

*New Horizon TR 80 Permanent Culverts*

Rules 4.03.1 and 4.03.2 Culverts

The following questions relate to permanent culverts C134 and C136 in the New Horizon Permit from DRMS review of the TR80 submittal:

*September 2016*

**Table 2.05.3.(3)-3 Permit Area Culvert Designs, C130 – C181 pg. 33 and associated SedCad Modeling**

For C134, table 2.05.3 calls out 2 each 18 in pipes. However SedCad modeling submitted for this culvert outputs a result of one 18 inch pipe. Also, the submitted modeling appears to have utilized the design flow of 10.6 rather than the peak flow of 21.3 for culvert sizing.

1. *Given that the design event is a 100 yr-24hr event as required by County road designs please either, explain your rationale for using the lower design event, or submit modeling utilizing the peak flow value for this culvert.*

For C136, table 2.05.3 the submitted modeling appears to have utilized the design flow of 4.9 rather than the peak flow of 14.7 for culvert sizing.

2. *Given that the design event is a 100 yr-24hr event as required by County road designs please either, explain your rationale for using the lower design event, or submit modeling utilizing the peak flow value for this culvert.*

**Table 2.05.3.(3)-3 Permit Area Culvert Designs, C130-C181 & Associated Revised Pages 35-38**

*Average Land Slope is characterized for each of the culverts C134-137.*

1. *Please clarify, for each of the above mentioned culverts, what slope that culvert lies at and include that information in the culvert descriptions.*

Response: SEDCAD culvert designs have been included in Attachment 2.05.3(3)-1 for culverts C134-C137, which include the slope of the culvert.

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2. *Please also include tailwater and maximum headwater (ft.) for Culverts 134-137.*

Response: Tailwater and headwater information is included on the SEDCAD culvert designs, which have been included in Attachment 2.05.3(3)-1 for culverts C134-C137.

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3. *Please explain how maximum headwater elevation is arrived at.*

Response: The maximum headwater value for culverts C134-137 is the minimum depth for which the SEDCAD culvert design calculates a minimum pipe diameter of 18 inches.

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*Table 2.05.3(3)-3 describes culverts C130 through C137. All culverts are described as CMP (corrugated metal pipe) with a specified diameter. DRMS finds that culverts 134-137 are described individually on pages 35 through 38 as HDPE (high density polyethylene pipes). Also, Bureau of Public Roads attachments (pgs. 23-30) specify CMP (corrugated metal pipe) while revised pages submitted call out HDPE pipe.*

*4. Please clarify culvert materials for said culverts and update table 2.05.3(3)-3 as needed.*

Response: The culvert list in the title block on Map 2.05.3(3)-1 has been revised to include culvert type (CMP, HDPE, etc.) and designation (permanent or temporary). Also, headings in Table 2.05.3(3)-2 and Table 2.05.3(3)-3 have been revised to remove references to CMP.

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