NOTES:
1. VEGETATION TO BE REMOVED AS REQUIRED TO ENABLE ROADSIDE BATTER CONSTRUCTION.
2. BENCH SELECT FILL INTO EXISTING SURFACE, EXTEND COMPACTED FILL BEYOND BATTER FINISHED SURFACE LEVEL, AND FIRM TO EVEN PROFILE. PLACE FILL IN 300mm MAX LAYERS TO 95% STANDARD COMPACTION.
3. FINAL LAYER 300mm BELOW FINISHED SURFACE LEVEL SHALL BE COMPACTED TO MINIMUM RELATIVE DENSITY OF 100% STANDARD.
4. CONSIDER INSTALLING GEOGRID OR EQUIVALENT ON TOP OF EACH TERRACED LAYER.

ROADSIDE BATTER CROSS SECTION

SCALE 1:30

SELECT FILL (TYPICAL)

PROPERTY BOUNDARY

SAFETY BARRIER

PROPOSED PAVEMENT

EXISTING SURFACE

BATTER TO BE BUILT UP USING SELECT FILL IN 300mm LAYERS

TERM BATTER AFTER APPROPRIATE COMPACTION HAS BEEN ACHIEVED AND APPLY SUITABLE GROUND COVER ON FACE OF BATTER SLOPE

PROVIDE ROUNDING AT HINGE POINT

PROVIDE ROUNDING AT HINGE POINT

PROPERTY BOUNDARY

ROADSIDE BATTER CROSS SECTION

SCALE 1:30
NOTES:

1. THIS STANDARD DRAWING IS TO BE USED FOR GUIDANCE ONLY AND SHALL NOT BE USED AS A DESIGN OR FOR CONSTRUCTION PURPOSES.

2. RETAINING WALLS GREATER THAN 1m IN HEIGHT AND/OR SUBJECT TO LIVE LOADS SHALL BE DESIGNED BY A SUITABLY QUALIFIED AND EXPERIENCED ENGINEER, TAKING INTO ACCOUNT PREVAILING GROUND CONDITIONS, TRAFFIC LOADING AND STRUCTURAL LOADINGS.

3. THE DESIGNER OF AN EARTH RETAINING STRUCTURE SHALL PROVIDE A SAFETY IN DESIGN REPORT THAT SPECIFIES THE HAZARDS RELATING TO THE DESIGN OF THE STRUCTURE IN ACCORDANCE WITH WORK HEALTH AND SAFETY LEGISLATION.

4. RETAINING WALLS SHALL BE DESIGNED IN ACCORDANCE WITH AS 4678 EARTH RETAINING STRUCTURES AND THE MANUFACTURER'S SPECIFICATION.

TYPICAL KEYSTONE WALL CROSS SECTION

SCALE 1:20
SANDSTONE LOG RETAINING WALL
TYPICAL WALL CONSTRUCTION REQUIREMENTS

- First Grade Quarry Sawn Sandstone Logs (500H x 500W x 200D, unless otherwise noted) placed as indicated.
- Provide concrete V-drain in front of wall where soil does not grade away from the wall.
- Provide concrete V-drain in front of wall to direct water away.
- Wall blinding layer to be founded on residual soil or compacted fill.
- Sandstone Logs shall be placed in a stable interlocking manner, roughly coursed and bedded on their sawn face.
- Drainage backfill material and behind sandstone logs.
- Sandstone Logs should not be constructed within the zone of influence of another retaining wall or structure.

NOTES:
1. The standard drawing is based on structural engineering drawing numbers SD01-06 prepared by Northrop Consulting Engineering Services for Central Coast Council dated 29/8/19.
2. This standard drawing is to be used for guidance only and shall not be used as a design or for construction purposes. Central Coast Council and Northrop Consulting Engineering Services shall not be held liable for the failure of any earth-retaining structures based on the use of this standard drawing. Negligence on the part of the designer or constructor and the limitations expressed within Council’s complete civil works specification.
3. The standard drawing is to be used for guidance only and shall not be used as a design or for construction purposes.
4. Retaining walls greater than 1m height and/or subject to live loads and/or constructed within the zone of influence of another retaining wall or structure shall be designed by a suitably qualified designer and experienced engineers taking into account prevailing ground conditions and structural loadings on a case-by-case basis.
5. The designer of an earth-retaining structure shall provide a safety in design report that specifies the hazards relating to the design of the structure, in accordance with work health and safety legislation.
6. Retaining walls shall be designed in accordance with AS 4678 Earth-Retaining Structures.
7. Sandstone logs shall be placed in a stable interlocking manner, roughly coursed and bedded on their sawn face.
8. Front facing logs to be first grade quarry sawn.
9. Sandstone logs should not be constructed within the zone of influence of another retaining wall or structural foundation, refer to sheet 2 for zone of influence diagrams.
10. Road traffic surcharge loads have not been allowed for in the design.
11. Piers and/or barrier loads have not been allowed for in the design.
12. No hydrostatic loads are applied to the sandstone log retaining walls. All retaining walls are installed with free draining backfill and subsol drainage hydraulically linked to the stormwater system.
13. No fines concrete backfill to have minimum density of 18 kN/m³ and shall be poured in maximum heights of 1200mm.

Scale: A3

Central Coast Council
EARTHWORKS SERIES
SANDSTONE LOG RETAINING WALL
STANDARD DRAWING
SD0203
REV. A

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**TYPICAL ZONE OF INFLUENCE DIAGRAM AT ROADWAY**

- **NOT TO SCALE**
- **ZONE OF INFLUENCE**
- **2H:1V ZONE OF INFLUENCE LINE OF ADJACENT RETAINING WALLS/STRUCTURES**
- **MAXIMUM BACKSLOPE BEHIND HIGHEST WALL AS PER FINAL DESIGN**
- **MAXIMUM SLOPE IN FRONT OF THE RETAINING WALLS**

- **RETAINING WALLS MUST BE FOUNDED BELOW THE 2H:1V ZONE OF INFLUENCE OF ALL ADJACENT RETAINING WALLS/STRUCTURES**

---

**TYPICAL ZONE OF INFLUENCE DIAGRAM**

- **NOT TO SCALE**
- **RETAINING WALLS SHOULD NOT BE CONSTRUCTED WITHIN THE ZONE OF INFLUENCE OF ANOTHER RETAINING WALL OR STRUCTURAL FOUNDATION**

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**SYMBOLS AND MATERIALS**

- **SANDSTONE LOG**
- **100mm MIN THICK 10 MPa BLINDING CONCRETE LAYER**
- **WALL BLINDING LAYER OR COMPACTED ROAD BASE TO BE FOUNDED ON RESIDUAL SOIL OR COMPACTED FILL FOUNDATION MATERIAL TO BE INSPECTED AND CERTIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO POURING BLINDING FOUNDATION OR LAYING COMPACTED ROAD BASE**

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**EARTHWORKS SERIES**

- **SANDSTONE LOG RETAINING WALL**

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**Central Coast Council**

**STANDARD DRAWING**

**EARTHWORKS SERIES**

**SANDSTONE LOG RETAINING WALL**

---

**SCALE ON ORIGINAL AT SIZE DRAWING**

**DRAWN**

**CHECKED**

**DATE**

**PLAN MANAGER APPROVAL**

**AMENDMENT**

**DATE**

**DRAWN**

**REVISION**

**AMENDED**

**DATE**

**DRAWN**

**REVISION**

**AMENDED**

---

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## Sandstone Log Retaining Wall

### 2 and 3 Log High Arrangement up to 4H:1V Backslope

**Scale 1:40**

- **Minimum Allowable Bearing Pressure** beneath the wall = 100 kPa
- **Minimum Allowable Bearing Pressure** beneath the wall = 75 kPa

### 4-8 Log High Arrangement up to 4H:1V Backslope

**Scale 1:40**

<table>
<thead>
<tr>
<th>Number of Logs High</th>
<th>Minimum Width of No Fines Concrete Backfill 'B'</th>
<th>Required Allowable Bearing Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>200mm</td>
<td>10 kPa</td>
</tr>
<tr>
<td>3</td>
<td>300mm</td>
<td>10 kPa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Logs High</th>
<th>Minimum Width of No Fines Concrete Backfill 'B'</th>
<th>Required Allowable Bearing Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>800mm</td>
<td>125 kPa</td>
</tr>
<tr>
<td>5</td>
<td>1000mm</td>
<td>150 kPa</td>
</tr>
<tr>
<td>6</td>
<td>1250mm</td>
<td>150 kPa</td>
</tr>
<tr>
<td>7</td>
<td>1500mm</td>
<td>175 kPa</td>
</tr>
<tr>
<td>8</td>
<td>1750mm</td>
<td>175 kPa</td>
</tr>
</tbody>
</table>
**MINIMUM ALLOWABLE BEARING PRESSURE BENEATH THE WALL**

- **50 kPa**
- **75 kPa**
- **100 kPa**

**MAXIMUM BACKSLOPE BEHIND THE WALL**

- **4 MIN**
- **10 MIN**
- **8°**

**MINIMUM LEAN BACK OF FRONT FACE**

- **100mm MIN THICK 10 MPa BLINDING CONCRETE OR CRUSHED ROCK LEVELLING LAYER**

**SANDSTONE LOG RETAINING WALL**

Central Coast Council

EARTHWORKS SERIES

SANDSTONE LOG RETAINING WALL

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ENHANCED DETAILS FOR VARIOUS WALL HEIGHTS

MAXIMUM BACKSLOPE BEHIND THE WALL

MINIMUM ALLOWABLE BEARING PRESSURE
BENEATH THE WALL = 150 kPa

4 LOG HIGH UP TO 4H:1V BACKSLOPE
SCALE 1:40

5 LOG HIGH UP TO 4H:1V BACKSLOPE
SCALE 1:40

6 LOG HIGH UP TO 4H:1V BACKSLOPE
SCALE 1:40

MINIMUM ALLOWABLE BEARING PRESSURE
BENEATH THE WALL = 150 kPa
POST AND PANEL RETAINING WALL REQUIREMENTS

<table>
<thead>
<tr>
<th>DESIGN WALL HEIGHT (H)</th>
<th>POST SIZE</th>
<th>POST CENTRES (MAX)</th>
<th>EMBEDMENT DEPTHS</th>
<th>HOLE DIAMETER</th>
<th>PANEL THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>FIRM COHESIVE CLAY</td>
<td>VERY STIFF COHESIVE CLAY</td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>200UB25</td>
<td>2400</td>
<td>2100</td>
<td>1800</td>
<td>450∅</td>
</tr>
<tr>
<td>1800</td>
<td>200UB30</td>
<td>2400</td>
<td>2700</td>
<td>2100</td>
<td>450∅</td>
</tr>
<tr>
<td>2100</td>
<td>250UB37</td>
<td>2400</td>
<td>3100</td>
<td>2600</td>
<td>450∅</td>
</tr>
<tr>
<td>2400</td>
<td>310UB40</td>
<td>2400</td>
<td>3600</td>
<td>2800</td>
<td>450∅</td>
</tr>
<tr>
<td>2700</td>
<td>310UB40</td>
<td>2400</td>
<td>4000</td>
<td>3000</td>
<td>450∅</td>
</tr>
<tr>
<td>3000</td>
<td>360UB50</td>
<td>2400</td>
<td>4500</td>
<td>3600</td>
<td>600∅</td>
</tr>
</tbody>
</table>

NOTES:
1. STRUCTURAL DESIGN SHALL BE UNDERTAKEN ON A SITE SPECIFIC BASIS TO DETERMINE EACH OF THE ABOVE REQUIREMENTS.
2. PANEL THICKNESS SHALL REMAIN UNIFORM FOR THE COMPLETE RETAINING WALL STRUCTURE.
3. CONCRETE PANEL REINFORCEMENT COVER SHALL BE INCREASED FOR RETAINING WALLS SUBJECT TO A MARINE ENVIRONMENT.
GENERAL NOTES:
1. THE STANDARD DRAWING IS BASED ON STRUCTURAL ENGINEERING DRAWING NUMBER 18099-ST PREPARED BY CURBO CONSULTING PTY LTD FOR CENTRAL COAST COUNCIL DATED 23/11/18.
2. THIS STANDARD DRAWING IS TO BE USED FOR GUIDANCE ONLY AND SHALL NOT BE USED AS A DESIGN OR FOR CONSTRUCTION PURPOSES.
3. CENTRAL COAST COUNCIL AND CURBO CONSULTING PTY LTD SHALL NOT BE HELD LIABLE FOR THE FAILURE OF ANY EXISTING RETAINING STRUCTURES BASED ON THE USE OF THE STANDARD DRAWING, NEGLIGENCE ON THE PART OF THE DESIGNER OR CONSTRUCTOR AND THE LIMITATIONS EXPRESSED WITHIN THE COMPLETE CIVIL WORKS SPECIFICATION.
4. RETAINING WALLS SHALL BE DESIGNED SUBJECT TO BE LOADS AND/OR CONSTRUCTED WITHIN THE ZONE OF INFLUENCE OF OTHER RETAINING WALL OR STRUCTURE SHALL BE DESIGNED BY A SUITABLY QUALIFIED (NER) AND EXPERIENCED ENGINEER, TAKING INTO ACCOUNT PREVIOUS GROUND CONDITIONS AND STRUCTURAL LOADS ON A CASE-BY-CASE BASIS.
5. PER HOLE INSPECTIONS FOR RETAINING WALLS SHALL BE PERFORMED BY A GEO-TECHNICAL ENGINEER TO VERIFY WALL DESIGN.
6. STEEL POSTS TO BE HOT-DIP GALVANISED WITH A MINIMUM COATING THICKNESS OF 600 g/m² TO ENSURE A MIN COATINGS OF 85 MICRONS.
7. RETAINING WALLS SHALL BE DESIGNED IN ACCORDANCE WITH AS 4676 EARTH-RETAINING STRUCTURES.
8. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRENGTH. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
9. THE STRUCTURAL COMPONENTS DETAILED ON THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AUSTRALIAN STANDARDS AND STATUTORY REGULATIONS FOR THE FOLLOWING LOADINGS FOR IMPORTANCE FACTORS: 2 (AS/NZS 1170.2). THE RELATED PROVISIONS OF AS 1170.4 HAVE BEEN APPLIED FOR A HAZARD FACTOR (2) OF 0.05 AND FOR A PROBABILISTIC FACTOR (q) OF 1.0 AND A SUITABLE CLASS C3.

FOOTINGS:
1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BENDING STRESS OF 100 MPa ON STIFF CLAY. THE FOUNDATION MATERIAL SHALL BE UNIFORM AND BE APPROVED BY THE ENGINEER FOR THE PRESSURE BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.
2. FOOTINGS SHALL BE LOCATED CENTREALLY UNDER WALLS AND COLUMNS UNLESS OTHERWISE NOTED.
3. DO NOT EXCEED A RISE OF 1 IN 2 RUN OF FORM THE LINE OF SLOPE BETWEEN ADJACENT FOOTINGS OR EXCAVATIONS.
4. DO NOT BACKFILL RETAINING WALLS OTHER THAN CANTILEVER WALLS UNTIL FLOOR CONSTRUCTION AT TOP AND BOTTOM COMPLETE. BACKFILL SHALL BE COMPACTED TO 90% STANDARD MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT ± 2%. (ENSURE FREE DRAINAGE BAKED AND DRAINAGE ENSURE IN PLACE).
5. UNLESS OTHERWISE APPROVED BY THE ENGINEER/SUPERINTENDENT, THE LIMITS OF EXCAVATIONS NEAR FOOTINGS SHALL BE AS SET OUT IN THE DETAIL BELOW.

FOUNDATION NOTES:
1. EARTHWORKS SERIES.
2. FOUNDATION NOTES.
3. FOOTINGS.
4. FOOTINGS.

CONCRETE NOTES:
1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 900, AS 1579 AND AS 3169 CURRENT EDITIONS WITH AMENDMENTS, EXCEPT WHERE VARIED BY ANY APPLICABLE CONTRACT DOCUMENTS.
2. CONCRETE QUALITY.
3. CEMENT TO BE TYPE SL, SHINKAGE LIMITED CEMENT IN ACCORDANCE WITH AS 3172, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
4. CONCRETE QUALITY.
5. THREE SPECIMENS SHALL BE TAKEN FOR EACH TEST.
6. ANY CONCRETE.
7. ANY CONCRETE.
8. ANY CONCRETE.

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7. ANY CONCRETE.
8. ANY CONCRETE.
CONCRETE NOTES (CONTINUED):

8. Concrete sizes shown do not include thicknesses of applied finishes. No finish which decreases cover is allowed without the written approval of the engineer.

9. Depths of beams are given first and include slab thickness.

10. No holes, chases, blockouts, ducts or embedding of pipes other than those shown on the structural drawings shall be made in concrete members without the prior written approval of the engineer.

11. Construction joints where not shown shall be located to the approval of the engineer.

12. All concrete columns greater than 1.2 metres in height shall be poured a minimum of 4 hours prior to slab or beam over.

13. The finished concrete shall be mechanically vibrated to achieve a dense homogeneous mass, completely filling the formwork thoroughly embedding the reinforcement and free of stone pockets. All concrete including slabs on ground and foundations shall be compacted with mechanical vibrators.

14. Curing of all concrete is to be achieved by keeping surfaces continuously wet for a period of three days, and the prevention of loss of moisture for a total of 7 days followed by a gradual drying out. Approved stripping of curing compounds that comply with AS 3799 may be used where floor finishes will not be affected (refer manufacturer’s specification). Polythene sheeting or wet hessian may be used to protected from wind and traffic.

15. Construction support propping is to be left in place where needed to avoid overstressing the structure due to construction loading. No brickwork or partition walls are to be constructed on suspended levels until seven days after propping has been removed and the slab pre-loaded with the bricks or units, to be used in the wall.

16. Repairs to concrete shall not be attempted without the permission of the engineer.

17. Cast-in fixings, bolts etc. shall not be altered without the permission of the engineer.

18. Conduits, pipes etc. shall only be located in the middle third of the slab depth and spaced at not less than 3 diameters. Conduits and pipes shall not be placed within the cover to reinforcement.

19. Slabs and beams shall be constructed to bear only on the beams, walls, columns etc. shown on the drawings. All other building elements shall be kept 12mm clear of soffits of structure.

20. Integrally coloured and patterned precast concrete panels should be used for aesthetic reasons. Refer to adjacent sample panel elevations.

INTEGRALLY COLOURED AND PATTERNED PRECAST CONCRETE PANELS
GALVANISED STEEL POST

NOT TO SCALE

SAMPLE PANEL ELEVATIONS

Central Coast Council

EARTHWORKS SERIES Post and Panel Wall

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