STRUCTURES GROUP

DRAFTING GUIDELINES

FOR CONSULTANTS
DRAFTING GUIDELINES FOR CONSULTANTS

CONTENTS

1. Drawings
   1.1. Drawing Sheets .................................................................3
   1.2. Orthogonal Projection .........................................................3
   1.3. Line & Text Thickness ............................................................3
   1.4. Types of Lines .........................................................................3
   1.5. Dimensions ..............................................................................4
   1.6. Scale Ratios .............................................................................4
   1.7. Leader Lines ............................................................................4
   1.8. Circle Centrelines .................................................................5
   1.9. Suffixes for Numerals in Text ...................................................5
   1.10. Survey Marks .........................................................................5
   1.11. North Arrows .........................................................................5
   1.12. Surface Finish ........................................................................6
   1.13. Titles for Views .......................................................................6
   1.14. Note Blocks ...........................................................................7
   1.15. Notes on Views .......................................................................7
   1.16. Gradients & Batters ...............................................................8

2. Reinforced Concrete Detailing
   2.1. Introduction ............................................................................9
   2.2. Standard Cover Depths ..........................................................9
   2.3. Minimum Spacing of Parallel Bars ..........................................9
   2.4. Reinfiring Bar Sections Relative to Longitudinal Bars ............9
   2.5. Notation ................................................................................10
   2.6. Diagrammatic Representation of Bars .......................................11
   2.7. Limit Lines in Skewed Elements .............................................12
   2.8. Diagrammatic Representation of Mesh .....................................12
3. **Structural Steel Detailing**
   3.1. Designation of Steel Elements .......................................................... 13
   3.2. Welding Symbols .................................................................................. 13
   3.3. Bolt Holes ............................................................................................ 13
   3.4. Minimum Edge Distances to Hole Centreline (mm) ......................... 13
   3.5. Bolts ..................................................................................................... 13
       3.5.1. Designation .................................................................................. 13
   3.6. Annotation on Drawing ....................................................................... 14
   3.7. Details in Notes .................................................................................. 14

4. **Locality Plans**
   4.1. Urban Location .................................................................................... 15
   4.2. Rural Location ..................................................................................... 16

5. **Cad Information**
   5.1. Template .............................................................................................. 17
   5.2. File Names ........................................................................................... 17
   5.3. Text Styles ............................................................................................ 17
   5.4. Dimensions ........................................................................................... 17
   5.5. Layer Names ........................................................................................ 18

6. **Bridge Plaque and Recess Details Drawing**
   6.1. Elevation and detail of plaque and recess detail .................................. 19

7. **Structures Group Autocad Blocks Supplied**
   7.1. Description for use of blocks supplied ............................................... 19
   7.2. Bar Marks and Text ............................................................................. 20
       7.2.1. Editable Reinforcement Bar Marks and Text .................................. 20
   7.3. Centreline Text .................................................................................... 21
   7.4. Titles for Sections, Elevations, Details and Views ............................... 21
   7.5. Beaks .................................................................................................... 22
       7.5.1. Section beaks and detail hexagons .................................................. 22

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<th>Revision Date</th>
<th>Pages</th>
<th>Details</th>
<th>Authorised</th>
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<td>1–26</td>
<td>First issue</td>
<td>P. Gunn</td>
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<td>03-Jun-08</td>
<td>1–22</td>
<td>Revision 2</td>
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<td>20-July-11</td>
<td>1-23</td>
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<td>1-23</td>
<td>Revision 4</td>
<td>P. Gunn</td>
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1. **DRAWINGS**

1.1. **Drawing Sheets**
- All drawings for permanent filing shall be prepared as A1 sheets in DWG & DWF format.
- DWG files must be filed by drg number then the sheet number range contained; separated by underscores. eg 6541_SHTS_3_TO_7.DWG
- DWF files must be filed by drg number then sheet number. eg 6541_SHT_3_DWF

1.2. **Orthogonal Projection**
- Where related views are required on drawings, use only third angle projection
  - See AS 1100 Part 101
- Sections should be taken looking from the bottom of the drawing to the top, or from the right to left wherever possible.

1.3. **Line & Text Thickness**

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Types of Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.15mm</td>
<td>Outline of existing parts (continuous line)</td>
</tr>
<tr>
<td>0.25mm</td>
<td>Dimension lines</td>
</tr>
<tr>
<td></td>
<td>Centre lines</td>
</tr>
<tr>
<td></td>
<td>Break lines</td>
</tr>
<tr>
<td></td>
<td>Hatching</td>
</tr>
<tr>
<td></td>
<td>Leader lines</td>
</tr>
<tr>
<td></td>
<td>Reinforcement extent lines</td>
</tr>
<tr>
<td></td>
<td>Alternative outline of existing parts (chain – double dashed line)</td>
</tr>
<tr>
<td></td>
<td>2.5mm text (Notes on Locality Plans &amp; other views where 3.5mm text will not fit)</td>
</tr>
<tr>
<td>0.35mm</td>
<td>Object outlines</td>
</tr>
<tr>
<td></td>
<td>Reinforcing bars – double line only</td>
</tr>
<tr>
<td></td>
<td>Note block &amp; table outlines</td>
</tr>
<tr>
<td></td>
<td>3.5mm text (sub titles, scales, notes)</td>
</tr>
<tr>
<td>0.5mm</td>
<td>Reinforcing bars – single line only</td>
</tr>
<tr>
<td></td>
<td>Bar marks</td>
</tr>
<tr>
<td></td>
<td>5mm text (titles)</td>
</tr>
</tbody>
</table>

1.4. **Types of Lines**

- **Continuous**
  - Visible outlines
  - Dimension lines
  - Break lines
  - Hatching
  - Leader lines
  - Reinforcement extent lines
  - Reinforcing bars
  - Text
- **Dashed**
  - Hidden outlines
  - Hidden edges
- **Chain single dashed**
  - Centre lines
  - Grid lines
- **Chain-double dashed**
  - Outline of existing parts
1.5. Dimensions
- Linear dimensions shall be in millimetres but not marked 'mm' because drawing sheet shall have note above bottom border as follows:
  ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE
- Reduced levels & chainages shall be in metres & shown thus:
  RL 34.955m
  CH 810.000m
- Angles shall be in decimal parts of degrees e.g.
  67.25°
- Dimensioning symbols shall prefix the dimension e.g.
  Ø 50
  R 25
- No more dimensions than those necessary for complete definition of an object shall be given
- Dimension text height shall be 3.5mm

1.6. Scale Ratios
- Every effort should be made to use the recommended scale ratios in AS 1100 Part 101, as shown below. Non-standard scale ratios should be marked 'NOT TO SCALE'
  1:1  1:2  1:5
  1:10  1:20  1:25  1:50
  1:100  1:125  1:200  1:250  1:500
  1:1000  1:2000  1:5000
- Different scales on one sheet should be kept to a minimum with all scales clearly indicated.
- Indication of scale ratios: See Titles for Views

1.7. Leader Lines
- Leaders shall originate from the start or end of notes as shown in Figure 1
- Leaders finishing on a line shall terminate with an arrow
- Leaders that finish within an object shall terminate with a dot

*Figure 1*
1.8. **Circle Centrelines**
- All centrelines to be in 0.25 pen
  - Large circles in centreline linetype
  - Small circles in full linetype
- Refer to Figure 1 above

1.9. **Suffixes for Numerals in Text**
- In Note blocks ALWAYS use mm suffix.
- In annotation on drawing DO NOT use mm suffix e.g.
  - 25 CHAMFER
  - 2 BOLTS, M16
  - 4 HOLES, Ø 30
  - 12 PL
  - 100x8 FL
  - Ø 30x300 LONG SHEAR PIN
  - 100x20 NEOPRENE BEARING STRIP

1.10. **Survey Marks**
- Permanent Bench Marks ▲ BM
- Temporary Bench Marks ○ TBM
- Metal Pins ● MP

1.11. **North Arrows**
- Plan views should always be drawn with north pointing above the horizontal on the drawing sheet
- Three different size north arrow blocks to suit all size drawings are available in the block reference library attached

*Figure 2*
1.12. **Surface Finish**

![Concrete Surface Finish Diagram]

<table>
<thead>
<tr>
<th>U3</th>
<th>4-5mm HIGH EQUILATERAL TRIANGLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>U1</td>
<td>SCREEDED FINISH</td>
</tr>
<tr>
<td>U2</td>
<td>WOOD FLOATED FINISH</td>
</tr>
<tr>
<td>U3</td>
<td>STEEL FLOATED FINISH</td>
</tr>
</tbody>
</table>

**Steel**

![Steel Angle Diagram]

| 2 LEGS AT 60° TO SURFACE. |
| SHORT LEG 5mm IN LENGTH.   |
| LONG LEG 10mm IN LENGTH.   |
| a IS VALUE FROM AS 1100.201, TABLE 3.1 |

*Figure 3*

1.13. **Titles for Views**

- All titles shall be in 5mm uppercase text
- All subtitles shall be in 3.5mm uppercase text
- Scale ratios shall be shown as a subtitle to each title, and left justified

**GENERAL ARRANGEMENT**

**SCALE 1:25**

- Successive drawings pertaining to one element shall be given post script numbers indicating their order e.g.
  - DECK 1
  - DECK 2
  - DECK 3

- Titles for ELEVATIONS, SECTIONS & DETAILS, that include cross referencing numbers or letters, are available in the block reference library attached (with a suffix of 5) e.g.

![Elevation, Section, Detail Example]

*Figure 4*

- Where ELEVATIONS, SECTIONS & DETAILS are used as subtitles they will not generally require an associated subtitle scale, as the scale will be attached to the main title. These are available in the block reference library attached (with a suffix of 3.5) e.g.

![Elevation, Section, Detail Example]

*Figure 5*
1.14. Note Blocks

- Position at right hand side or lower right hand corner of sheet wherever possible
- Enclose notes within a border independent of drawing sheet border with title as shown below
- When referring to Australian Standards the date of publication should be omitted eg AS 1100. 501
- Upper case lettering shall be used except for standard metric abbreviations

```
NOTES [5mm TEXT, PLACE CENTRALLY]

GENERAL [UNDERLINE HEADINGS]
1. FOR DETAILS OF FOUNDATION SEE GEOTECHNICAL REPORT.
2. UNITS TO BE PLACED AT THE UPSTREAM END, IN ORDER SHOWN ON DRAWING, AND SLID INTO POSITION.

CONCRETE
1. CAST-IN-PLACE FLOOR SLAB: GRADE 540
2. PRECAST CROWN UNITS: GRADE 550

DESIGN
1. IN ACCORDANCE WITH AS 5110 BRIDGE DESIGN.
```

1.15. Notes on Views

- Text height shall be 3.5mm except as noted in 3.3
- Where a note is added to a view without using a leader line the text should be prefixed by NOTE:
- If more than one note is required they should be grouped together and numbered
- Upper case lettering shall be used except for standard metric abbreviations
1.16. Gradients & Batters

**GRADIENT:** The rate of longitudinal rise or fall of a carriageway with respect to the horizontal, expressed as a ratio or as a percentage.

![Figure 8](image)

---

**BATTER:**

1. Uniform side slope of banks & cuttings usually expressed as a ratio of X horizontal to 1 vertical.

![Figure 9](image)

2. Uniform side slope of walls & rake of piles, usually expressed as a ratio of 1 horizontal to Y vertical.

![Figure 10](image)
2. **REINFORCED CONCRETE DETAILING**

2.1. **Introduction**
Reinforcement shall be shown as a single thick line unless it misrepresents the shape or position of the bar. In this case reinforcement may be shown with two medium thickness lines drawn to scale in their exact position.

2.2. **Standard Cover Depths**
Local suppliers advise that the following bar spacer sizes are available. Accordingly we should detail cover dimensions on drawings to reflect these sizes:

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>Bar Spacer Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

2.3. **Minimum Spacing of Parallel Bars**
To avoid adjacent bars (drawn at 0.5mm lineweight) merging into one thick line a minimum gap between bar centrelines of 1mm (after scaling) is required i.e.

- At 1:10 scale minimum gap = 10mm on drawing
- At 1:20 scale minimum gap = 20mm on drawing
- Etc

2.4. **Reinforcing Bar Sections Relative to Longitudinal Bars**
To place sectioned bars in the optimum position relative to longitudinal bars the REO block should be inserted at an offset distance of 1mm after scaling i.e.

- At 1:10 scale offset = 10mm on drawing
- At 1:20 scale offset = 20mm on drawing
- Etc

As an alternative to the REO block with an offset, use the REOREF block which has a built-in scale related offset.

Both bar section blocks are available in the block reference library attached where you should select the block with the appropriate scale.
2.5. **Notation**

- The bar mark with full description shall only appear once on a drawing.
- Subsequent references to the bar require the bar mark only.
- A block with attributes for both left and right leader lines is available in the block reference library attached.

![Bar Mark Diagram](image)

**GRADE SYMBOL**
- R - STRUCTURAL PLAIN ROUND GRADE 250R
- N - DEFORMED BARS GRADE 500N
- RW - HARD DRAWN PLAIN WIRE AS 1303
- SL - MESH AS 1304

**LOCATION**
- T - TOP FACE
- B - BOTTOM FACE
- NF - NEAR FACE
- FF - FAR FACE
- EF - EACH FACE

† THE NUMBER OF BARS INDICATED IN THE BAR NOTATION IS THE QUANTITY IN EACH FACE

*Figure 11*
2.6. Diagrammatic Representation of Bars

DO NOT BREAK DIMENSION LINES AND/OR LEADERS WHERE THEY CROSS.
AS A GENERAL RULE LABEL BARS FROM THE BOTTOM OF AN ELEMENT
UPWARDS.

Figure 12
2.7. Limit Lines in Skewed Elements

BAR IS CIRCLED (Ø2.5 mm) AT INTERSECTION WITH LIMIT LINE

SPACING OF REINFORCEMENT IS ALONG THE LIMIT LINE

Figure 13

2.8. Diagrammatic Representation of Mesh

SQUARE MESH

RECTORANGULAR MESH

Figure 14
3. **STRUCTURAL STEEL DETAILING**

3.1. **Designation of Steel Elements**
Steel elements should be shown as follow:

- 900WB278
- 350WC280
- 250UB26
- 200UC60
- 300PFCx900
- 65x65x8EAx600
- 75x50x6UAx1800
- 150x6 FLx750
- 600x16 PLx600
- 100x50x2.5RHS
- 75x4.5CHS

3.2. **Welding Symbols**
- All welding symbols should conform to AS 1101 Part 3

3.3. **Bolt Holes**
- Bolt hole diameter is larger than the bolt diameter by:
  - 2mm for M24 bolts or smaller
  - 3mm for bolts larger than M24
  - 6mm for holes in base plates

3.4. **Minimum Edge Distances to Hole Centreline (mm)**

<table>
<thead>
<tr>
<th>NOM DIA</th>
<th>ROLLED EDGE OF ROLLED SECTION</th>
<th>ROLLED PL, SAWN OR PLANED EDGE</th>
<th>SHEARED OR HAND FLAME CUT EDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>15</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>16</td>
<td>20</td>
<td>24</td>
<td>28</td>
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<tr>
<td>20</td>
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<tr>
<td>36</td>
<td>45</td>
<td>54</td>
<td>63</td>
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</table>

3.5. **Bolts**

3.5.1. **Designation**
The designation of bolts, nuts and washers in structural drawings shall be composed of the following:

1. Product description
2. Number of Australian Standard
3. The letter M indicating that the product has a metric course pitch thread followed by the thread diameter (in mm)
4. The nominal length (in mm)
5. The property class symbol or material if other than steel
6. The bolting procedure describing the method of tensioning the bolts (only necessary for high strength structural bolts)
   a) S snug tightened
   b) TF fully tensioned, friction type
   c) TB fully tensioned, bearing type
7. The coating, where applicable, in accordance with the appropriate Australian Standard

3.6. Annotation on Drawing
Two metric thread bolts with 16mm thread diameter of nominal length 50mm and property class 8.8 (high strength structural) snug tightened shall be shown thus:
2 BOLTS, M16x50 8.8/S.

Five metric thread bolts with 20mm thread diameter of nominal length 100mm and property class 4.6 (commercial) to be hot dip galvanized shall be shown thus:
5 BOLTS, M20x100 4.6 (GALVANIZED).

Two metric thread bolts with 16mm thread diameter of nominal length 100mm in stainless steel shall be shown thus:
2 BOLTS, M20x100 STAINLESS STEEL.

When all bolts on drawing are same property class and/or coating (if required) the relevant information can be omitted from the annotation and addressed in the Notes e.g.
5 BOLTS, M20x100.

3.7. Details in Notes
The Australian Standards defining all bolts, nuts & washers (and any coating where applicable) used on the drawing shall be listed in the Notes e.g.

   ALL BOLTS, NUTS AND WASHERS TO AS/NZS 1111, 1112 AND 1237 RESPECTIVELY.
   ALL BOLTS, NUTS AND WASHERS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH AS/NZS 4680 AND AS 1214.
4. **LOCALITY PLANS**

Urban and rural locality plans should include the following:

- North point-vertical and pointing to the top of plan
- Minimum number of roads to define site. If possible show location information used in Plan Title
- Flow direction of waterway
- Indicate existing structures where appropriate
- Indicate new road alignment where appropriate
- In urban plans show surrounding suburbs
- In rural plans show surrounding towns
- GPS coordinates to GDA 94 datum to 5 decimal places

4.1. **Urban Location**

![Locality Plan](Figure 16)
4.2. Rural Location

A Locality Plan template with many of the required features is available in the block reference library attached.

Use of the template will save time and provide consistency in presentation.
5. CAD INFORMATION

5.1. Template
The template ‘A Structural 2011 - DPTI.dwt’ is attached and shall be used for all Structural drawings prepared for the Department.
This will set up all the layers, dimensions and text styles.
Note: The A1 drawing frame is included in the template and appears automatically in "layout space".

5.2. Drawing File Presentation
All file names used within the Structures & Geotechnical Groups shall be as shown with the drawing number followed by the sheet number in both dwg and dwf format as shown below e.g.

7156_SHT_01.dwg
7156_SHT_02.dwf

Contractors and consultants engaged in work for the Section shall follow this convention. When files named in this manner have been finalised copies in both formats shall be provided to Transport Services.

Note: • Dwf files to be presented on a white background
      • Draw in model space in mm at a scale of 1:1

5.3. Text Styles
All Structural & Geotechnical drawings shall use only the following fonts:

ISOCP A proportional font to be used for all text
• All general text to be 3.5mm high with 0.35mm thickness
• All headings to be 5.0mm high with 0.50mm thickness

5.4. Dimensions
• For dimension text use 3.5mm height with a 0.25mm thickness
• Arrow head used in dimensioning shall be closed filled
• Arrow size shall be 3mm
5.5. **Layer Names**

<table>
<thead>
<tr>
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<th>Description</th>
<th>Colour</th>
<th>Pen Weight</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>Basic</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>0.15 Line</td>
<td>Outline-existing parts</td>
<td>9</td>
<td>0.15</td>
</tr>
<tr>
<td>0.15 Line Dash</td>
<td>Outline-hidden extst parts</td>
<td>9</td>
<td>0.15</td>
</tr>
<tr>
<td>0.25 Line</td>
<td>Fine outlines</td>
<td>White</td>
<td>0.25</td>
</tr>
<tr>
<td>0.25 TEXT</td>
<td>Light text</td>
<td>White</td>
<td>0.25</td>
</tr>
<tr>
<td>0.35 Line</td>
<td>Normal outlines</td>
<td>Green</td>
<td>0.35</td>
</tr>
<tr>
<td>0.35 TEXT</td>
<td>Normal text</td>
<td>Green</td>
<td>0.35</td>
</tr>
<tr>
<td>0.5 Line</td>
<td>Heavy outlines</td>
<td>222</td>
<td>0.50</td>
</tr>
<tr>
<td>0.5 TEXT</td>
<td>Heavy text</td>
<td>220</td>
<td>0.50</td>
</tr>
<tr>
<td>0.7 Line</td>
<td>Border outline</td>
<td>Blue</td>
<td>0.70</td>
</tr>
<tr>
<td>0.7 TEXT</td>
<td>Very heavy text</td>
<td>Blue</td>
<td>0.70</td>
</tr>
<tr>
<td>1.00 Line</td>
<td>Sheet border</td>
<td>White</td>
<td>1.00</td>
</tr>
<tr>
<td>A1 Sheet</td>
<td>A1 sheet block</td>
<td>White</td>
<td>Default</td>
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<tr>
<td>Centreline</td>
<td>Centreline 0.25</td>
<td>Magenta</td>
<td>0.25</td>
</tr>
<tr>
<td>Centreline short</td>
<td>Centreline short 0.25</td>
<td>214</td>
<td>0.25</td>
</tr>
<tr>
<td>Chain Dash</td>
<td>Chain dash line</td>
<td>163</td>
<td>0.25</td>
</tr>
<tr>
<td>Construction</td>
<td>Construction line-dotted</td>
<td>251</td>
<td>0.001</td>
</tr>
<tr>
<td>Dash Light</td>
<td>Light hidden line</td>
<td>140</td>
<td>0.25</td>
</tr>
<tr>
<td>Dash Long</td>
<td>Hidden line (long dash)</td>
<td>132</td>
<td>0.35</td>
</tr>
<tr>
<td>Dash Medium</td>
<td>Normal hidden line</td>
<td>130</td>
<td>0.35</td>
</tr>
<tr>
<td>Dash Mini</td>
<td>Hidden line (v short dash)</td>
<td>120</td>
<td>0.35</td>
</tr>
<tr>
<td>Dash Short</td>
<td>Hidden line (short dash)</td>
<td>135</td>
<td>0.35</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Dimensions &amp; leaders</td>
<td>40</td>
<td>0.25</td>
</tr>
<tr>
<td>Existing</td>
<td>Existing features</td>
<td>9</td>
<td>0.001</td>
</tr>
<tr>
<td>Existing Hidden</td>
<td>Existing features-hidden</td>
<td>9</td>
<td>0.001</td>
</tr>
<tr>
<td>Fence</td>
<td>Fence line</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Hatching</td>
<td>Hatching</td>
<td>200</td>
<td>0.25</td>
</tr>
<tr>
<td>Reodouble</td>
<td>Double line reinforcement</td>
<td>21</td>
<td>0.25</td>
</tr>
<tr>
<td>Reosingle</td>
<td>Single line reinforcement</td>
<td>Red</td>
<td>0.50</td>
</tr>
<tr>
<td>Viewport</td>
<td>Frame for viewport in paper space</td>
<td>Yellow</td>
<td>Non print layer</td>
</tr>
</tbody>
</table>
6. **BRIDGE PLAQUE AND RECESS DETAILS DRAWING**

6.1. **Elevation and detail of plaque and recess detail**

Use:

- The recess shall be positioned on the left wingwall when approaching from Adelaide. Where the road does not lead to Adelaide, position the recess on the approach wingwall in the direction of increasing Road Running Distance. If insufficient wingwall is exposed then the recess shall be positioned on the headwall as close as possible to the position detailed above.
- Copy the above details into the drawing (General Arrangement, Abutment or sheet detailing Wingwalls or Headwalls).
- The dimensions shown to position the centreline of the recess are generally suitable but may be adjusted if necessary. This shall be reflected on the recess detail.

7. **STRUCTURES GROUP AUTOCAD BLOCKS SUPPLIED**

7.1. **Description for use of blocks supplied**

- **Bar marks & text**: See following descriptions
- **Centreline text**: See following descriptions
- **Titles**: See following descriptions
- **Beaks**: See following descriptions
- **Locality plan border**: Border for Locality Plan
- **North**: North arrows
7.2. **Bar Marks and Text**

7.2.1. **Editable Reinforcement Bar Marks and Text**

- **barmark** Left justified
- **barmark-2 lines** Left justified with comment
- **barmark-r** Right justified
- **barmark-r-2 lines** Right justified with comment

![Diagram of bar marks and description](image)

*Full bar mark and description*

![Diagram of bar marks and description with description edited out](image)

*Description edited out (using edit attribute) for bar mark only*

**Use:**

- The method for using this group of blocks is to attach the block to the drawing (**do not select the explode option**) by snapping to the end of the reinforcement leader that you want to provide the bar mark and bar description (when asked for the insertion point).
- You are then asked for the scale of the view you are working on and the rotation (usually 0).
- The attribute box will then ask you for the bar mark and the bar description. These attributes may be edited at any later stage using the attribute edit option.

The text is set so that the bar mark appears as 0.5 TEXT and the description appears as 0.35 TEXT.
7.3. **Centreline Text**

Editable text linked with centreline symbol

- **centreline-left** single line text on left of symbol
- **centreline-right** single line - text on right of symbol
- **centreline-left-above** symbol on centreline - text offset to the left and above
- **centreline-right-above** symbol on centreline - text offset to the right and above
- **centreline-right-below** symbol on centreline - text offset to the right and below
- **centreline-left-below** symbol on centreline - text offset to the left and below
- **centreline-left-above & below** symbol on centreline - text offset to the left & right above & below
- **centreline-right-above & below** symbol on centreline - text offset to the right & left above & below

```
  BEARING
  │
  │
centreline-left  centreline-right
```
```
  BEARING  
  │
centreline-left-above  centreline-right-above
```
```
  BEARING 
  │
centreline-left-below  centreline-right-below
```

**Use:**

- These blocks are used to provide the centreline symbol with editable attributes for the description of the particular centreline.
- There are two groups of blocks:
  - The first is the single line version in which the editable text is on the left or right of the centreline symbol.
  - In the second the symbol is placed on the centreline and the editable text is offset top left, top right, bottom left and bottom right.
- Select the block which best suits your particular situation, position it and complete the information (relating to the text) in the attribute box. Any modifications to the text may be done using the edit attribute icon.

7.4. **Titles for Sections, Elevations, Details and Views**

- **det-35** Detail Title – small
- **det-5** Detail Title – large
- **det-5-2 scales** Detail Title – large, vertical & horizontal scales
- **elev-35** Elevation Title – small
- **elev-5** Elevation Title – large
Use:

- All these titles are inserted into the drawing and **not exploded**. Use the scale of the particular section view etc. as the multiplication factor. Answer the prompts for scale, section number etc.

### 7.5. Beaks

#### 7.5.1. Section beaks and detail hexagons

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>arrow_small</td>
<td>plain section arrow (no beak) small version with half arrow</td>
</tr>
<tr>
<td>arrow_large</td>
<td>plain section arrow (no beak) larger version with half arrow</td>
</tr>
<tr>
<td>Beak</td>
<td>plain circle with beak that can be rotated to suit direction of section - no attributes</td>
</tr>
<tr>
<td>beak_leader</td>
<td>plain leader that can be rotated to suit section and is attached to plain beak</td>
</tr>
<tr>
<td>beak_bar</td>
<td>horizontal bar that is attached to plain beak</td>
</tr>
<tr>
<td>detail_left</td>
<td>detail hexagon on left of leader with attributes</td>
</tr>
<tr>
<td>detail_right</td>
<td>detail hexagon on right of leader with attributes</td>
</tr>
<tr>
<td>horiz_left_down</td>
<td>horizontal beak on left hand side looking down, with attributes</td>
</tr>
<tr>
<td>horiz_left_up</td>
<td>horizontal beak on left hand side looking up, with attributes</td>
</tr>
<tr>
<td>horiz_right_down</td>
<td>horizontal beak on right hand side looking down, with attributes</td>
</tr>
<tr>
<td>horiz_right_up</td>
<td>horizontal beak on right hand side looking up, with attributes</td>
</tr>
<tr>
<td>vertical_bottom_left</td>
<td>vertical beak on bottom looking towards the left, with attributes</td>
</tr>
<tr>
<td>vertical_bottom_right</td>
<td>vertical beak on bottom looking towards right, with attributes</td>
</tr>
<tr>
<td>vertical_top_left</td>
<td>vertical beak on top looking towards the left, with attributes</td>
</tr>
<tr>
<td>vertical_top_right</td>
<td>vertical beak on top looking towards the right, with attributes</td>
</tr>
</tbody>
</table>
Use:

- The vertical and horizontal beaks are placed at either end of the section you wish to display. Answer the attribute questions, section number and sheet number.
- Arrow_small and arrow_large are used to signify one side of a section if there is insufficient space to use beaks on both sides (they may be rotated and mirrored to suit). The _small version is as the name suggests smaller and has a half arrow whereas the _large one has the full arrow.

![Diagram of Autocad blocks]

Note: The '?' represents the attributes that are to be edited to suit the section number, detail letter and sheet number.