

File note

Subject NZTA P43 **Regional Amendments July 2016** for Whangarei - FINAL
From Brendon Tong
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Ref 16/87907

Now that the former National Traffic Signals Specification is superseded by NZTA P43 Specification for Traffic Signals, there is a need to formalise and summarise our local variations to P43. Numbers refer to clauses in P43.

Technical and materials approvals are from the Traffic Signals Engineer (at time of writing this position corresponds to the WDC Traffic Projects Engineer).

2.3.2

Electricity revenue meters which include a communications device ("smart" or "advanced" meters) are not acceptable to Council for installation in a traffic signal controller cabinet. Conventional meters only will be accepted in these locations.

A window will be provided in the LH side for the purposes of viewing the revenue meter display. This will be of just sufficient size to allow the meter to be viewed, but inconspicuous to deter vandal attack. A typical size is 20mm h x 60mm w.

Street light power shall be supplied to the traffic signal controller cabinet and all joint use poles requiring lighting shall be supplied from this feed. Refer attached drawings TSSL1 for Eclipse cabinets, TSSL2 for Aldridge cabinets and TSSL3 for PSC cabinets.

External isolation switches for streetlights at signals sites shall be K&N type with a lock mechanism as approved by the Traffic Signals Engineer. **The current part number is K&N WR_TRF-SL_SW-BU which comprises the switch mechanism with CA10 and CAD12 for the 230V and SCATS input switching, a rain hood and lock mechanism. WDC will provide a lock barrel and key for installation.**

Any queries re power or streetlighting are to be forwarded to the Traffic Signals Engineer.

2.4.4

Plastic bodied lanterns are acceptable.

2.5.1

Clarification: The signals maintenance contractor is responsible for the installation and maintenance of all joint use poles and all cabling, switching and control equipment. The streetlight maintenance contractor is responsible for the streetlight luminaire only. The two contractors shall coordinate respective maintenance operations to minimise disruption.

2.7

Prefabricated loops require site specific approval from the Traffic Signals Engineer.

Where a site has a structural AC or similar pavement installed, loops shall be saw-cut into the structural layer so that the wearing course is left intact. Electrical testing of the loops is to be completed and accepted before the wearing course is applied.

3.4

All underground cable joints in KJBs or loop feeder cable joints in chambers shall be enclosed in IP68 rated cable joints NAL/PTC "bottle joint" type BS4/F/F/8/TB8/+CL0/C(8 way terminal block)for stopline loops and BS2/F/4/TB4+CL0/C for advance loops.

Installation shall:

1. Ensure that the correct type of cable gland is used and that a secure seal exists between loop tails or feeder cables and the gland.
2. Bottle joints are to be installed so that the gland base faces down. This is to ensure water doesn't run over the cables.
3. Silica gel desiccant sachets are installed and also the humidity monitor card to demonstrate that the seal is intact and the desiccant active.

3.11 and appendix C

Loops shall be constructed with corners chamfered 200mm as per attached drawing to ensure that minimum loop bending radii are maintained, refer drawing TSLD1. Cycle loops are subject to specific design.

3.11.1

On installation, loops shall meet a minimum insulation resistance test result of 50 megohms (MΩ) when measured at 250V conductors to earth. Loops shall also be tested prior to and post sealing with the Exceltech LTM1000 meter. A minimum Q value of 20 shall be obtained when loops are tested at the loop tails.

3.11.3

On installation, feeders shall meet a minimum insulation resistance test result of 50 megohms (MΩ) when measured at 250V conductors to earth. The complete loop-feeder system shall be tested with the Exceltech LTM1000 meter at the controller terminals. A minimum Q of 10 shall be obtained from this test. Council's expectation is that Q will be in the 12-15 range. In addition, resistance values for the feeder shall not exceed 2.5 ohms(Ω). Resistance of the complete loop-feeder system shall be ≤ 3.5 ohms.

3.15.2

Earth Fault Loop Impedance tests shall be taken annually in February when the soil is driest to capture the worst case. A test shall be taken at the controller cabinet and individual tests for each pole shall be taken at the pole top UMB. Results of all tests shall be recorded and reported to the Engineer.

Council's requirement is that the Contractor demonstrates that a disconnection time of <400ms and touch voltage of <50V ac is achieved, therefore the acceptable maximum value is 1.85 ohms. This value takes the time-current characteristics of the signal group circuit breaker and individual fuses into account.

3.16

Council is operating a RAMM Traffic Signals environment. All data is required to be compatible with RAMM.

In addition to this section of P43's requirements, "As-built" drawings shall include the following information on separate sheets, minimum sheet size A3, minimum scale 1:500. Drawings shall be subject to acceptance by the Traffic Signals Engineer.

- Above ground plant drawing detailing the controller location, lanterns, poles, pole numbers, pedestrian push-buttons, intersection layout and road markings.
- Underground plant drawing detailing location of all loops, ducts, chambers, kerb junction boxes, intersection layout and road markings.
- Approach view drawing showing the lantern displays visible on each approach of the intersection.

All assets shall have coordinates collected for the RAMM system. For RAMM purposes loops shall have a single set of coordinates taken in the centroid of the loop. It is recommended that coordinates are also taken at each corner to facilitate as-built production.

4.4.2

Reminder: all chambers which are not of concrete construction are subject to specific approval.

4.4.4

All tails of loop feeder cables shall be “made off” in the controller and bottle joint with correctly sized bootlace ferrules crimped to the ferrule manufacturer’s specifications.

4.7

All kerbside junction boxes (KJBs/tobys) shall be SIKA BDD Type A 10013260 Class B 80kN (AS3996) and installed to preserve the vehicle loading rating of the box in accordance with manufacturer’s installation instructions. KJBs shall be installed in the safest locations practicable as agreed with the Traffic Signals Engineer.

General

Controllers

On WDC road network traffic signal controllers shall be the Tyco Eclipse. A suitable size unit shall be selected to suit the intersection.

Pole Numbering

All traffic signals poles shall be numbered. The numbers shall be 100mm h x 70 w x 20 stroke width and be of Avery 900 super cast material colour black. Numbers shall be installed immediately below the lanterns and be visible from the centroid of the intersection.

Where JUMA or JUSP poles are provided light numbers shall match the style of the pole numbers. Light numbers shall not be painted on traffic signals poles.

Applicability

For the avoidance of doubt these conditions shall apply to all traffic signal controlled intersections in the Whangarei District, including State Highway sites.

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Communications

Council will initially connect the controller to a leased line DP circuit. However, the following network access is required:

- A 32mm duct to access Northpower fibre is required, equipped with a draw tape, and available at the controller cabinet. Colour of duct is to be red.
- A 25mm duct to access Chorus network is required, equipped with a draw tape, and available at the controller cabinet. Colour of duct is to be green.
- Communications ducts are to be shown on as-builts.
- A communications double GPO power outlet (non-RCD) shall be available for equipment.

Council will arrange and provide equipment required to access ADSL lines or Northpower fibre if required. The Contractor shall ensure that sufficient space is available in the cabinet for this equipment. Both DIN rail and conventional mountings shall be available.