2 EARTHWORKS AND GEOTECHNICAL REQUIREMENTS 45

2.1 Scope ……. 45
2.2 General ……. 45
2.3 Design ……. 47
2.4 Approval of proposed works ……. 52
2.5 Construction ……. 52

2.5.1 Plant Pest Management

Add the following new section:

The management response to minimise the potential for weed establishment can be controlled through identification of weeds that should not be tolerated on site because of their aggressiveness or persistence. Adequate site biosecurity is required for machinery and materials brought onto the site to ensure that weed propagules do not enter the site. This involves cleaning machinery prior to bringing it on to the site and ensuring that other materials brought on to the site, including gravels, are free of seeds and vegetation. Using locally sourced gravel and soils, or other materials where possible may reduce the potential for the introduction of new weeds to the area.

2.6 Final documentation …….52

2.6.2 As-built drawings for earthworks and subsoil drains

Add the following sentences:

This is required where earthworks exceed 100 square metres and the depth exceeds 500mm. For fill areas compaction results are required in terms of Appendix I, Section 2.

See drawing CM - WDC-02 –Depth Contours Cut / Fill Areas in Appendix A

WDC has the following documents:

- Institute of Geological & Nuclear Sciences (IGNS) Reports. (Copies held by WDC Emergency Manager):

Report No.	*Title*
2A, B	Active Geological Structures, Earthquake Scenarios
3	A Numerical Assessment of the Earthquake Hazard in the Manawatu Whanganui Region
4A	Geological Setting & Earthquake Hazards, Lifeline Vulnerability & Analysis of Possible Damage
4B	Characteristics of Near Surface Geological Conditions in Urban Areas of Manawatu Whanganui Region
4C	Measurement of Earthquake Ground Shaking in Palmerston North & Whanganui
4D	Assessment of Liquefaction-induced Ground Failure Susceptibility in Manawatu Whanganui Region
4E	Ground Shaking Hazard Assessment for Urban Centres of Manawatu Whanganui Region

Aerial photography – current and historical vertical aerial photography of the urban area is held by WDC. WDC also has rural aerial photography. Old stereo pairs are held by WDC Planning Services. The Regional Council holds district wide aerial photography.

3 ROADS 56
3.1 Scope 56
3.2 General 56
3.2.1 Objective 56
3.2.2 Related Standards and guidelines 56

3.2.2

Add the following new paragraph:

The developer shall comply with t WDC policy and procedures for excavation and reinstatement of works within road reserve:

- *National Code of Practice for Utility Operators' Access to Transport Corridors ex NZUAG:*
- *New Zealand Transport Agency Code of Practice for Temporary Traffic Management (CoPTTM)*

3.2.3 Road purpose 56
3.2.4 Place and link context. 57

3.2.4.2

Add the following new paragraph:

Subdividers /developers should obtain a specific determination from WDC, on a proposed/current road's status, before proceeding with detailed designs for roads.

Where local roads are cul de sac's, they shall not exceed 300 metres in length in urban areas without specific approval from WDC. Cul de sac's of this length shall be designed in terms of "Urban" roads in Table 3.2. This approval will only be given where the proposal has been subject to specific design attention, including an analysis of alternative layouts.

WDC's approved Long Term Road Hierarchy Network Plan is covered in the District Plan.

Add the following new clause:

WDC reserves the right to determine whether a road is deemed to be public or private. In most cases a road will be deemed public if it serves 7 or more dwelling units.

C3.2.4.2:

Add to the end of the paragraph in (c):

Motorways are not included in this Standard.

3.2.5 Network connectivity 60

3.2.5

Add the following new paragraph:

Where urban roads run generally parallel at a separation of 200 metres or less, and where the topography permits, they shall be connected by lateral roads at a spacing of no less than 600 metres.

3.2.6 Design and access statement 61
3.2.7 Road safety audit. 61

3.2.7:

Add the following new paragraph:
The completed roading design may be required to be subject to an independent safety audit by a qualified and approved traffic safety professional, at the developer's expense, with the audit report made available to WDC at the time that the design plans are submitted to WDC for approval.

3.3 Design 62
3.3.1 Design requirements 62
3.3.2 Road geometric design 64
3.3.3 Pavement structural design 78
3.3.4 Safety barrier provisions 80
3.3.5 Target operating speed 80

3.3.6 Parking, passing, and loading 81

3.3.6:

The requirements of Chapter 12 of the District Plan shall be met.

3.3.7 Intersection and alignment design 81

3.3.7

Add to the end of the 2nd paragraph:

All residential road intersections of collector/collector class and below shall have a minimum kerb radius at intersections of 9 m. Such intersections shall also have the lot corners splayed by a minimum of 6 m along both boundaries.

3.3.7

Add to the end of the last paragraph:

Two local roads intersecting a local road shall be offset at least 40 m centreline to centreline. Except for the above minimum specific requirements, intersections shall be detailed to satisfy Austroads Guide to Traffic Engineering Practice Part 5: Intersections at Grade.

3.3.7:

Add the following new clauses:

Design of roundabouts shall comply with the TNZ Manual of Traffic Signs and Markings Part 2 and Austroads Guide to Traffic Engineering Practice Part 6: Roundabouts as amended for New Zealand conditions.

3.3.8 No-exit roads 82

3.3.8

Add to the start of the 2nd paragraph, & add to the end of the paragraph:

Subject to design…….

Where the head of a cul-de-sac is also a low point it shall be provided with a double sump with individual leads from each sump.

3.3.9 Bus stops 82
3.3.10 Special road and footpath provisions near places of assembly 82
3.3.11 Footpaths, accessways, cycle paths and berms.....82

The requirements of Chapter 12 of the District Plan shall be met.

3.3.11:

Add the following new sentences:

The berm shall incorporate not less than 100 mm compacted thickness of loam topsoil placed over a base material capable of allowing root penetration and sustaining growth.

Stormwater disposal and lighting shall be provided to all pedestrian accessways.

3.3.11.2:

Add the following new paragraph:

Cycleways shall conform to AustRoads, NZ Cycle Network and Route Planning Guide and WDC's Shared Pathways Strategy.

3.3.11.3:

Add the following new sentence:

In residential areas the acceptable surfacing for footpaths shall be concrete. Coloured concrete and stamped concrete shall not be used.

Add to the end:

Typical details are shown in Subdivision Supplement to NZS4404:2010, WDC drawing RD-WDC-019 AA.

3.3.11.4:

Add the following new paragraphs at the end:

In rural areas, the combination of carriageways and shoulders shall be of adequate width to allow safe passage and stopping of bicycles, pedestrians and motorized traffic.

In no case shall berms provide less than 2 m width between the road side channel and road reserve boundary.

Rural berms shall be topsoiled to the same standards as urban berms unless they make use of already grassed undisturbed ground.

3.3.12 Traffic signs, marking, and road furniture……..84

3.3.12:

Add the following new clause:

All road markings and traffic signs shall comply with the TNZ Manual of Traffic Signs and Markings

Add to the 1st sentence last paragraph:

……..requirements and shall comply with NZS4121:2001 Design for Access and Mobility.

3.3.12:

Add the following new clause:

Road and Street Name Signs

Road and street name blades shall comply with Table 3.7. Posts shall be either:

100mm by 100mm rough-sawn H4 treated timber posts painted white or, 60mm diameter round fluted aluminium posts powder-coated white.

Table 3.7: Road and Street Name Signs

RTL Street Name Blade Specifications Manual PART 2 WELLINGTON

WANGANUI DISTRICT COUNCIL
STREET NAME BLADE - NO ARROW

EXTRUSION			
BLADE DEPTH:	200mm	TYPE:	Signfix - Powder Coated
BLADE LENGTHS:	1200mm max for double sided (2 x Single sided for lengths over 1200mm)		
ENDS:	Square	COLOUR:	White

LEGEND			
LETTER STYLE:	Highway Series D	SPACINGS: End of Blade to Street Name = 70mm Street Name to Rd St etc = 70mm (min) Rd St etc to end of blade = 70mm	
LETTER HEIGHT:	120mm		
ARROW:	Nil	LOGO:	Nil
COLOUR:	White	CONDENSING*:	80%
REFLECTIVITY:	HI	SPACING*:	-55%

BACKGROUND			
REFLECTIVITY:	HI	HEIGHT:	200mm
COLOUR:	Blue EC Film	BORDER:	Nil

RTL CODES	
CS33 305-316 Single Sided	CS33 405-416 Double Sided

NOTES
Spacing and condensing modified 20th July to match the Wellington made blades

13-Wanganui DC - 0709 - V1.doc Page 2 of 12 Created on 8/07/2009 3:15:00 p.m.

3.3.13 Trees and landscaping……84

3.3.13:

Add the following new sentence:

No building, fence or vegetation on any property shall be erected or permitted to grow in a manner which adversely affects visibility at any road intersection, including access to lots.

3.3.14 Road lighting……84

3.3.14:

Add the following new clause:

All new lighting should be LED lighting and agreed to by Council with regards to the appropriate lighting category as per AS/NZS 1158.3.1:2005 – Part 3.1.

Lighting poles options shall be as follows:

a) A 7.3m CSP suburban type with a 1m curved outreach, or equivalent alternative, and ground planted

b) A 10.0m CSP pole with a 3.0m curved outreach, or equivalent alternative, and ground planted

c) A 10.0m CSP pole with 3.0m curved outreach, or equivalent alternative, with a shear base.

d) Poles shall retain a stainless steel finish, ie. not painted any colour.

3.3.14.2 Urban Street Lighting

In addition to recognising the relative requirements of the roading hierarchy, the lighting design shall focus on potential hazard areas, such as intersections, pedestrian crossings, public transport waiting areas and other points of community gathering. Street lighting shall be provided on all public roads as well as pedestrian and cycle accessways. If developers wish to light private rights of way, then the costs of installing, operating and maintaining such lights shall be at the expense of the developer and/or the subsequent owners.

3.3.14.3 Rural Street Lighting

Developers in rural areas, where new development creates a hazard, shall provide street lighting. Such areas may include (but are not necessarily limited to) new road junctions, additional traffic loading on existing junctions, or areas of substandard geometry or width.

Each case is to be judged on its merits, but it is important that the lighting system provides an unambiguous message to rural drivers. To this end, single lanterns are not considered adequate warning of a rural intersection.

3.3.14.4 Other Utilities

For urban and peri -urban areas, underground cabling is the method of installation. Refer also to the WDC's District Plan requirements.

3.3.15 Bridges and culverts.....85

3.3.16 Private ways, private roads, and other private accesses.....85

3.3.16

Add to the start of the clause:

The requirements of Chapter 12 of the District Plan shall be met.

3.3.16:

Add to the end of the first paragraph:

For rear lots or multi-unit or comprehensive developments the provisions of 3.3.18 (Fencing) apply. For individual lots, whether urban, rural, or rural residential, the designer shall show that it is possible to form an access to each lot, that can be safely traversed by normal road going vehicles.

Add to the end of the first line of the first sentence, 2nd paragraph:

as part of the buildings *and on all commercial/industrial accessways*, this shall be noted**.....**

~~3.3.17 Crossings.....89~~

~~*The requirements of Chapter 12 of the District Plan shall be met.*~~

~~*3.3.17:*~~

~~*Add the following new clause:*~~

~~*Property Access*~~

~~*New vehicle crossings, and existing vehicle crossings serving a new activity, shall meet the design standards in NZ Transport Agency – Planning Policy Manual when all the following circumstances exist:*~~

~~*i) The road is a National route, (State Highway) primary arterial or secondary arterial (as defined on the Planning Maps); and*~~

~~*ii) The road has a speed limit of 100km/hr or more at the access location; and*~~

~~*iii) The activity concerned is a high traffic generating activity which, for the purpose of this standard, shall be defined as an activity which generates more than 30 car equivalent movements per day (24 hour period) averaged over a normal week, where:*~~

- ~~*1 car to and from the site = 2 car equivalent movements*~~
- ~~*1 truck to and from the site = 6 car equivalent movements*~~
- ~~*1 truck and trailer to and from the site = 10 car equivalent movements*~~
- ~~*1 single residential dwelling = 8 car equivalent movements*~~

~~*NZ Transport Agency – Planning Policy Manual – For Integrated Planning and Development of State Highways – Appendix 5B.3; Accessway geometric design should be used in the above circumstances.*~~

~~*Generally, Diagrams D & E will be used depending on Table App 5B/4*~~

~~*– Accessway types.*~~

~~*NZ Transport Agency standards for State Highway access design aims, to allow most new crossing places to be permitted activities, which requiring specific access design only in relation to high traffic generating activities seeking access to high speed arterial roads. The alternative of not having any controls over access for high traffic generating activities to high speed arterials is not appropriate for traffic safety and efficiency reasons. At the other extreme, the alternative of requiring a resource consent for all new accesses to state highways (regardless of nature and location of activity) is also not considered to be necessary or appropriate).*~~

~~*Note: That the WDC have rural vehicle crossings drawings which apply for vehicle movements less than 30 on minor rural roads.*~~

~~*Note: NZ Transport Agency approval is required for access onto State Highways under section 51 of the Government Roading Powers Act 1989.*~~

3.3.17.1:

Add the following new clause:

The width of the vehicle crossing shall be defined as the width at the property boundary.

Replace the 2nd to last sentence of the 3rd paragraph with:

All crossings shall be surfaced with concrete.

Replace last sentence, 3rd paragraph with:

Drawing series RD-WDC-001AA to RD-WDC-013AA shows acceptable details of vehicle crossings

Insert at end of the 5th paragraph:

……..,, NZS 4121 for disabled persons access and shall incorporate tactile tiles.

3.3.17.2:

Add the following new clause:

Rural

The width of the vehicle crossing shall be defined as the width at the property boundary.

Refer RD-WDC-010AA Maximum breakover angles for vehicular access to property

3.3.18 Fencing 89
3.3.19 Road run-off 90

C3.3.19.4

For more information on drainage in urban streets refer to Part 4 of this Standard

3.3.19.7.1:

Add the following to the end of (a):

Unless the specific capacity of a sump intake is known or derived from first principles, the design capacity of a single back entry sump with standard grating shall be limited to about 28 L/s;

Add the following to the end of (c):

At all low points double sumps shall be used as a minimum.

3.3.19.7.2:

Add the following to the end of 3.3.19.7.2:

Side-entry systems associated with traditional grated sumps significantly improve sump intake as they are less prone to blockage from debris. They are the preferred type of sumps for normal use. They should generally be detailed to provide a trap to limit the ability of solid or floatable debris entering the stormwater systems.

They shall not be used without debris control in commercial or industrial areas or in areas where long lengths of set down kerb may compromise the side entry.

3.3.19.7.5:

Add the following new sentence:

Secondary flow paths shall be shown on subdivision drawings.

3.4 Construction.....104
3.4.1 Introduction.....104

3.4.1:

Add the following new sentence:

Construction work in the public road reserve shall comply with the 'National Code of Practice for Utility Operators' Access to Transport Corridors'.

Add the following new paragraph:

Plant Pest Control

To minimize the potential for establishment, control of weeds that should not be tolerated on site because of their aggressiveness or persistence, identification and controls are required. WDC working with Horizons Regional Council will identify plant pests requiring specific control measures. Adequate site biosecurity is required for machinery and materials brought onto the site to ensure that weed propagules do not enter the site. This involves cleaning machinery prior to bringing it on to the site and ensuring that other materials brought onto the site, including gravels, are free of seeds and vegetation. Using locally sourced gravel and soils, or other materials where possible may reduce the potential for the introduction of new weeds to the area.

3.4.2 Materials for flexible pavements 104
3.4.3 Road surfacing..... 105

3.4.3:

Add the following new sentence:

Clause (d) and (e) subject to specific approval.

3.4.4 Road surfacing materials……106

3.4.4.1:

Replace first sentence with:

The first coat seal shall consist of a grade 4 and 6 two coat seal.

Two seal coats shall be applied by the developer. The second seal coat shall be applied between 12 and 18 months after the first coat. The type of each seal coat shall be agreed with Council's Infrastructure Group prior to the work commencing.

3.4.4.4:

Replace middle of 1st sentence (was):

….such as *open graded porous asphalt* or macadam wearing mix.

3.4.5 Subgrade checking……...108

3.4.5:

Install 1st paragraph:

The subgrade shall be inspected by the designer to assess the suitability of the exposed subgrade for the proposed design. Where necessary the design shall be modified and soft spots removed before sub-base placement is commenced.

3.4.6 Spreading and compaction of metal course aggregates……..……108
3.4.7 Sub-base……..…108
3.4.8 Basecourse…… .108
3.4.9 Maintenance of basecourse……...109
3.4.10 Basecourse preparation for surfacing……109
3.4.11 Deflection testing prior to surfacing……109
3.4.12 Surfacing specification……110
3.4.13 Bitumen application rate……..110

3.4.14 Footpaths and cycle paths……..110

3.4.14.1:

Penultimate paragraph. Delete second sentence.

3.4.14.3:

Add the following new sentence:

Block paving shall not be used.

3.4.14.4:

Add the following new sentence:

Coloured concrete and stamped concrete shall not be used.

3.4.15 Kerb and channel……111

3.4.15:

Replace the first paragraph with the following:

Where kerbs and channels are to be provided on carriageways they should comply with RD-WDC-021AA.

Footpaths may need strengthening if mountable kerb is used. See Drawing RD-WDC-021

Add the following new sentence:

Coloured concrete and stamped concrete shall not be used.

3.4.16 Berms and landscaping 111
3.4.17 Surface finish and tolerances on kerbs, paths, and accessways.....112

3.4.17:

Add the following new sentence:

Coloured concrete and stamped concrete shall not be used.

3.4.17.2:

Add the following sentence as sentence 1, paragraph 1:

Concrete paths and accessways shall be laid with construction joints at not more than 3 m centres.

3.4.17.2:

Add the following % to sentence 2, paragraph 3:

Crossfalls of *3%* shall be provided.

3.4.18 Progress inspections ……..112
3.4.19 Installation of traffic services, road furniture, benchmarks..... 112
3.4.20 As-built and completion documentation 112

3.4.20:

Add the following new paragraphs:

On completion of the physical works*, and before acceptance of the works by WDC,* the developer shall submit *a full set of As-Built drawings of the works to Council in accordance with 1.8.10.*

The As-Built drawings shall include the full detail required to enable WDC to update its inventory, locate and maintain the works, along with the manuals necessary to operate plant, signals or other devices.

As-Built drawings may take the form of construction drawings modified to account for amendments or refinements in the field, but shall be clearly labelled as "As-Built" and certified as an accurate post-construction record.

See WDC Land Development and Subdivision Engineering Document 2012 Appendix J: Schedule 1D As-Built Plans and Documents for WDC requirements.