally soiling before installing bird proofing. Refer to Section 4 Stonework 4.5 Masonry Cleaning for cleaning method.

#### Fabrication

The posts are to be fixed to the base plates off-site prior to installation. Clean the stainless steel posts and bases immediately following the drilling process of all drilling residue to prevent surface rust.

Do not contaminate the surface with any welding, adhesive, surface coatings, chemicals or drilling products. Do not use a carbon steel wire brush to clean the surface. Non-ferrous or nylon brushes are acceptable.

**Post Weld Cleaning**

- Clean mast and base plate after welding and once cooled and prior to fixing with HF/HNO<sub>3</sub> paste or stainless steel pickling gel/solution. Follow manufactures/supplies application process. (products: BOC smootharc stainless steel pickling solution or boc stainless steel pickling gel) use in a well ventilated area.
- Wipe picking gel away when rust has gone
- Rinse with water
- Give a final spray with weak ammonia (3-5 %) to neutralise pickling paste and remove white powder.

(Note that HF is a schedule 7 poison above 1% content so if they can demonstrate satisfactory results from slower nitric acid paste [welders' supplies] or oxalic acid paste [removing iron stains from bores or concrete] then those chemicals can provide a passive surface. All the acids will etch mortar and some stones so they must be careful about spillages. Both product sheets attached say HF content is between 1% and 5%)

**Installation**

The bird proofing is to run parallel with the stone and is to be set back maximum 40mm from the front edge of the stone. The steel is to be fixed into the masonry joints using lead wedges so that the process is totally reversible.

Where located directly on masonry, all fixings are to be located within the existing masonry mortar joints. Do not drill fixing holes into stonework or brickwork. Do not cause damage to the adjacent stone or bricks. The base plate is to be fixed into the mortar joint using lead wedges so that the process is totally reversible. The base plate is to sit flush with the top horizontal surface of the stone. The bird proof wire is to run parallel with the stone and is to be set back no more than 40mm from the front edge/leading edge of the stone.

Where located on lead weatherings, fix posts to lead using a UV stabilised polycarbonate base, Avispike (Stixx Vario) by ANC Bird Control or equal bird control product, using a high quality adhesive. Allow the **adhesive to cure before** the wire are placed under tension. Follow the manufacturer's surface preparation and application instructions

Provide an anchor post at either end of a 3m span, with intermediate supporting posts provided at intervals of no more than 1.5m. If the span is less than 3m, an anchor post is required at each end of the span. For spans greater than 3m, build the system in 3m sections. The anchor posts and supporting posts shall be positioned in a straight line to add strength to the system.

**System configuration**

Ledges deeper than 50mm require more than one row of wires to prevent birds from landing, spaced approximately 65mm apart.

The wire heights and rows are to be confirmed and approved on site with the Principal's Authorised Person.

## APPENDIX A – SCOPED DRAWINGS A01 – A06

MARION STREET

Install ss316 3mm chimey cover plates (3) with a 10mm breathable gap using 5mm dia. ss316 anchors in epoxy, min 50mm embedment.

ADDITIONAL SCOPE OF WORKS

1. Jet blast all downpipes and storm water lines to clear blockages and ensure all rainwater goods are running free and discharging away from the building. Provide a CCTV report that includes a plan locating all site drainage services and identifies pipe materials and any leaks.
2. Replace the roof with Welsh Penrhyn Capital slates, where indicated on the drawing, 500mm x 250mm, over new battens and breathable sarking. Provide lead valleys and ridges over new timber rolls. Replace gutters with 125mm quad copper gutters and 100mm dia. copper downpipes. Reuse existing cast iron downpipe bases.
3. Replace the west lower roofs with corrugated Colorbond Ultra sheets (colour Shale Grey) over new battens and breathable sarking. Provide Colorbond ridges, flashings, 125mm quad gutters and 100mm dia. downpipes.
4. Refer to engineer's documents for chimney and roof seismic stabilisation details.

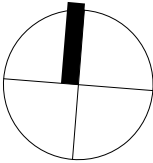
CHIMNEY No.1

CHIMNEY No.2

CHIMNEY No.3

TOWER

NORTON STREET



KEY

| CODE        | ITEM                         | CODE        | ITEM                                                               |
|-------------|------------------------------|-------------|--------------------------------------------------------------------|
| <div></div> | Stone replacement            | <div></div> | New Colorbond Ultra corrugated roof, flashings and rainwater goods |
| <div></div> | Stone indent                 | <div></div> | New slate roof tiles, lead flashings and copper rainwater goods    |
| <div></div> | SSR (synthetic stone repair) | <div></div> | Lead weathering                                                    |
| <div></div> | New copper roof              | <div></div> | Bird proofing                                                      |

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ASSOCIATED TECHNICAL SPECIFICATION AND ENGINEER'S DOCUMENTS

| REVISION |          |                       |
|----------|----------|-----------------------|
| ISS      | DATE     | COMMENT               |
| #        | 24.02.25 | ISSUE SCOPED DRAWINGS |
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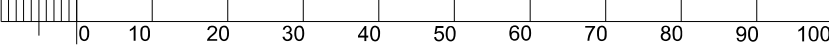
LEICHHARDT PUBLIC SCHOOL  
BLOCK B  
EXTERNAL REPAIRS

ROOF PLAN

|            |           |                 |
|------------|-----------|-----------------|
| PLAN RM NO |           | CONTRACT NUMBER |
| SHEET NO   |           | A01             |
| DESIGNED   | PLOT DATE | REVISION        |
| DRAFTED    | VERIFIED  |                 |

FOR TENDER

A3

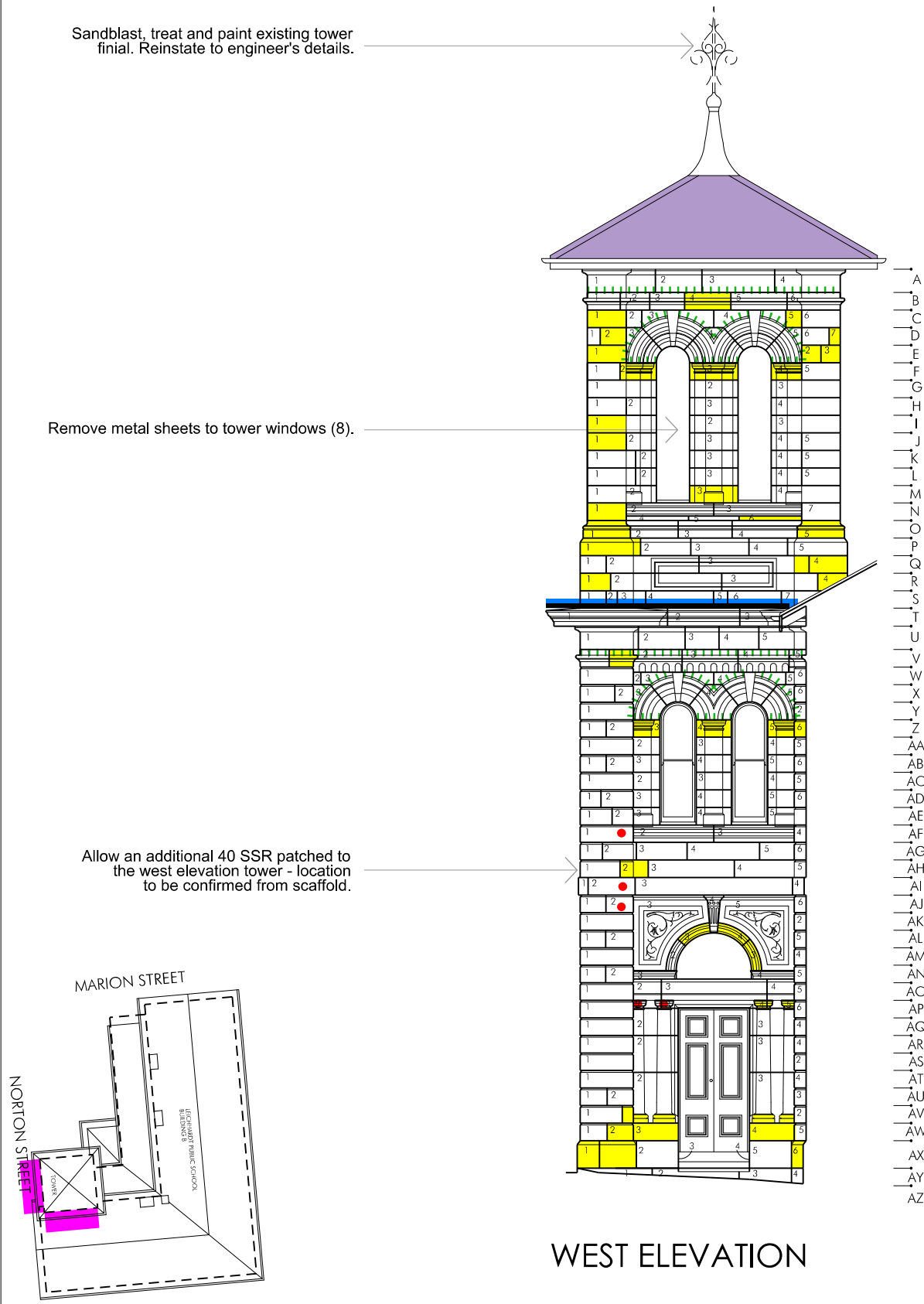


USE FIGURED DIMENSIONS IN PREFERENCE TO SCALING  
CHECK ALL DIMENSIONS ON SITE

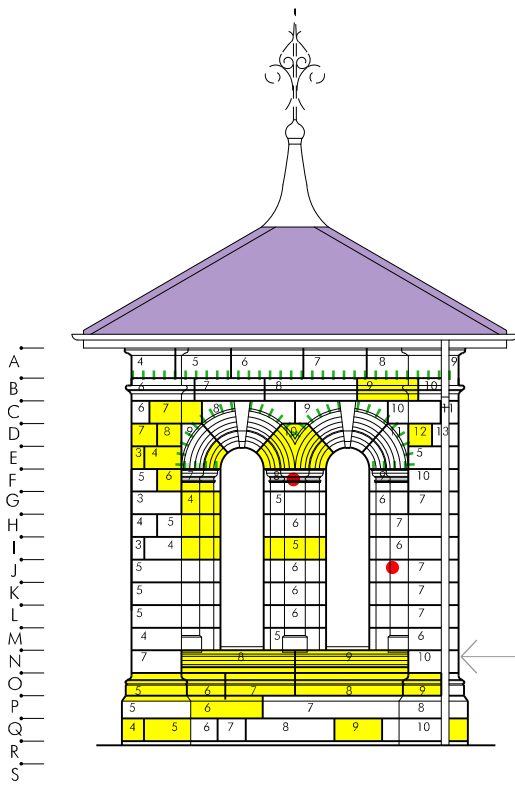
200MM

300MM ON ORIGINAL

© CROWN IN RIGHT OF NSW THROUGH THE DEPARTMENT OF EDUCATION



- ADDITIONAL SCOPE OF WORKS:
1. Clean 100% of the facade areas including stonework, timberwork and glazing according to the Technical Specification. Spot cleaning using approved methods may be required. Clean the internal tower of guano and debris.
  2. Remove 100% of the stonework pointing and repoint. The existing pointing contains asbestos and depointing, removal of disposal of contaminated materials must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety Laws and EPA Act.
  3. Allow to remove all previous stone indents (earlier repairs), remove bedding mortar, provide a punched surface texture and re-fix to engineer's details.
  4. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
  5. Ease and adjust all currently operating windows and replace cracked, defective or missing glazing putty. Allow to replace any broken sash cords.
  6. Repaint all painted external surfaces, colours are to be advised.
  7. Timber repairs - allow to apply an approved wood filler during paint preparation where required. Splice repair rotten timberwork where required (allow 6 lineal metres).
  8. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.



SOUTH ELEVATION

WEST ELEVATION

| KEY |  | CODE   | ITEM                         | CODE       | ITEM                                                               |
|-----|--|--------|------------------------------|------------|--------------------------------------------------------------------|
|     |  | Orange | Stone replacement            | Green      | New Colorbond Ultra corrugated roof, flashings and rainwater goods |
|     |  | Yellow | Stone indent                 | Purple     | New slate roof tiles, lead flashings and copper rainwater goods    |
|     |  | Red    | SSR (synthetic stone repair) | Blue       | Lead weathering                                                    |
|     |  |        |                              | Green dots | Bird proofing                                                      |

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ASSOCIATED TECHNICAL SPECIFICATION AND ENGINEER'S DOCUMENTS

| REVISION |          |                       |
|----------|----------|-----------------------|
| ISS      | DATE     | COMMENT               |
| #        | 24.02.25 | ISSUE SCOPED DRAWINGS |
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LEICHHARDT PUBLIC SCHOOL  
BLOCK B - TOWER  
EXTERNAL REPAIRS  
WEST + SOUTH ELEVATIONS

|            |  |                 |  |
|------------|--|-----------------|--|
| PLAN RM NO |  | CONTRACT NUMBER |  |
| SHEET NO   |  | A02             |  |
| DESIGNED   |  | PLOT DATE       |  |
| 02/2025    |  | REVISION        |  |
| DRAFTED    |  | VERIFIED        |  |
| R. Isles   |  |                 |  |

FOR TENDER

Sandblast, treat and paint existing towerfinial. Reinstall to engineer's details.

Replace missing timber fascia (300mm)

Allow an additional 15 SSR patches to the east elevation tower - location to be confirmed from scaffold.

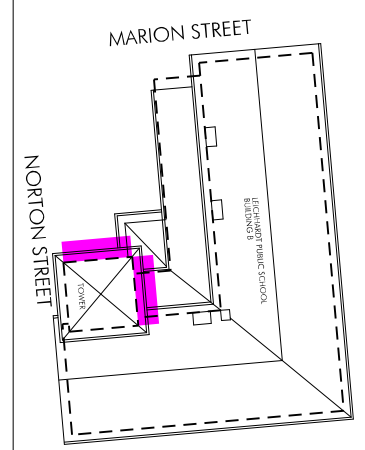
Sandblast, treat and paint existing towerfinial. Reinstall to engineer's details.

Install ss316 3mm chimney cover plate with a 10mm breathable gap using 5mm dia. ss316 anchors in epoxy, min 50mm embedment.

Install ss316 bird proofing spikes to light fitting.

ADDITIONAL SCOPE OF WORKS:

1. Clean 100% of the facade areas including stonework, timberwork and glazing according to the Technical Specification. Spot cleaning using approved methods may be required. Clean the internal tower of guano and debris.
2. Remove 100% of the stonework pointing and repoint. The existing pointing contains asbestos and depointing, removal of disposal of contaminated materials must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety Laws and EPA Act.
3. Allow to remove all previous stone indents (earlier repairs), remove bedding mortar, provide a punched surface texture and re-fix to engineer's details.
4. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
5. Ease and adjust all currently operating windows and replace cracked, defective or missing glazing putty. Allow to replace any broken sash cords.
6. Repaint all painted external surfaces, colours are to be advised.
7. Timber repairs - allow to apply an approved wood filler during paint preparation where required. Splice repair rotten timberwork where required (allow 6 lineal metres).
8. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.



EAST ELEVATION

NORTH ELEVATION

Allow an additional 15 SSR patches to the north elevation tower - location to be confirmed from scaffold.

Remove existing brick dish drain and install a pre-cast composite fibrous cement dish drain, sample to approved.

KEY

| CODE | ITEM                         | CODE | ITEM                                                               |
|------|------------------------------|------|--------------------------------------------------------------------|
|      | Stone replacement            |      | New Colorbond Ultra corrugated roof, flashings and rainwater goods |
|      | Stone indent                 |      | New slate roof tiles, lead flashings and copper rainwater goods    |
|      | SSR (synthetic stone repair) |      | Lead weathering                                                    |
|      | New copper roof              |      | Bird proofing                                                      |

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ASSOCIATED TECHNICAL SPECIFICATION AND ENGINEER'S DOCUMENTS

| REVISION | ISS      | DATE | COMMENT               |
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| #        | 24.02.25 |      | ISSUE SCOPED DRAWINGS |
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LEICHHARDT PUBLIC SCHOOL  
BLOCK B  
EXTERNAL REPAIRS  
EAST + NORTH ELEVATIONS

|            |                 |
|------------|-----------------|
| PLAN RM NO | CONTRACT NUMBER |
| 1: 100     |                 |
| DESIGNED   | PLOT DATE       |
| 02/2025    |                 |
| DRAFTED    | VERIFIED        |
| R. Isles   |                 |
| SHEET NO   | REVISION        |
| A03        |                 |

FOR TENDER

Sandblast, treat and paint existing towerfinial. Reinstall to engineer's details.

Sandblast, treat and paint existing towerfinial. Reinstall to engineer's details.

#### ADDITIONAL SCOPE OF WORKS:

1. Clean 100% of the facade areas including stonework, timberwork and glazing according to the Technical Specification. Spot cleaning using approved methods may be required. Clean the internal tower of guano and debris.
2. Remove 100% of the stonework pointing and repoint. The existing pointing contains asbestos and depointing, removal of disposal of contaminated materials must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety Laws and EPA Act.
3. Allow to remove all previous stone indents (earlier repairs), remove bedding mortar, provide a punched surface texture and re-fix to engineer's details.
4. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
5. Ease and adjust all currently operating windows and replace cracked, defective or missing glazing putty. Allow to replace any broken sash cords.
6. Repaint all painted external surfaces, colours are to be advised.
7. Timber repairs - allow to apply an approved wood filler during paint preparation where required. Splice repair rotten timberwork where required (allow 6 lineal metres).
8. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
9. Allow an additional 20 SSR patches to the south elevation and 20 SSR patches to the west elevation.

Install ss316 3mm chimney cover plates to chimney 2 and chimney 3.

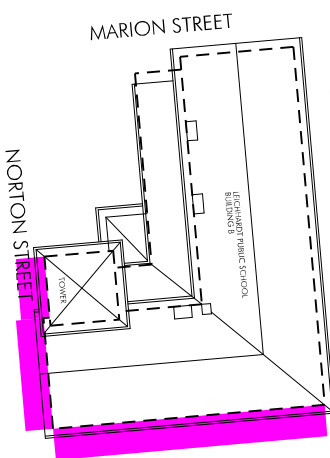
CHIMNEY 2 CHIMNEY 3

WEST ELEVATION

Replace broken terracotta vent.

SOUTH ELEVATION

Remove render and allow to indent the concealed stones.



| KEY |  | CODE   | ITEM                         | CODE       | ITEM                                                               |
|-----|--|--------|------------------------------|------------|--------------------------------------------------------------------|
|     |  | Orange | Stone replacement            | Green      | New Colorbond Ultra corrugated roof, flashings and rainwater goods |
|     |  | Yellow | Stone indent                 | Purple     | New slate roof tiles, lead flashings and copper rainwater goods    |
|     |  | Red    | SSR (synthetic stone repair) | Blue       | Lead weathering                                                    |
|     |  |        |                              | Green dots | Bird proofing                                                      |

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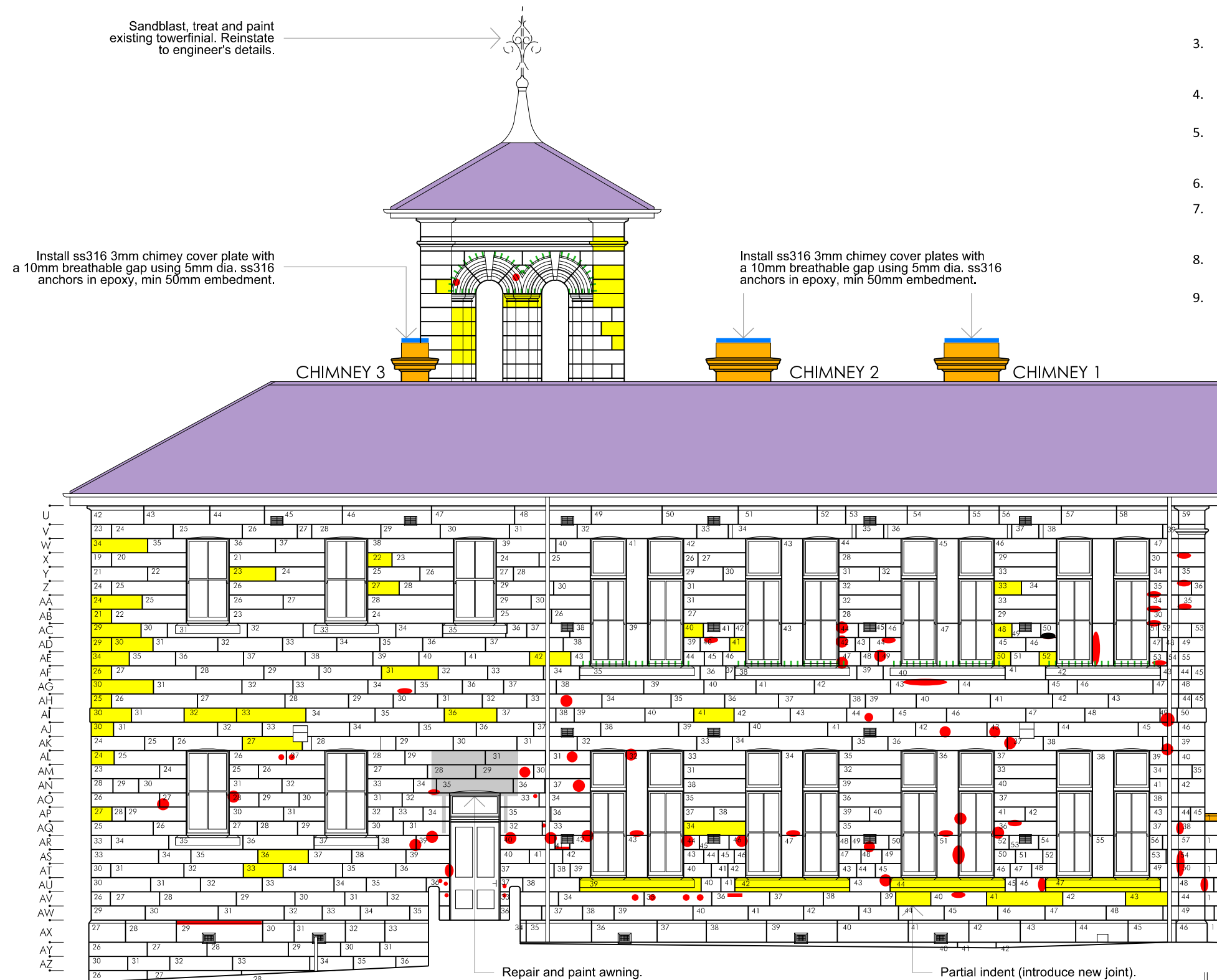


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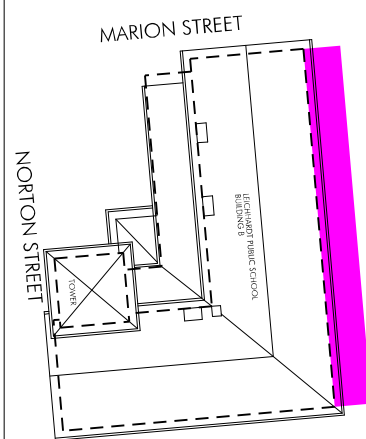


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| LEICHHARDT PUBLIC SCHOOL<br>BLOCK B<br>EXTERNAL REPAIRS |  |
| WEST + SOUTH ELEVATIONS                                 |  |

|                      |                      |
|----------------------|----------------------|
| PLAN RM NO           | CONTRACT NUMBER      |
| 1: 100               | SHEET NO<br>A04      |
| DESIGNED<br>R. Isles | PLOT DATE<br>02/2025 |
| DRAFTED              | VERIFIED             |



- ADDITIONAL SCOPE OF WORKS:
1. Clean 100% of the facade areas including stonework, timberwork and glazing according to the Technical Specification. Spot cleaning using approved methods may be required. Clean the internal tower of guano and debris.
  2. Remove 100% of the stonework pointing and repoint. The existing pointing contains asbestos and depointing, removal of disposal of contaminated materials must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety Laws and EPA Act.
  3. Allow to remove all previous stone indents (earlier repairs), remove bedding mortar, provide a punched surface texture and re-fix to engineer's details.
  4. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
  5. Ease and adjust all currently operating windows and replace cracked, defective or missing glazing putty. Allow to replace any broken sash cords.
  6. Repaint all painted external surfaces, colours are to be advised.
  7. Timber repairs - allow to apply an approved wood filler during paint preparation where required. Splice repair rotten timberwork where required (allow 6 lineal metres).
  8. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
  9. Allow an additional 20 SSR patches to the east elevation.



| KEY |  | CODE                                                                                | ITEM                         | CODE                                                                                | ITEM                                                               |
|-----|--|-------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|
|     |  |  | Stone replacement            |  | New Colorbond Ultra corrugated roof, flashings and rainwater goods |
|     |  |  | Stone indent                 |  | New slate roof tiles, lead flashings and copper rainwater goods    |
|     |  |  | SSR (synthetic stone repair) |  | Lead weathering                                                    |
|     |  |                                                                                     |                              |  | Bird proofing                                                      |

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LEICHHARDT PUBLIC SCHOOL  
BLOCK B  
EXTERNAL REPAIRS  
EAST ELEVATION

|                     |                      |
|---------------------|----------------------|
| PLAN RM NO          | CONTRACT NUMBER      |
| 1: 100              | SHEET NO<br>A05      |
| DESIGNED            | PLOT DATE<br>02/2025 |
| DRAFTED<br>R. Isles | VERIFIED             |
| REVISION            |                      |

ADDITIONAL SCOPE OF WORKS:

1. Clean 100% of the facade areas including stonework, timberwork and glazing according to the Technical Specification. Spot cleaning using approved methods may be required. Clean the internal tower of guano and debris.
2. Remove 100% of the stonework pointing and repoint. The existing pointing contains asbestos and depointing, removal of disposal of contaminated materials must be undertaken according to all legislative requirements including Codes of Practice, Workplace Health & Safety Laws and EPA Act.
3. Allow to remove all previous stone indents (earlier repairs), remove bedding mortar, provide a punched surface texture and re-fix to engineer's details.
4. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
5. Ease and adjust all currently operating windows and replace cracked, defective or missing glazing putty. Allow to replace any broken sash cords.
6. Repaint all painted external surfaces, colours are to be advised.
7. Timber repairs - allow to apply an approved wood filler during paint preparation where required. Splice repair rotten timberwork where required (allow 6 lineal metres).
8. Remove all metal and plastic plug fixings from the stonework and patch holes with SSR.
9. Allow an additional 10 SSR patches to the north elevation and 10 SSR patches to the west elevation.

Install ss316 3mm chimney cover plates with a 10mm breathable gap using 5mm dia. ss316 anchors in epoxy, min 50mm embedment.

Install ss316 3mm chimney cover plates with a 10mm breathable gap using 5mm dia. ss316 anchors in epoxy, min 50mm embedment.

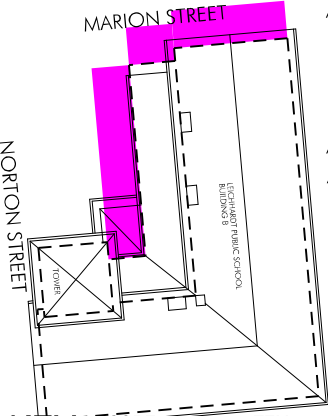
Install ss316 3mm chimney cover plate.

Reseal split seams to wall vent hoods (3), allow to replace if unsalvagable.

NORTH ELEVATION

WEST ELEVATION

Remove existing brick dish drain and install a pre-cast composite fibrous cement dish drain, sample to approved.



| KEY | CODE | ITEM                         |
|-----|------|------------------------------|
|     |      | Stone replacement            |
|     |      | Stone indent                 |
|     |      | SSR (synthetic stone repair) |

| CODE | ITEM                                                               |
|------|--------------------------------------------------------------------|
|      | New Colorbond Ultra corrugated roof, flashings and rainwater goods |
|      | New slate roof tiles, lead flashings and copper rainwater goods    |
|      | Lead weathering                                                    |
|      | Bird proofing                                                      |

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| LEICHHARDT PUBLIC SCHOOL<br>BLOCK B<br>EXTERNAL REPAIRS |  |
| NORTH + WEST ELEVATIONS                                 |  |

|            |                 |
|------------|-----------------|
| PLAN RM NO | CONTRACT NUMBER |
| 1: 100     |                 |
| DESIGNED   | PLOT DATE       |
| 02/2025    |                 |
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| SHEET NO   | REVISION        |
| A06        |                 |

A3 0 10 20 30 40 50 60 70 80 90 100 USE FIGURED DIMENSIONS IN PREFERENCE TO SCALING CHECK ALL DIMENSIONS ON SITE

200MM

300MM ON ORIGINAL

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