

**~~Appendix O: ENGINEERING PLAN CHECKLIST~~**

**Commented [SC1]:** No appendix O. Engineering plan checklist moved to new appendix M

## **WDC Engineering Plan Checklist**

~~All references to NZS4404 should be read in conjunction with WDC Supplement Document 2012.~~

~~Please strike-out what is not applicable to the application~~

### **Roading**

~~(Reference Section 3 NZS4404:2004 and WDC Supplement Document 2012)~~

The submitted engineering plans should include all existing and proposed utilities

#### **Layout**

1. ~~Plan and Long section~~
  - a. ~~Grade (Pg 48 + 49, Table 3.1 and 3.2 NZS 4404:2004)~~
  - b. ~~Kerblines~~
  - c. ~~Centre of Road~~
  - d. ~~Subsoil drains~~
  - e. ~~Vehicle Crossings shown on plans (Appendix A, Supplement Document 2012)~~
  - f. ~~Turning head details~~
  - g. ~~Horizontal and Vertical Curves~~
2. ~~Cross section~~
  - a. ~~Crossfall~~
  - b. ~~Services locations within the legal or proposed road~~
  - c. ~~Carriageway Width~~
  - d. ~~Berms~~
  - e. ~~Footpaths~~
  - f. ~~Detailed paving structure~~
  - g. ~~Subsoil drains~~
  - h. ~~Kerb and Channel~~

#### **Items to be considered for inclusion in Roading Design**

3. ~~Intersection details~~
4. ~~Streetlights~~
5. ~~Street trees~~
6. ~~Road markings~~
7. ~~Street signs~~
8. ~~Pedestrian Links~~

#### **Pavement**

9. ~~Pavement design (Section 3.3.3 NZS4404:2004)~~
10. ~~CBR Pavement depth~~
11. ~~Road pavement materials~~
12. ~~Subsoil drains~~
13. ~~Kerb and Channel type~~

**Testing**

~~45. Road formation testing schedule submitted (**Appendix I, Supplement Document 2012**)~~

## **Stormwater**

(Reference Section 4 NZS4404:2004 and WDC Supplement Document 2012)

The submitted engineering plans should include all existing and proposed utilities

### **Layout**

1. ~~Plan and Long-section~~
  - a. ~~Grades~~
  - b. ~~Positioning in relation to other services~~
2. ~~Manholes~~
  - a. ~~size and type.~~
  - b. ~~Lid Level and Invert Level, all connection invert levels~~**(Appendix A; CM-WDC-003 Supplement Document 2012)**
  - c. ~~Drops through MH~~
  - d. ~~Change in direction~~
  - e. ~~Losses through MH's~~
  - f. ~~Haunching~~
3. ~~Sumps in Right of Way or Road~~
4. ~~Laterals to each lot direct to a reticulated system~~
5. ~~Overland Flow Paths / Secondary Flow Paths shown on plans~~ **(Section 4.3.2.4 & 4.3.9 NZS4404:2004)**
6. ~~Existing drains (open drains/ culvert drains)~~

### **Design**

7. ~~Pipe size sufficient to serve design~~
8. ~~Pipe material/class~~
9. ~~Stormwater calculation sheets~~ **(Section 4.3.2 NZS4404:2004)**
10. ~~Bedding specification~~ **(Appendix I, Section 4.2 Page 19 Supplement Document 2012)**
11. ~~Is on site attenuation a requirement for this catchment~~ **(Refer to TA Engineer)**
12. ~~Swale design (if required)~~

### **Testing**

13. ~~CCTV of existing mains prior to site work commencing~~
14. ~~Testing for pipe laying~~ **(Appendix I, Section 4 Supplement Document 2012)**
  - a. ~~Schedule of all testing requirements~~
  - b. ~~Specify Accredited Laboratory~~
15. ~~Post construction CCTV~~

## **Wastewater**

~~(Reference Section 5 NZS4404:2004 and WDC Supplement Document 2012)~~

The submitted engineering plans should include all existing and proposed utilities

### **Layout**

1. ~~Plan and Long section~~
  - a. ~~Grades~~
  - b. ~~Positioning in relation to other services~~
2. ~~Manholes (Section 5.3.6 NZS4404:2004)~~
  - a. ~~size and type~~
  - b. ~~Lid Level and Invert Level, all connection invert levels (Section 5.3.6 NZS4404:2004)~~
  - c. ~~Drops through MH~~
  - d. ~~Change in direction~~
  - e. ~~Losses through MH's~~
  - f. ~~Haunching~~
3. ~~Future Catchment Design taken into account (Section 5.3.1.2 NZS4404:2004)~~
4. ~~Laterals to each lot~~

### **Design**

5. ~~Pipe size sufficient to serve design (Section 5.3.5.3 — 5.3.5.6 NZS4404:2004)~~
6. ~~Pipe material/class~~
7. ~~Adequate grades~~
  - a. ~~Self cleaning~~
  - b. ~~Provide gravity line~~
8. ~~Bedding Material~~
9. ~~Layout~~
  - a. ~~Minimum clearances (Table 5.1 pg.123 NZS4404:2004)~~
10. ~~Pump station design calculations~~
11. ~~Rising mains, specific design required (Section 5.3.10 NZS4404:2004)~~

### **Testing**

12. ~~CCTV of existing mains prior to site work commencing~~
13. ~~Testing Schedule for pipe laying (Appendix I, Section 4 Supplement Document 2012)~~
  - a. ~~Schedule of all testing requirements~~
  - b. ~~Specify Accredited Laboratory~~
14. ~~Post Construction CCTV~~

## **Water**

(Reference Section 6 NZS4404:2004 and WDC Supplement Document 2012)

The submitted engineering plans should include all existing and proposed utilities

### **Layout**

1. Mains Layout and depths **(Section 6.3 NZS4404:2004)**
2. Property service connection and to by
3. Approved material identified **(Appendix G Supplement Document 2012)**
4. Types and Locations of appurtenances **(Section 6.4-6.7 NZS4404:2004)**
  - a. Stop Valves
  - b. Pressure Reducing Valves
  - c. Hydrant and Fire Services **(refer to NZS 4509)**
  - d. Scours and Pump out branches
  - e. Termination details
  - f. Backflow preventors **(Appendix A; WS-WDC-011 Supplement Document 2012), alternative design can be discussed with TA**
5. Water Meters in Commercial/Industrial development
6. Location and Details of Trust Blocks and Anchor **(Drawing WS-004 Page 202-204 NZS4404:2004)**

### **Design**

7. Adequate Hydraulics proven in design
8. Pipe size sufficient for design
9. Material and class of pipe
10. Bedding Material **(Appendix I, Section 5.5 Page 36 Supplement Document 2012)**

### **Testing**

11. Pressure Testing **(Section 6.10.4, Supplement Document 2012)**
  12. Disinfection **(Section 6.10.6 NZS4404:2004)**
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