

1200702 EXCAVATION AND EMBANKMENT  
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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FDOT, D5  
Construction

Comments: (6-22-15)

1200702 Excavation and Embankment says, "A minimum of 50 feet is required between RCA and metal pipe culverts." Whereas, 2000100 Rock Base, 2850200 Optional Base Course, and 2900200 Granular Subbase says, 5 feet.

**Response: The proposed separation requirement between RCA and the metal culverts has been removed from the spec. Change made.**

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Comments: (7-1-15)

FDOT's proposed changes to Sections 120, 200 and 285 would place restrictions on the use of drainage pipes comprised of either aluminum, aluminized steel or galvanized steel within certain stipulated distances from base or embankment containing recycled concrete aggregate (RCA). The proximity restrictions are driven by concern that high pH leachate emanating from RCA might possibly result in alkaline attack and subsequent premature corrosion upon aluminum or galvanized pipe. CONCERNS: Rodney G. Powers and Associates, LLC on behalf of CONTECH Engineered Solutions, LLC submits that both the existing specifications referenced above and the proposed specification revisions should be rescinded pending further engineering and environmental review based upon the following: 1. There is no engineering data to support a hypothesis that RCA leachate will take place to the extent that it causes alkaline attack on aluminum or galvanized pipes. This is especially relevant to RCA base due to the fact that pavement resides above. Moreover, the proximity restrictions (base 5 feet; embankment 50 feet) are arbitrary and therefore without scientific or engineering basis. 2. If high pH leachate is a valid concern, the larger concern may be environmental, i.e. high pH run-off, heavy metals and other pollutants<sup>1, 2, 3</sup>. This may result in violations of environmental regulations on storm-water quality and subsequent costly mitigation. 3. No studies have been conducted to determine RCA usage parameters that include considerations of Florida's delicate, low elevation, high water-table conditions combined with its highly porous natural ground. In the absence of scientifically based guidelines, the resulting potential for serious environmental damage cannot be justified<sup>1, 2, 3, 4</sup>. Based on the above, it is suggested that FDOT place a moratorium on the use of RCA in base or embankment applications in low lying or wet areas and in the vicinity of storm-water drainage systems of all types pending development of research-supported guidelines for usage parameters<sup>1,2,3</sup>. References:

1<https://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/In%20House%20Research/RM3.pdf> (See conclusions) 2[https://www.michigan.gov/documents/mdot/MDOT\\_IM12-05\\_384272\\_7.pdf](https://www.michigan.gov/documents/mdot/MDOT_IM12-05_384272_7.pdf) 3AASHTO M319-02, "Standard Specification for Reclaimed Concrete Aggregate for Unbound Soil-Aggregate Base Course," Notes 1 thru 6

**Response: The proposed restriction on the use of metal drainage pipes within a certain distance of RCA has been removed. Instead FDOT SMO will coordinate some additional testing to determine the effects of RCA's placement near metal pipes. In regards to the concern of RCA in**

relation to the environment, the State Materials Office has run the product through the proper channels at FDPE and FDEP has the determined RCA to be a clean product.

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Chad O. Rucks (via Deborah Ihsan)  
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Comments: (7-1-15)

Section 120-7.2: I believe the last sentence in the first paragraph should state that the minimum separation between the RCA base and metal pipe should be 5-ft, not 50-ft.

Response: The proposed separation requirement between RCA and the metal culverts has been removed from the spec.

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D3 Drainage (via Barbara Strickland)  
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Comments: (7-13-15)

Consider excluding the use of reclaimed asphalt pavement (RAP) and recycled concrete aggregate (RCA) in stormwater management facility fill slopes. There is concern that a flow path could be created through a berm holding water.

Response: A restriction has been added to prevent RCA and RAP use in SMWF fill slopes.  
Change made.

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