


## Section 70 NES:FW – Compliance assessment table.

No	Standard Provision	Assessment
70(2)(a)	The culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert; and	Complies;  Proposed Culvert 1 & 4 (with fish passage) will be replaced in the same location as the existing culverts.
70(2)(b)	the culvert must be laid parallel to the slope of the bed of the river or connected area; and	Complies;  Proposed Culvert 1 & 4 is proposed to be laid parallel to the slope of the stream bed.
70(2)(c)	the mean cross-sectional water velocity in the culvert must be no greater than that in all immediately adjoining river reaches; and	Complies;  The culvert has been sized to allow a Stream simulation design. Which simulates the water velocity to be no greater than the adjoining stream.  Culvert: Stream Simulation 
70(2)(d)	the culvert's width where it intersects with the bed of the river or connected area (s) and the width of the bed at that location (w), both measured in metres, must compare as follows: (i) where $w \leq 3$ , $s \geq 1.3 \times w$ ; (ii) where $w > 3$ , $s \geq (1.2 \times w) + 0.6$ ; and	Complies;  Culvert span will be: – 1.3 x bankfull width for streams with a bankfull width $\leq 3$ m.  Calculation summary.  600 Refer to RC 500 & 501.
70(2)(e)	the culvert must be open-bottomed or its invert must be placed so that at least 25% of the culvert's diameter is below the level of the bed; and	Complies;  Both culverts have allowed for 33% below the level of the stream bed  Culvert 1 is design for 440mm embedment depth.  Culvert 4 is designed for 300mm embedment depth.  Refer to RC 500 & 501.

70(2)(f)	the bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which the water flows for 80% of the time; and	Complies.  The embedment depth will be over the entire length of the culvert as per, Section 4 - Design requirements for new instream structures
70(2)(g)	the culvert provides for continuity of geomorphic processes (such as the movement of sediment and debris).	Complies;  With the simulation of the stream with the culvert the geomorphic process will have continuity.



**Graham Tuhi**

Team Leader Construction/Design | **Terra Consultants**

**A:** 79 Grafton Road, Grafton, Auckland 1010

**P:** 09 357 3557 **M:** 021 345 526

**E:** [Graham.Tuhi@terragroup.co.nz](mailto:Graham.Tuhi@terragroup.co.nz) **W:** [www.terragroup.co.nz](http://www.terragroup.co.nz)

Land Development Division