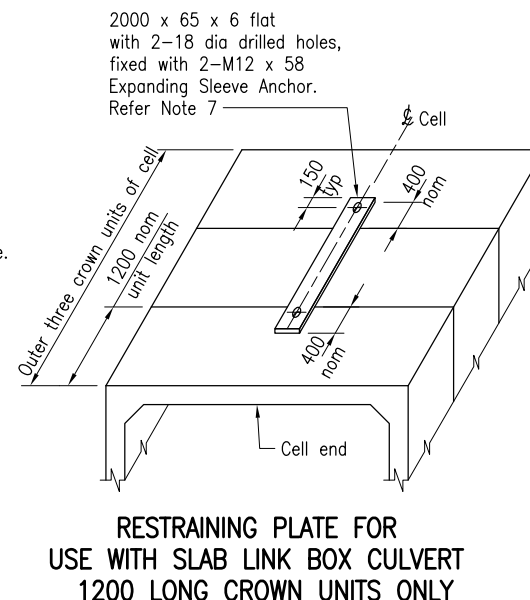
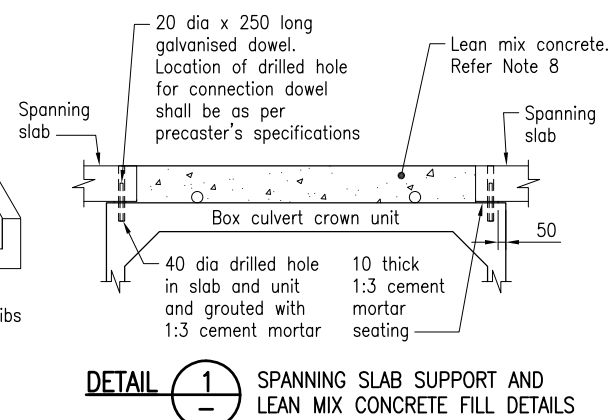
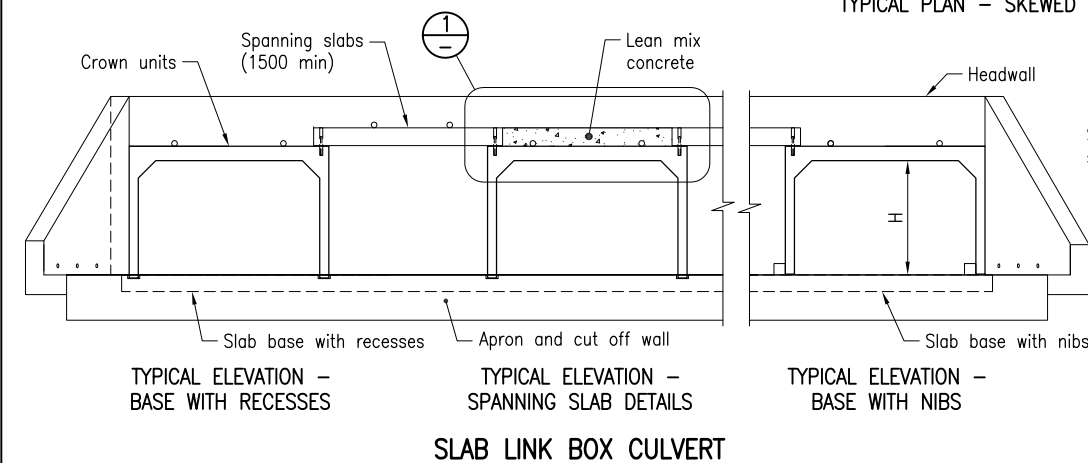
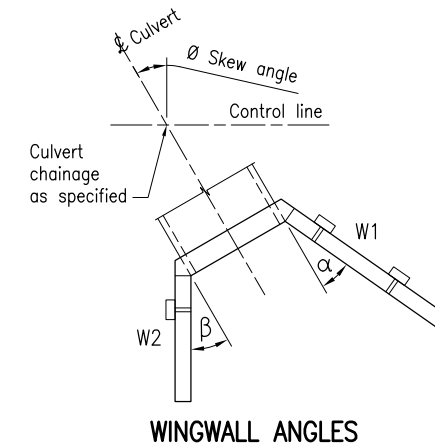
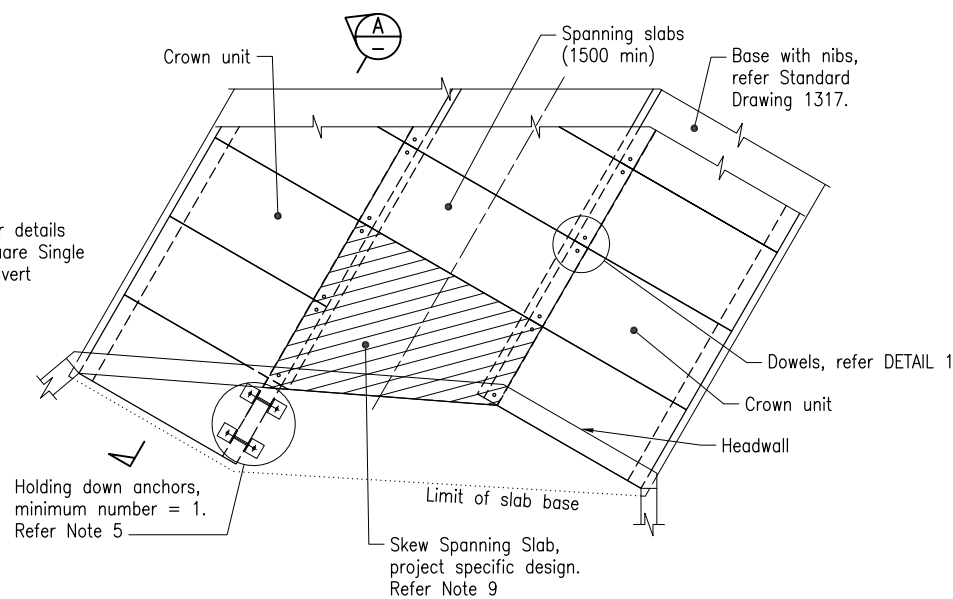
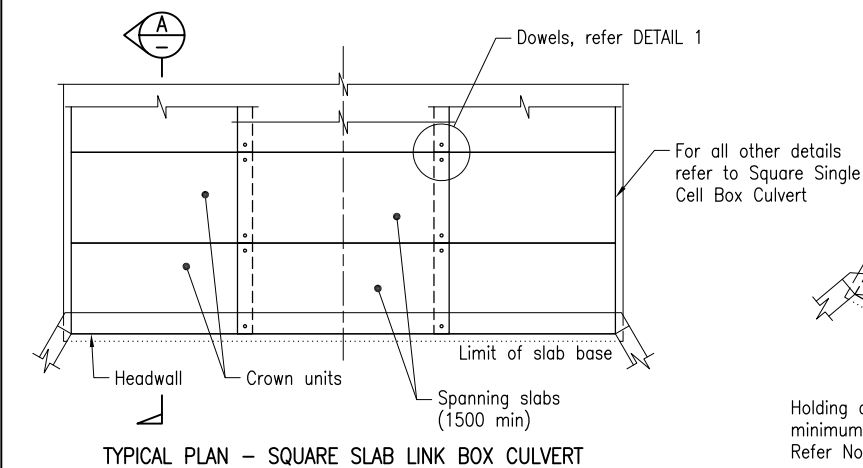
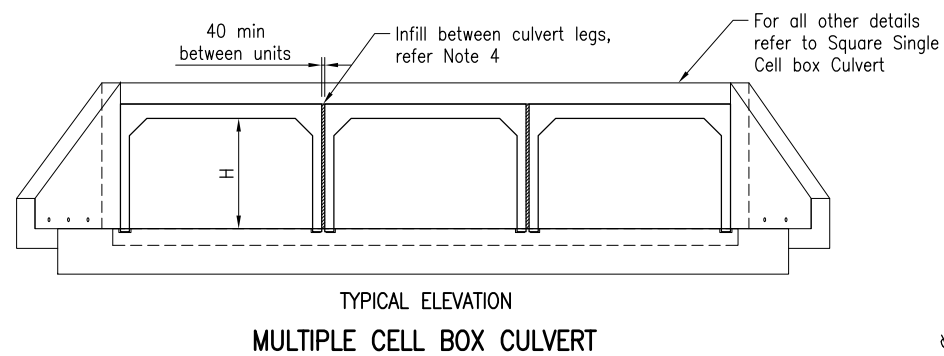
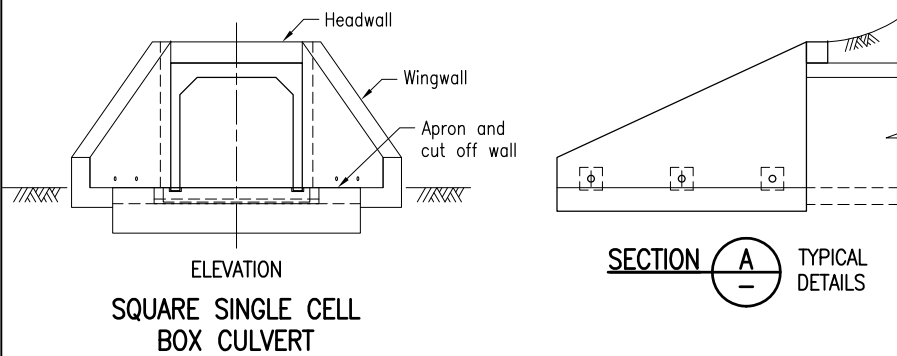


SKewed Culverts Only.
For anchor detail refer Drawing 1320
DRILLED HOLES IN CROWN UNITS FOR HOLDING DOWN ANCHORS

Skew angle θ	Wingwall angle	
	α	β
0 - 10	30	30
11 - 20	25	30
21 - 30	20	30
31 - 45	15	30



- NOTES:**
- SCOPE: This drawing is to detail the installation of precast culvert units where H (height of opening) > 600. Refer Standard Drawing 1317 and 1318 for cast insitu slab base and apron details. Refer Standard Drawing 1303 for cast insitu headwall and wingwall details where H > 600. Refer Standard Drawing 1174 for installation of precast culvert units and cast insitu headwall details where H ≤ 600.
 - BOX CULVERT shall be in accordance with MRTS03.
 - PRECAST CONCRETE CULVERTS shall be in accordance with MRTS72. Installation and doweled connections shall be in accordance with precaster's specifications.
 - INFILL between legs of multiple cell culverts shall be achieved by placing concrete plugs of 250 minimum length at both ends of the structure and infill the remaining gap with 1:10 lean mix having maximum aggregate size of 10mm packed dry. Do not use fluid grout as hydrostatic head will damage culvert legs.
 - HOLDING DOWN ANCHORS shall be installed where the leg(s) of the crown unit extend more than 300 beyond the outside face of the headwall. Refer Standard Drawing 1320 for holding down anchors details. Nibs are not required for these crown units. Where nibs are required, they are to extend for the full length of all other units.
 - CROWN UNIT RESTRAINING PLATES are required on the outer 3 of all internal cells when Slab Link Box Culvert > 5 cells when crown units ≥ 1800 high, and 1200 long, are used. Expanding Sleeve Anchors shall be selected and installed in accordance with manufacturer's specifications.
 - STEELWORK shall be fabricated to MTR578. Dowels Grade R250N to AS/NZS 4671. Flat bar Grade 300 to AS/NZS 3679.1. Bolts and screws to Class 4.6 to AS 1111.1 and washers class 5 to AS 1237.1. After fabrication dowels and flat bar shall be hot dipped galvanised to AS/NZS 4680 and bolts and screws to AS 1214.
 - LEAN MIX CONCRETE shall be placed between spanning slabs on crown unit cells. Lean mix concrete infill is not required on the outermost crown units.
 - PROJECT-SPECIFIC INFORMATION to be shown on the drawings: Base and apron extents and details; Headwall and wingwall extents and details; Skew spanning slab details (if required).
 - DIMENSIONS are in millimetres unless shown otherwise.

ASSOCIATED DEPARTMENTAL DOCUMENTS:
NDRRA Guidelines
Road Drainage Manual (RDM)

- REFERENCED DOCUMENTS:**
Departmental Standard Drawings:
- 1303 RC Box Culverts and Slab Link Box Culverts - Construction of Headwalls and Wingwalls Height > 600
 - 1317 RC Box Culverts and Slab Link Box Culverts - Construction of Bases with Nibs and Aprons (All Sizes)
 - 1318 RC Box Culverts and Slab Link Box Culverts - Construction of Bases with Recesses and Aprons (All Sizes)
 - 1320 RC Box Culverts and Slab Link Box Culverts - Crown Unit Holding Down Anchors
 - 1359 Culverts - Installation, Bedding and Filling/Backfilling Against/Over Culverts
- Departmental Specifications:
- MRTS03 Drainage, Retaining Structures and Protective Treatments
 - MRTS24 Manufacture of Precast Concrete Culverts
 - MRTS70 Concrete
 - MRTS72 Manufacture of Precast Concrete Elements
 - MRTS78 Fabrication of Structural Steelwork

Department of Transport and Main Roads			
R C BOX CULVERTS AND SLAB LINK BOX CULVERTS			
A3	Standard Drawing No	1316	
Not to Scale	Date	3/18	