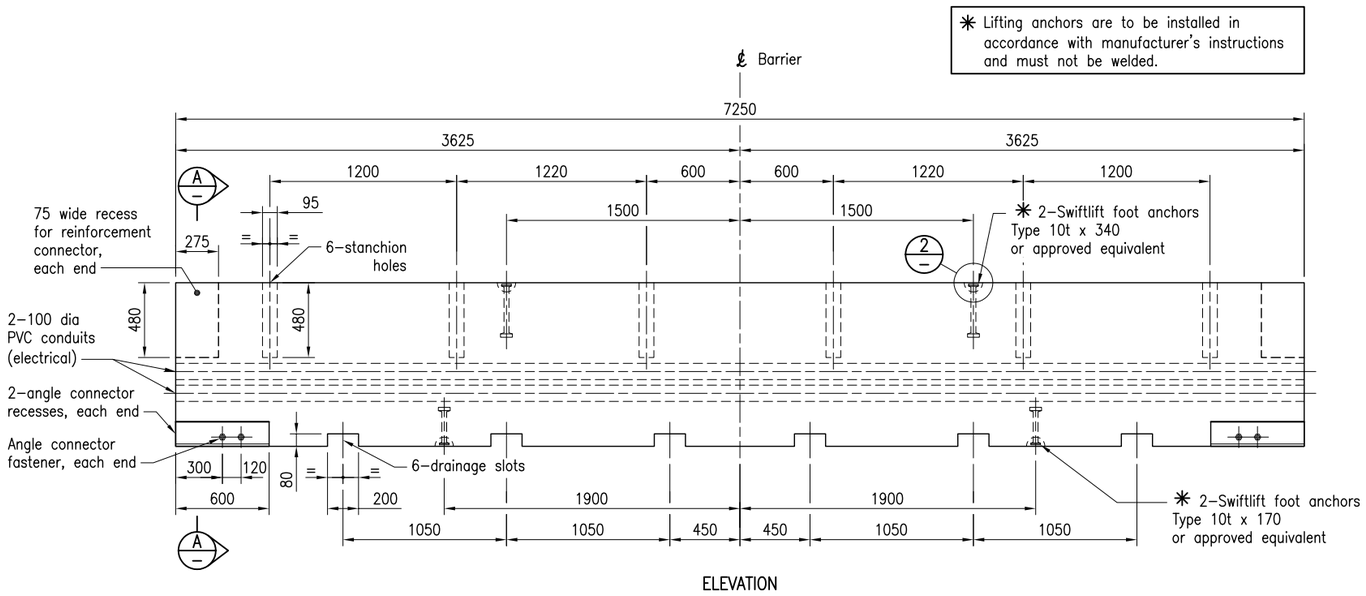
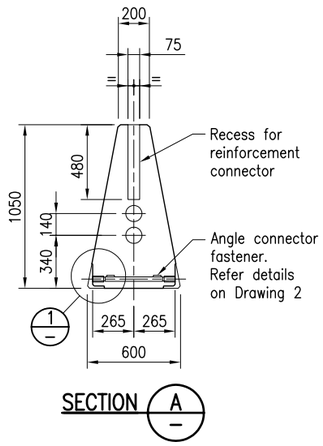
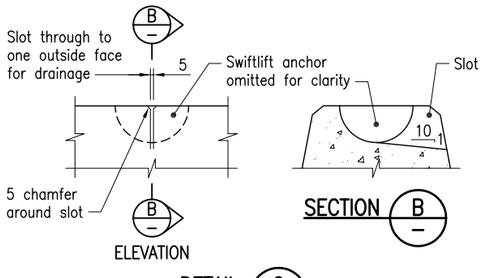


ELEVATION

PRECAST CONCRETE BARRIER



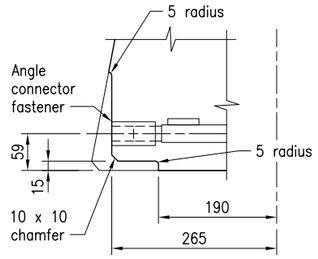
SECTION A



ELEVATION

SECTION B

DETAIL 2



DETAIL 1 AT RECESS FOR ANGLE CONNECTOR

LIFTING CRITERIA NOTES

LC1. Units shall be cast inverted with the bottom face trowel finished.

LC2. Installation of anchors within the form shall be inspected before placing concrete. Refer to MRTS72.

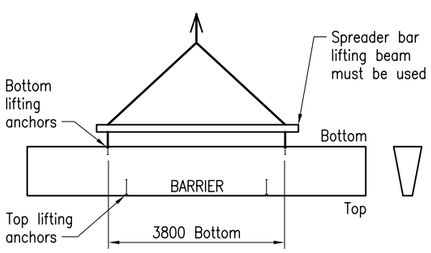
LC3. Bottom lifting anchors are to be used to lift unit out of mould, are designed for single use and shall not be used for general lifting on site. Design of the bottom anchors is based on:
- Using oiled smooth steel moulds
- Mould adhesion = 1 MPa maximum.
- Dynamic lifting factor = 1.3 (during demoulding)
- Dynamic lifting factor = 2.0 maximum (normal lifting)
- Design factor of Safety = 4.0

LC4. General loading, offloading and site positioning shall be carried out using the top lifting anchors. Design of the top anchors is based on:
- Dynamic lifting factor of crane = 2.0 maximum
- Design factor of safety = 4.0

LC5. Units shall not be lifted by a back hoe/excavator/forklift or similar plant and equipment.
Units shall not be suspended from any vehicle when traversing rough terrain.

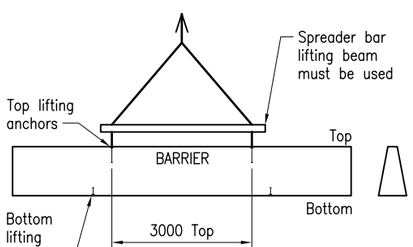
LC6. The lifting anchors and concrete surrounding the anchors shall be inspected for any sign of damage or corrosion before each lift. The lifting anchors shall not be used if there is any sign of damage or corrosion.

LC7. All lifting shall be undertaken to conform with both these lifting criteria and those of the manufacturer of the lifting anchors.



LIFTING DIAGRAM – FOR LIFTING OUT OF MOULD

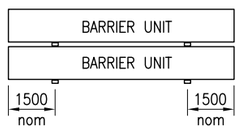
Refer lifting criteria Note LC3



LIFTING DIAGRAM – GENERAL USE

Refer lifting criteria Note LC4

Mass of Precast Concrete Barrier = 7.3 tonne



SUPPORT OF UNITS

Precast concrete barriers are not to be stacked more than 2 units high.
Units shall be supported in such a manner that no damage will be incurred by the units. Units shall be supported on two level bearers as shown. Where units are stacked in more than one layer, the supports for each layer shall be placed directly above the lower supports. Where units will be placed on the ground the storage area shall be cleared of rocks, tree stumps, etc and brought to an even grade to ensure that units are supported as described above.
The supports shall be of such a size to provide sufficient bearing capacity and clearance to the lower units for all ground conditions likely to occur during storage.
End supports shall be level at all times to ensure that units do not develop a twist during storage.
Stability of stored units is the responsibility of the contractors.

STORAGE DIAGRAM

NOTES:

1. SCOPE: This Standard Drawing provides details of precast concrete barrier in accordance with MRTS14.
2. PRECAST CONCRETE BARRIERS shall be manufactured in accordance MRTS72.
3. CONCRETE shall be in accordance with MRTS70.
   Concrete S40/20.
   Concrete strength shall be 25MPa minimum before lifting.
   Exposure classification B2 to AS 3600.
   All exposed edges shall have 15 x 15 chamfers, unless shown otherwise.
4. REINFORCING STEEL shall be read in conjunction with Standard Drawings 1043 and 1044.
   Reinforcing steel material shall be in accordance with MRTS71 and AS/NZS 4671.
   Deformed bars Grade D500N.
   Round bars Grade R250N.
   Mesh Grade D500L.
   All reinforcing steel shall be ACRS certified.
   Cover to reinforcing steel shall be 55 unless shown otherwise.
   Spacing of ligatures may be altered slightly, if necessary, to maintain clear cover to lifting anchors, holes and recesses.
5. STEELWORK shall be fabricated to the requirements of MRTS78.
   Steel plate Grade 300 to AS/NZS 3678.
   Flat bar and angle Grade 300 to AS/NZS 3679.1.
   Steel for all couplers (fasteners) to AS 1444 or approved equivalent.
   Threads for fasteners to AS 1275.
   Bolts and screws Class 4.6 to AS 1111, nuts Class 5 to AS 1112, washers for Class 4.6 bolts to AS 1237.
   Bolts shall be fabricated in accordance with Technical Note 66 (TN66).
   All bolts, screws and nuts shall be hot dip galvanized to AS 1214.
   All other steelwork shall be hot dip galvanised to AS/NZS 4680 unless shown otherwise. Prior to galvanising all weld splatter and welding slag is to be removed. Surfaces that are damaged after galvanising shall be made good by being brush painted with 2–coats of an approved one component zinc rich epoxyester coating system.
   Members shall be branded with suitable type number after fabrication.
6. WELDING symbols to AS 1101.3.
   All welding to AS/NZS 1554.1.
   All welds to be SP category.
   Welding consumables to be controlled hydrogen type: G49X to AS/NZS ISO 14341–B or T49X to AS/NZS ISO 17632–B.
   Tack welding reinforcing steel for location purposes to MRTS71.
7. CONDUITS shall be in accordance with MRTS91.
8. Each barrier shall be supplied with the following, in accordance with Notes 4 and 5:
   2–angle connectors, refer details on drawing 2
   8–M24 x 50 long hex head screws
   8–M24 washers and
   1–reinforcement connector, refer detail on drawing 2
9. DIMENSIONS are in millimetres unless shown otherwise.

REFERENCED DOCUMENTS:

Departmental Standard Drawings:

1043	Reinforcing Steel – Standard Bar Shapes
1044	Reinforcing Steel – Lap Lengths
1473	Single Slope Concrete Barrier – Precast Concrete Barrier – Installation Details

Departmental Specifications:

MRTS14	Road Furniture
MRTS70	Concrete
MRTS71	Reinforcing Steel
MRTS72	Manufacture of Precast Concrete Elements
MRTS78	Fabrication of Structural Steelwork
MRTS91	Ducts and Pits
TN66	Commercial and Fabricated Bolts and Nuts

Department of Transport and Main Roads

SINGLE SLOPE CONCRETE BARRIER

PRECAST CONCRETE BARRIER FABRICATION DETAILS

DRAWING 1 OF 2

Queensland Government

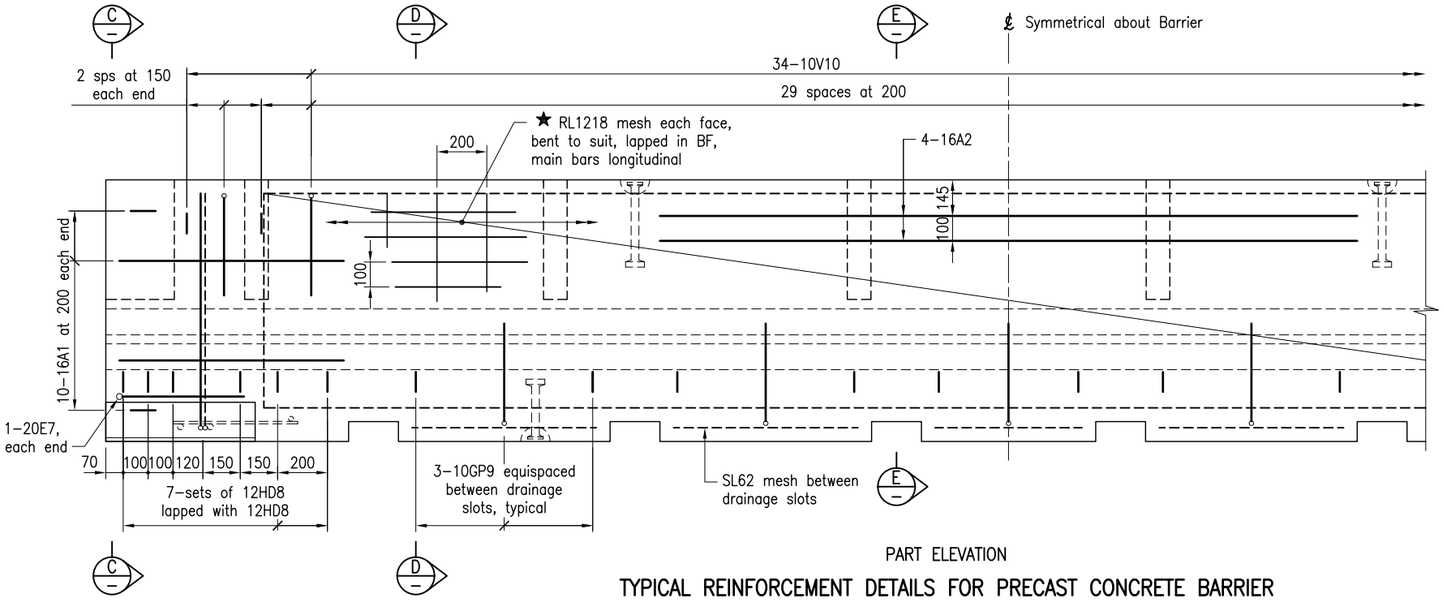
A3

Not to Scale

Standard Drawing No 1458

Date 11/18

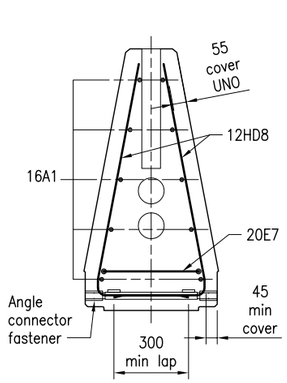
A | B



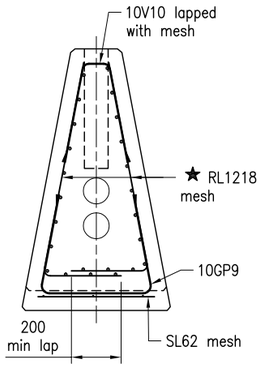
PART ELEVATION

TYPICAL REINFORCEMENT DETAILS FOR PRECAST CONCRETE BARRIER

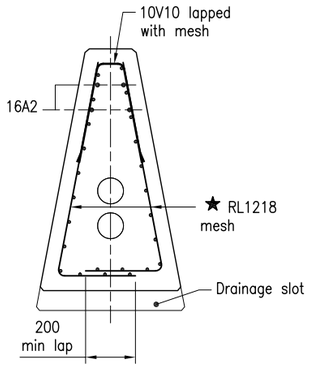
★ RL1218 mesh, bent to suit. Cut bars to maintain 30 minimum cover to stanchion holes



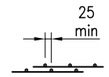
SECTION C



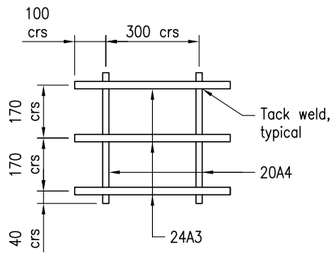
SECTION D



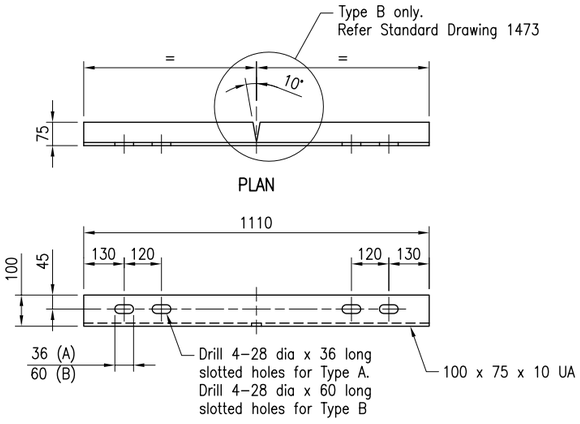
SECTION E



TYPICAL MESH LAP DETAIL

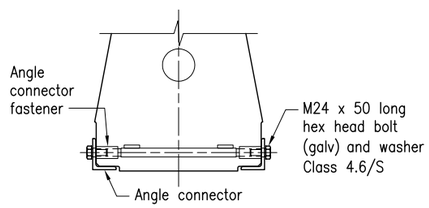


REINFORCEMENT CONNECTOR



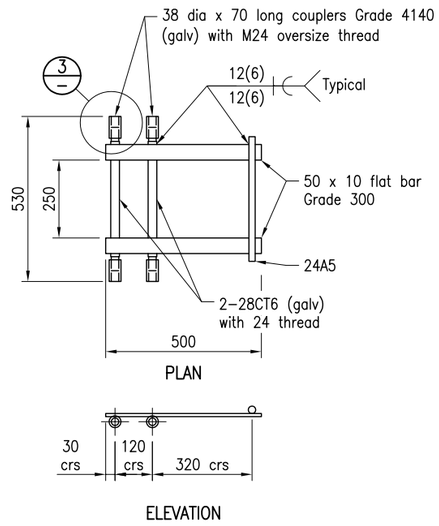
ELEVATION

ANGLE CONNECTORS – TYPE A AND TYPE B



PART ELEVATION

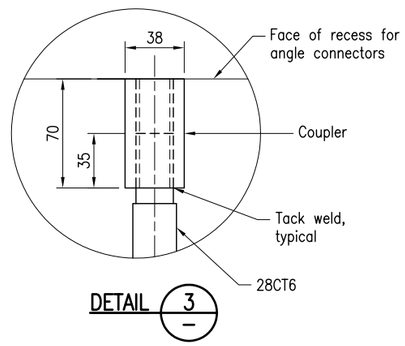
ANGLE CONNECTOR ASSEMBLY



ELEVATION

ANGLE CONNECTOR FASTENER

No OFF = 2



DETAIL 3

STEEL SCHEDULE

DIAGRAM	A, CT						E	HD	GP	V	MESH	
MARK	16A1	16A2	24A3	20A4	24A5	28CT6	20E7	12HD8	10GP9	10V10	RL1218	SL62
DIMENSION A	900	2800	500	420	400	460	400	375	455	110	6000	6000
DIMENSION B	–	–	–	–	–	45	500	70	65	55	2400	2400
DIMENSION C	–	–	–	–	–	M24	500	860	400	400	–	–
DIMENSION E	–	–	–	–	–	–	–	400	–	55	–	–
DIMENSION F	–	–	–	–	–	–	–	–	–	400	–	–
PIN DIA P	–	–	–	–	–	–	80	50	40	40	–	–
CUTTING LENGTH	900	2800	500	420	400	460	1320	1300	1220	885	–	–
No OFF	20	4	3	2	2	4	2	28	15	34	1 Sheet	0.2 Sheet
LOCATION	Ends	Centre	Reinforced Connector		Fastener		Ends		Between drainage slots	Vertical top throughout	Vertical sides	Between drainage slots

NOTES:

1. Refer Drawing 1 for all notes.

Department of Transport and Main Roads

SINGLE SLOPE CONCRETE BARRIER

PRECAST CONCRETE BARRIER FABRICATION DETAILS

DRAWING 2 OF 2

Queensland Government

A3

Not to Scale

Standard Drawing No 1458

Date 11/18

A | B