

Introduction to concrete roads

Cecil Chin



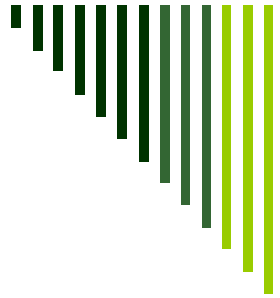


Concrete roads in Trinidad

- Orange Grove Housing estate
 - Valsayn Park North
 - Valsayn Park South
 - Entrance to West Sea Lots
 - Rural Access Roads Paramin
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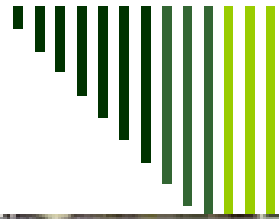
Orange Grove Housing





Orange Grove

- Formerly known as Bladon Lands
 - Originally built in 1950's
 - Roads have been over laid with asphalt mix
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Valsayn North





Valsayn South

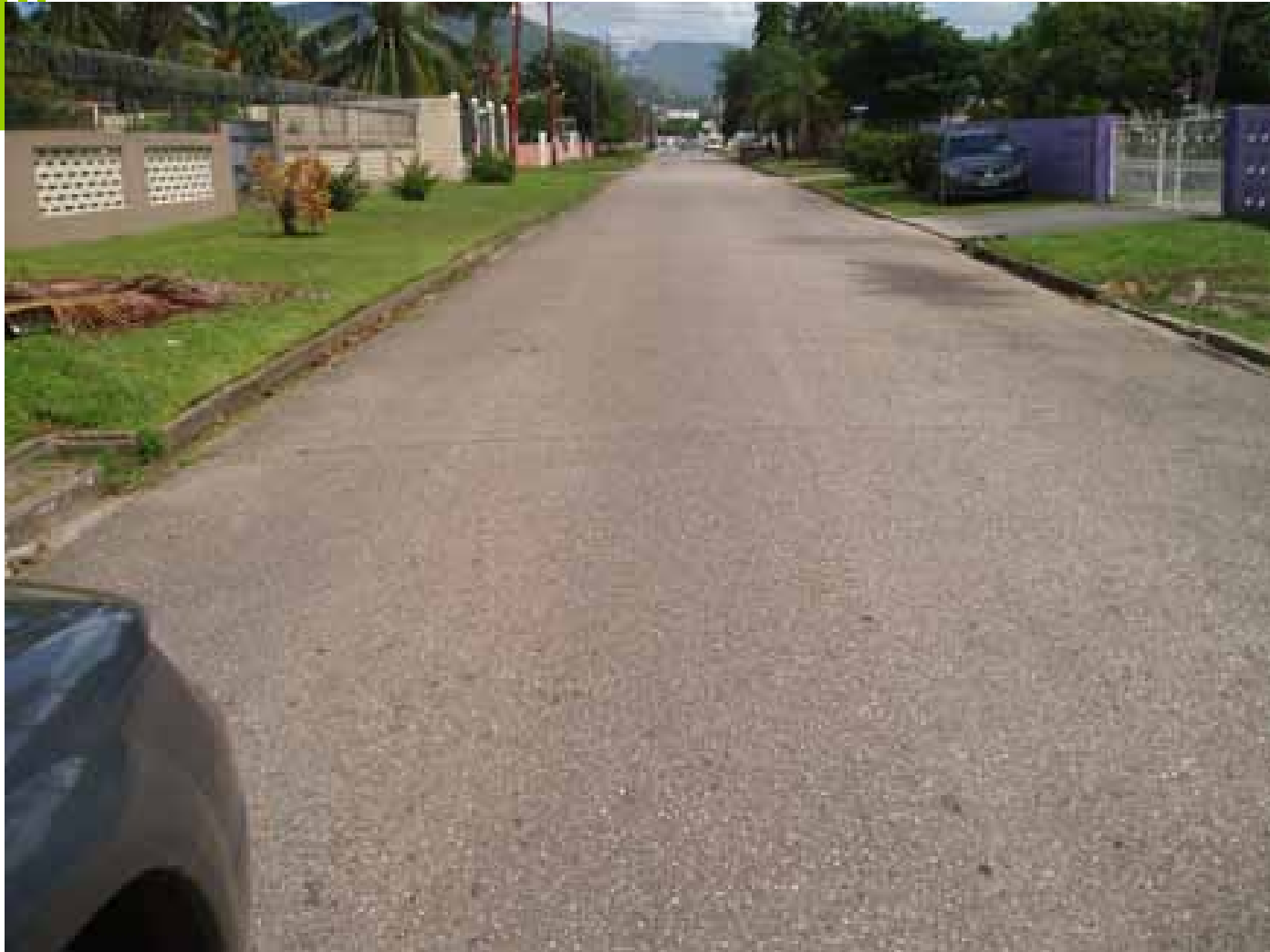
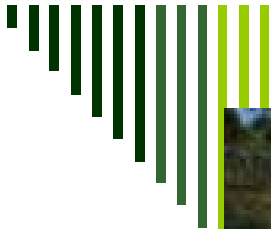




Valsayn North and South

- Concrete roads built ? In 1950's
 - Has been over laid with asphalt mix
 - Many reflective cracks
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Design of concrete roads

- Methods of design can be found in ACI 360R-06
 - Principles of pavement design E J Yoder
 - Pavement Analysis and design Yang H. Huang
 - AASHTO Guide for Design of Pavement structures
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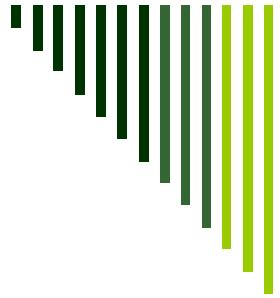
Concrete Roads

- Considered as Rigid Pavements as opposed to Asphalt surfaced roads which are considered as flexible pavements
 - Early concrete pavements were constructed directly on the sub-grade without a base course
 - Base course was not required for strength as concrete was much stronger and a slight increase in thickness could compensate for weaker subgrades however as weight and volume of traffic increased pumping began to take place and base course was popular to reduce pumping.
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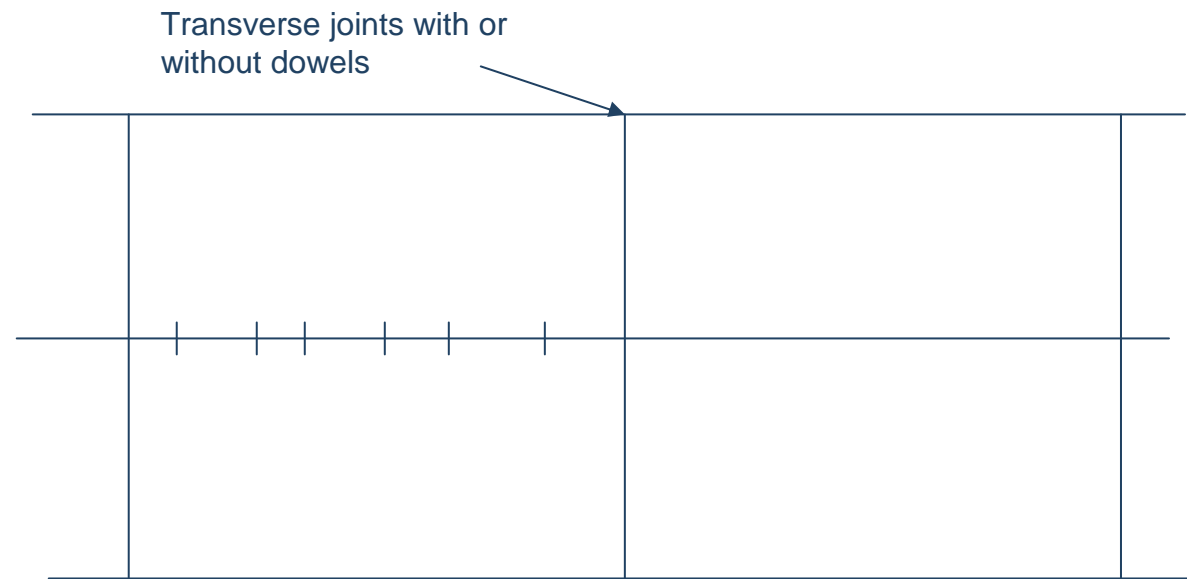
Types of concrete pavement

- Concrete pavements can be classified into four types
 - Jointed plain concrete pavements (JPCP)
 - Jointed reinforced concrete pavements (JRCP)
 - Continuous reinforced concrete pavements (CRCP)
 - Pre-stressed concrete pavements (PCP)
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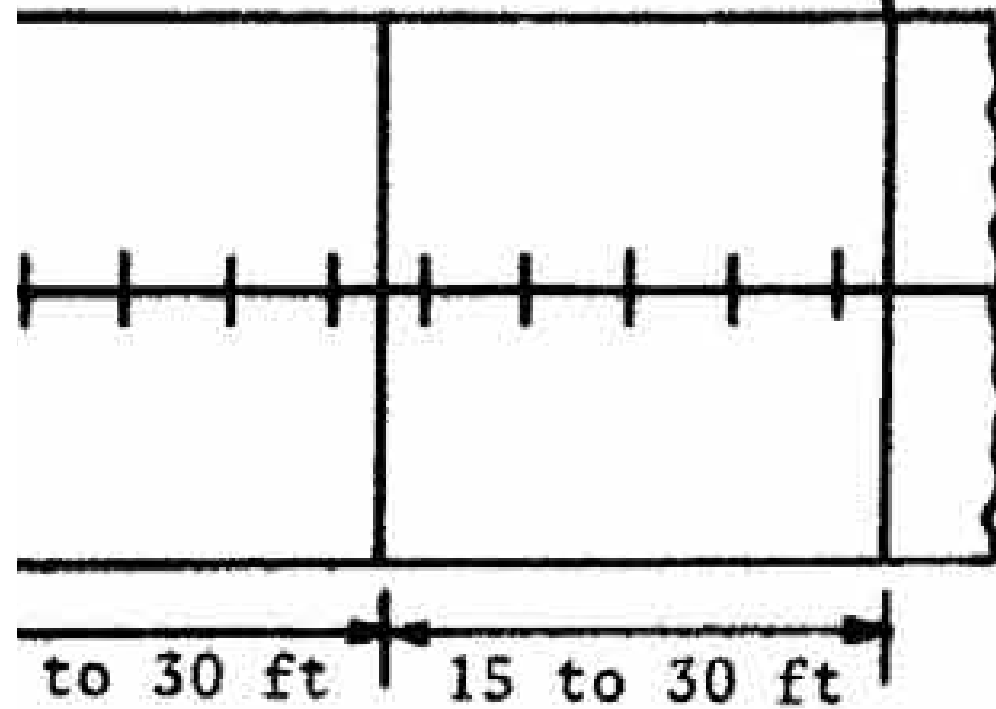


Jointed plain concrete pavement (JPCP)

- Joints 15 to 30 feet

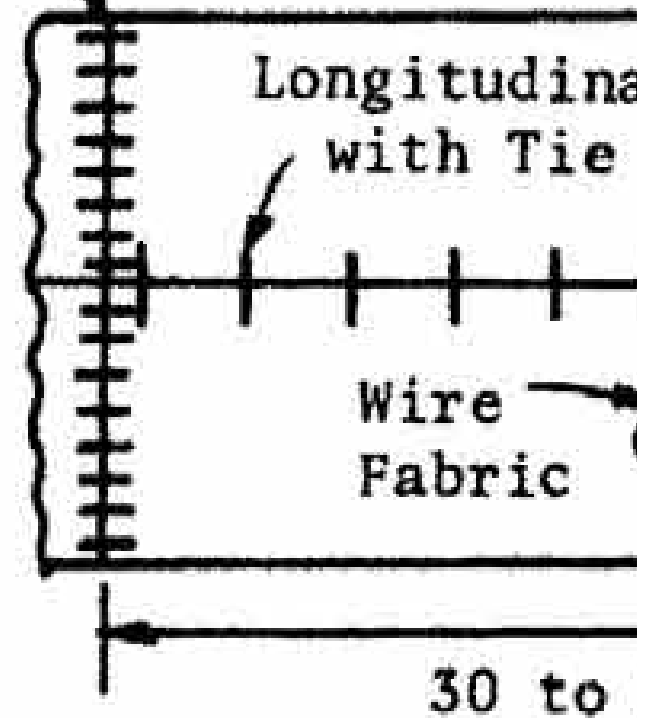


Transverse Joints with or without Dowels



(a) JPCP

Transverse Joints



(b) JRC







































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33:32'08" N 81:30:57" W

elev: 1105 ft

Mar 15, 2007

Eye alt: 3744 ft



Cameron-Paramin Roads

- Constructed 1995
 - Length of road + 5km
 - Rural Access Roads and Bridges
Rehabilitation Programme Phase II
 - Contract 9-A
 - Belle Vue –Morne Roche section 1.5 km
 - Cameron –Mazellie Section 5.175 km
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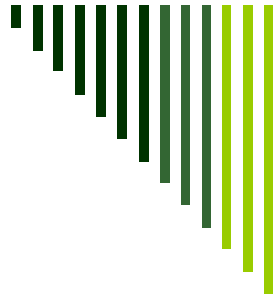
Construction details

- Existing road scarified and re-compacted
 - Surfaced with 100 mm reinforced concrete surface
 - Reinforcement 150 x150 x 6G mesh
 - Road width 3.5 m
 - Steepest gradient 1:3
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Construction Issues

- Weather Too dry or Too Wet
 - Dry weather causes accelerated shrinkage cracking
 - Wet weather heavy rain damages surface
 - Narrow and steep roads impossible for concrete mixer trucks access
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Questions and discussions

