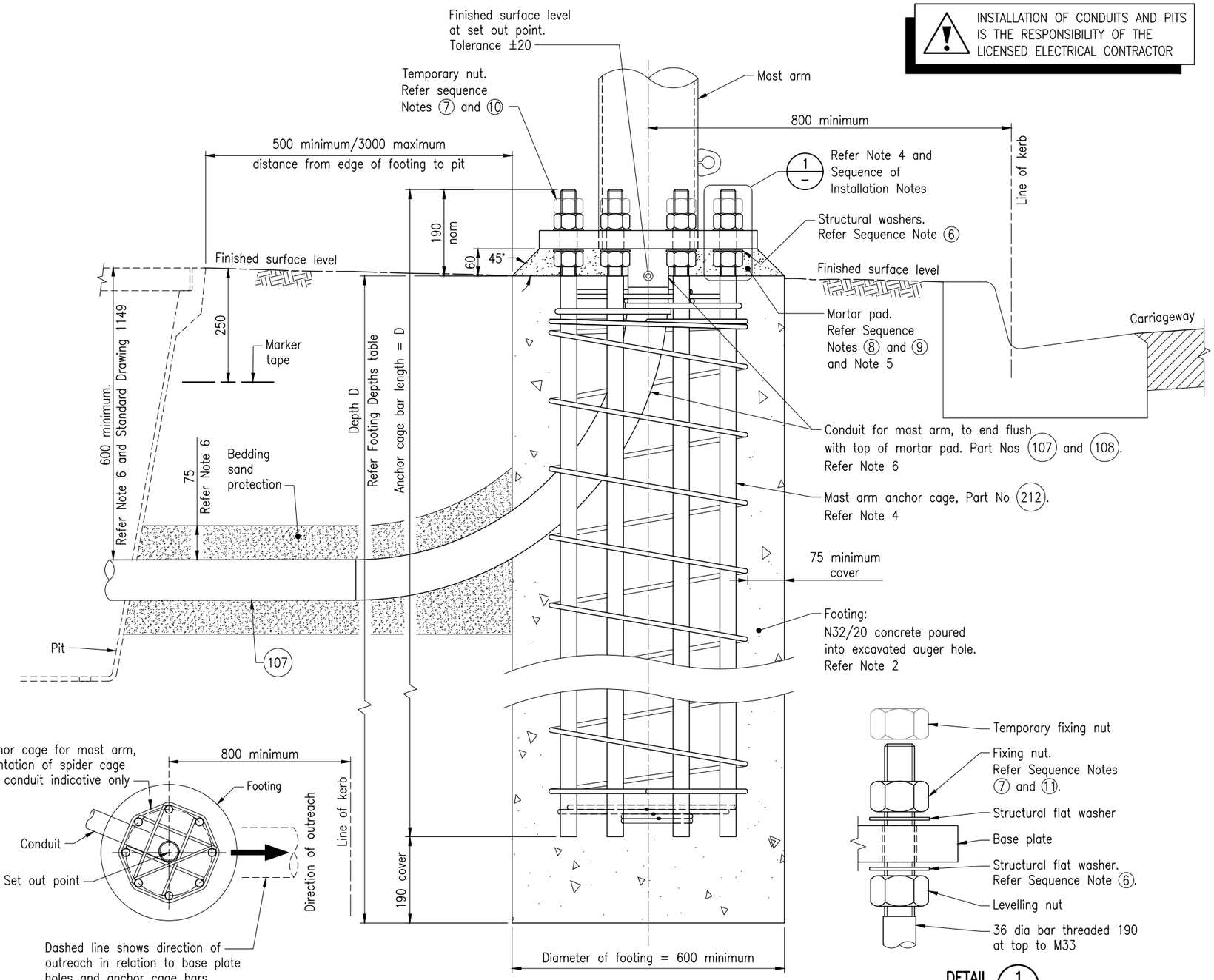

ELEVATION

INSTALLATION DETAILS

PLAN

SETOUT OF MAST ARM ANCHOR CAGE

DETAIL 1 / –

SEQUENCE OF INSTALLATION:

1. Footing shall be accurately located horizontally and vertically, and existing utility service investigation carried out, prior to commencement of excavation. HOLD POINT 1 MRTS92.
2. Dig/bore and excavate the hole to the required depth and width for the specified anchor cage. The excavation shall be inspected by the Administrator, HOLD POINT 2 of MRTS92, and shall be surveyed as per MRTS56.
3. Determine finished surface level and suspend the anchor cage in correct position such that the finished surface level is 190 below the top of anchor cage, and at correct orientation relative to the roadway. WITNESS POINT 18 of MRTS56.
4. Threads shall be protected and conduit plugged before pouring concrete.
5. Pour concrete footing to bottom of the threads of anchor cage and allow to set. Allow seven day minimum curing period or until 20MPa before installing the pole.
6. Locate pole 60 above top of footing. Ensure structural washers are placed on the levelling nuts.
7. Level pole using the levelling nuts, then finger tighten the fixing nuts and temporary nuts on each threaded bar onto the base plate.
8. Immediately form mortar pad under base plate using a TMR registered high early strength, rapid setting, flowable, cementitious grout, in accordance with manufacturer's specifications. Mortar pad edges bevelled as shown. Conduit to end flush with top of mortar pad.
9. Wait until mortar has achieved final set in accordance with manufacturer's specifications before tensioning the fixing nuts.
10. Remove the temporary nuts from top of base plate.
11. Tension the remaining fixing nuts to torque of 135 Nm.

NOTES:

1. SCOPE: This standard drawing shall be used for mast arm footing details when installed on slopes of up to and including 1:3, and in good to average soil. Installations proposed in poor soil or in sandy materials shall require specialist design by Geotechnical Engineer.
2. FOOTING shall be in accordance with MRTS92 and with the details on this drawing.
   Selection of depth of footing is to be determined by the designer from the project design documents, such as geotechnical report, site survey, and road cross sections.
   No permanent forms shall be used for excavation except if required for top 1000.
3. Good Soil ($S_u \geq 50$ kPa) consists of Stiff to Hard Clayey materials or Weathered Rocks.
   Average Soil (25 kPa $\leq S_u <$ 50 kPa) consists of Firm Clayey materials or Compacted Earthfill materials.
   Poor Soil ($S_u <$ 25 kPa) requires require specialist design, and consists of Very Soft to Soft Clayey materials.
   Sandy Materials comprising Loose Sand, Medium Dense to Dense Sand, and Dense to Very Dense Sand require specialist design.
   S_u is the undrained shear strength of clayey materials.
4. ANCHOR CAGE shall be in accordance with Standard Drawing Standard Drawing 1404 and the details on this drawing.
   Finished surface level shall be determined prior to commencement of anchor cage installation. Positional tolerances in accordance with MRTS70. A template must be used to ensure bars in footing are in the correct position during placement of concrete. Suggested size of template is 6 thick plate.
5. CONCRETE shall be in accordance with MRTS70.
   MORTAR under the base plate shall be a TMR registered high early strength, rapid setting, flowable, cementitious grout product with the following strengths:
   4 hours to 15MPa and 28 days to 32MPa.
6. CONDUIT shall be in accordance with MRTS91.
   Minimum depth of cover to conduit is 600. Only where there is a localised conflict with other underground services may the depth of conduit be decreased to a minimum of 375. In which case the conduit must be protected with a minimum 300 x 75 nominal thick concrete capping layer and concrete conduit protection 1:4 mix. The Superintendent must give his written approval for this departure from the standard. Ensure the conduit is not blocked.
7. MAST ARMS shall be in accordance with Standard Drawing 1427 and AS 2339.
8. Dimensions are in millimetres.

REFERENCED DEPARTMENTAL STANDARD DRAWINGS AND SPECIFICATIONS:

1149 Installation of Underground Electrical and Communications Conduit
1404 Traffic Signals – Mast Arm Anchor Cage Fabrication Details
1699 Traffic Signals/Road Lighting/ITS – Parts List
MRTS56 Construction Surveying; MRTS70 Concrete; MRTS91 Conduits and Pits;
MRTS92 Traffic Signal and Road Lighting Footings

FOOTING DEPTHS

Terrain of Footing	Minimum Depth of Footing D	
	Good soil, refer Note 3	Average soil, refer Note 3
Flat surface up to and including 1:6 batter slope	3200	3700
Batter slope from 1:6 up to and including 1:3 slope	4400	4900

The purpose of this Standard Drawing is to provide typical standard details that shall be used within the limitations specified in the drawing, and shall be assessed by the project designer for project specific slope and soil conditions. When there is uncertainty regarding the application of the standard details on this drawing for a specific project, advice shall be sought from E&T Structures. The details specific to the project shall be shown on the project specific drawings, and certified by an RPEQ Engineer.

Department of Transport and Main Roads

TRAFFIC SIGNALS

MAST ARM – FOOTING DETAILS AND INSTALLATION

A3
Not to Scale

Standard Drawing No 1403
Date 3/2025

J K L M