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Applications of GPR in Structural Detailing of the Medway Tunnel

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This investigation focuses on applications of GPR on structural detailing of a major tunnel under the River Medway in north Kent, UK. Construction of the tunnel was completed in 1996 and it carries a substantial volume of traffic between two major areas of Medway. The construction of the tunnel is an "immersed tube" tunnel type that connects a number of segments at immersion joint points. This investigation reports on utilisation of two separate GPR antenna systems at different frequencies in establishing structural details of the tunnel roof at immersion joints. The processed data compiled as a result of this investigation provided much needed information to tunnel engineers for forthcoming maintenance planning purposes. It also provided ample information in confirming rather doubted construction plans originally produced. The reported results are conclusive in terms of construction materials used (information was not originally available and needed confirmation) as well as establishing the required information on the formation of the tunnel roof joints. The presentation is complemented by providing detailed information of a complex process of adopting the GPR systems used in this endeavour.