

2014 SWIFT CONFERENCE – September 16, 2016

Do's and Don'ts of Airfield Concrete Pavements

Calgary International Airport Runway Development Project



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AGENDA

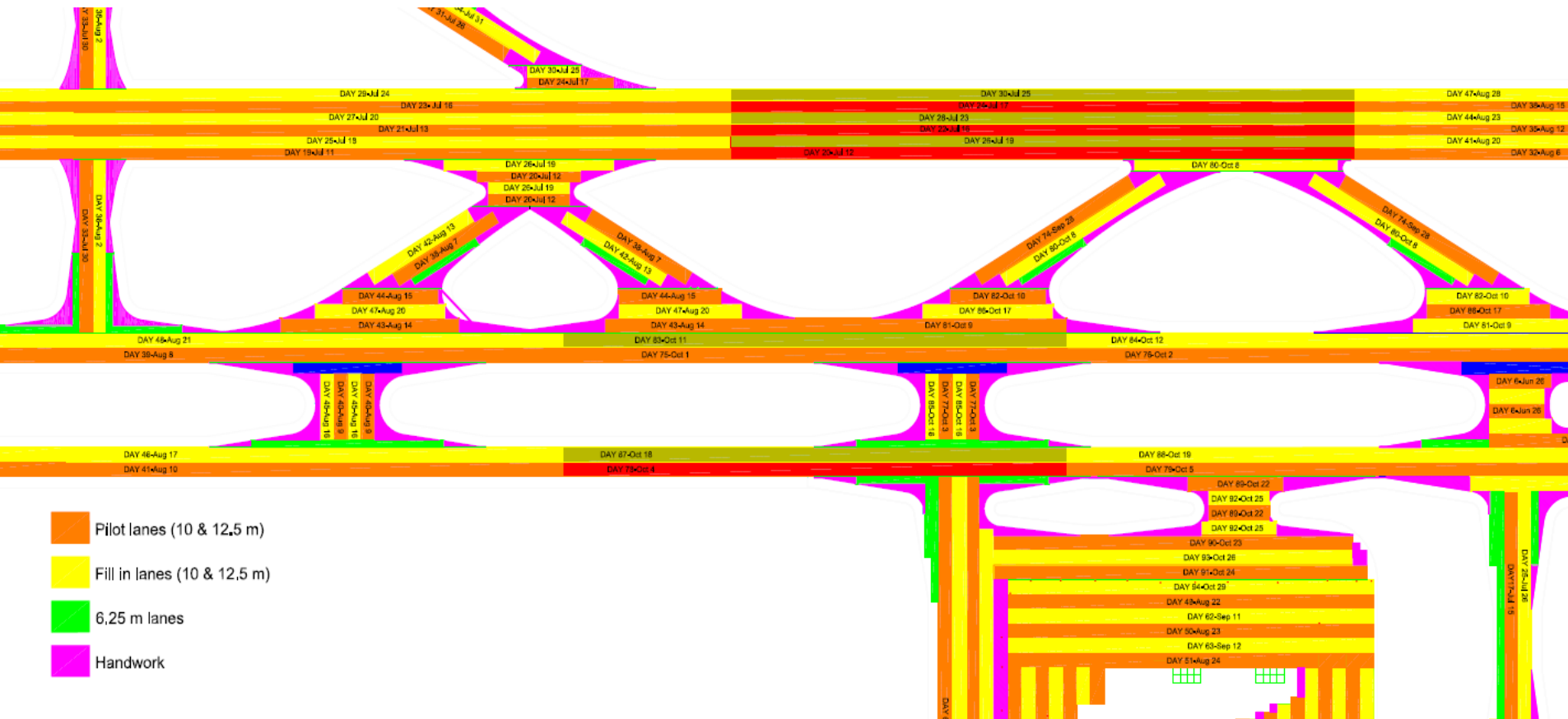
- Project Planning
- Adapt to Challenges
- Lessons Learned



Project Planning

- **Early to Market – get the ‘Right’ Concrete Contractor**
- **Establish Rigorous Quality Control Procedure – at YYC, 1 Survey Firm, 1 Testing Firm**
- **Batch Plant Location on Site**
- **Haul Road Logistics**
 - **To Batch Plant**
 - **From Batch Plant to Site**

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Adapt to Challenges

- **Changed Conditions**
- **Weather Impacts**
- **Revisit / Revise / Refocus to Meet Schedule**

Prime Contractor Boundaries

Airport Trail Tunnel



Prime Contractor Boundaries

IFP

An aerial photograph of the Calgary International Airport construction site. The main terminal building is under construction, with a large, curved structure. To the left, there are several large, rectangular parking lots, some of which are partially paved. In the foreground, there is a large area of dirt and gravel, with some construction equipment and materials visible. The background shows the surrounding city of Calgary and the airport's runways and taxiways. The text "IFP" is overlaid in the center of the image.

June 14, 2012

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New Terminal Apron.. Next?



Concrete Placement

- **Original Schedule – 3 years available to place 400,000 cubic metres**
- **Actual Concrete Production Totals**
 - 2011 – 0
 - 2012 – 80,000 cubic metres
 - 2013 – 300,000 cubic metres
 - 2014 – 20,000 cubic metres

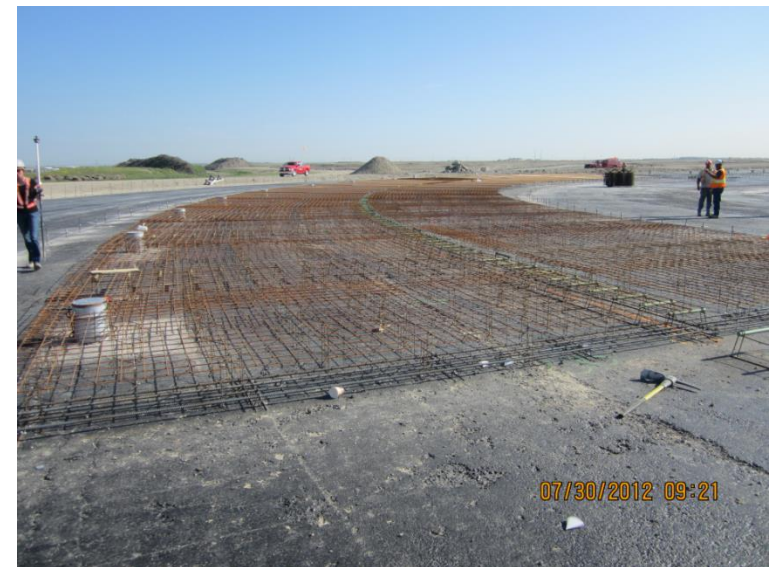
Interventions in

2012 – revised sequencing away from apron

2013 - increased manpower and equipment on site during summer
warm temperatures – 24 hour operation

Stayed away from shoulder season (cold weather) paving

Lessons Learned



PCC Elevations/Grade Control

- Stringline/Paving Equipment
- Survey Equipment/Crew
- Profilograph/Straightedge Tolerances
- Variation between construction seasons

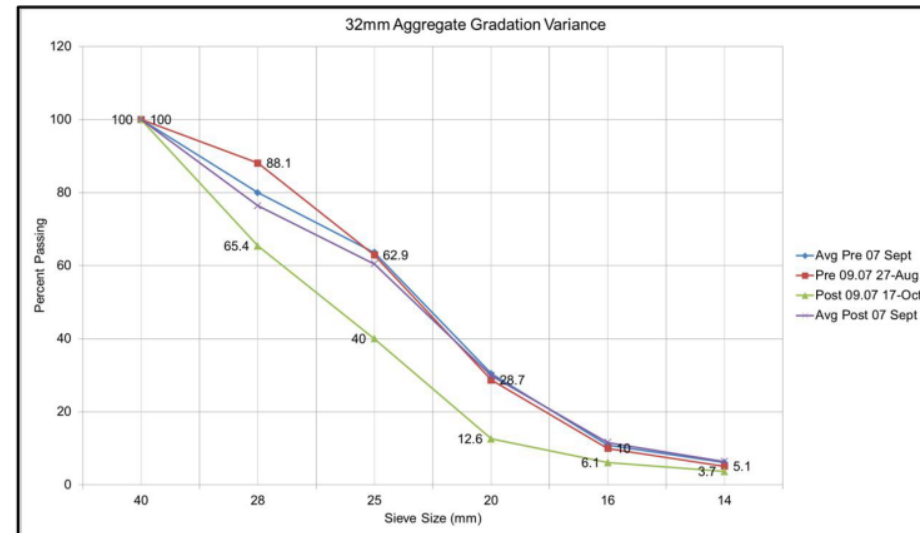


PCC Paving Aggregates

- Uniform aggregate properties, gradation
- Max 32 mm aggregate size
- Mix workability/optimization
- Flyash added

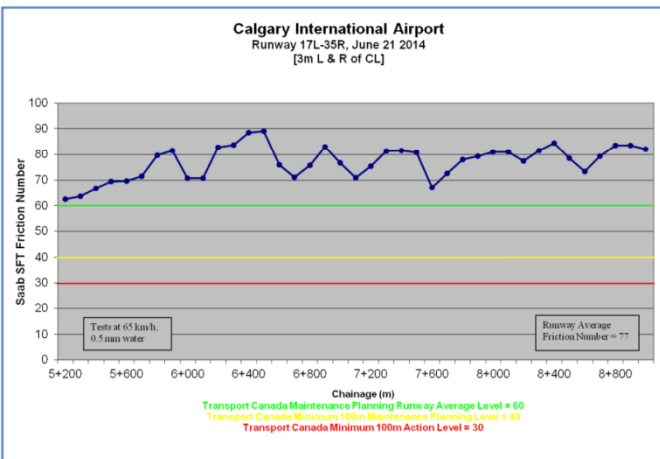


Dufferin Construction – Combined Gradation Variance in Stockpiles



PCC Surface Texture

- No runway grooving
- Minimum 1 mm surface texture depth



PCC Consolidation



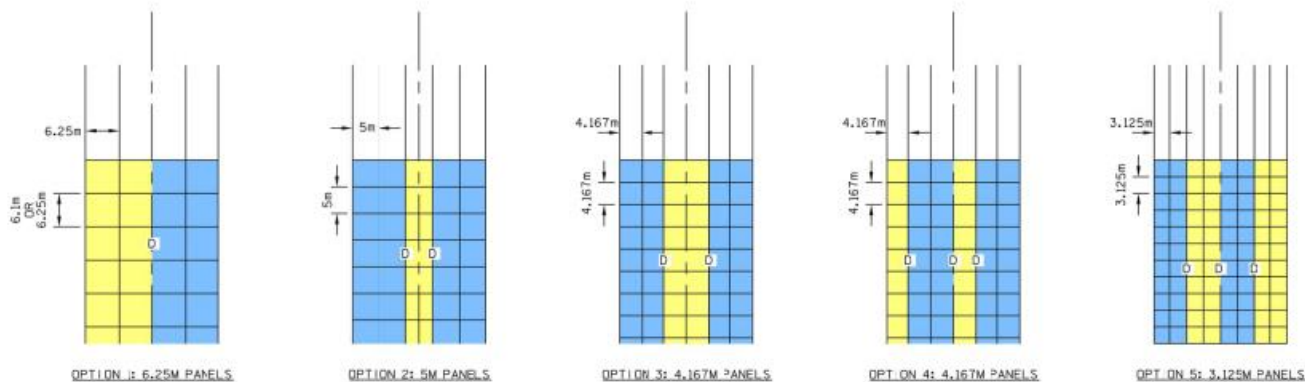
Traffic Control During Paving

- **Protection**

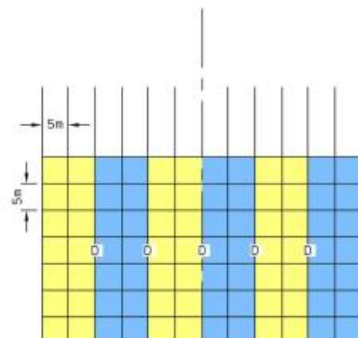


PCC Joint Layout Design

- Runway paving



TAXIWAY JOINT LAYOUT OPTIONS



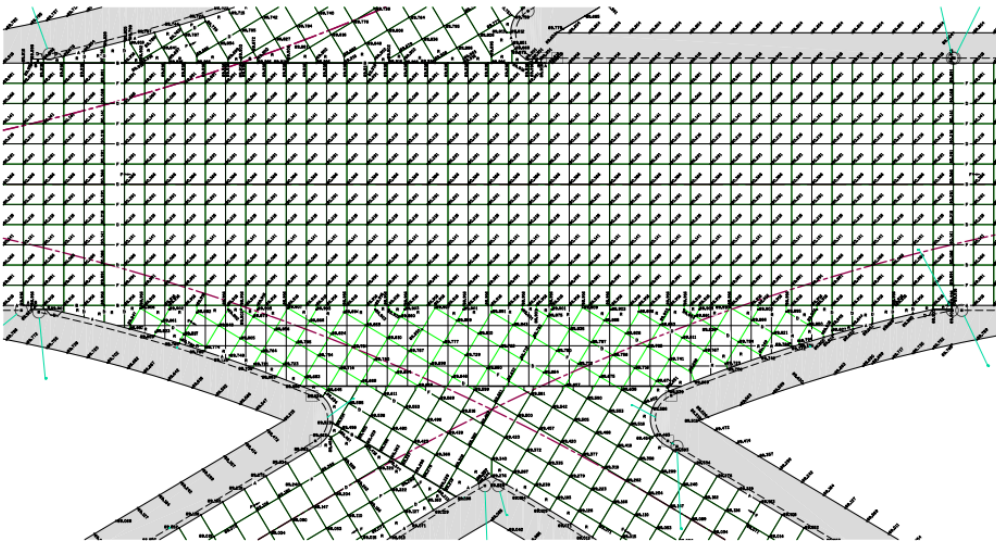
LEGEND:

- FILL-IN PAVING LANE
- PILOT PAVING LANE
- CENTERLINE
- DOWELED CONSTRUCTION JOINT

	Total Linear Meters of Doweled Joints	Total Linear Meters of Lane Joints
OPTION 1: 6.25M PANELS	32,805	355,670
OPTION 2: 5M PANELS	25,633	215,112
OPTION 3: 4.167M PANELS	25,633	349,460
OPTION 4: 4.167M PANELS	38,415	369,460
OPTION 5: 3.125M PANELS	38,415	223,440

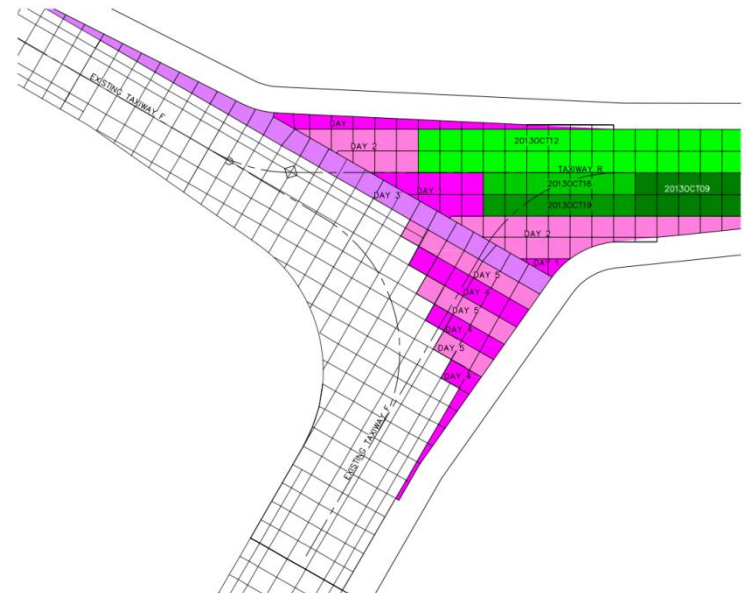
PCC Joint Layout Design

- Runway/Taxiway intersections

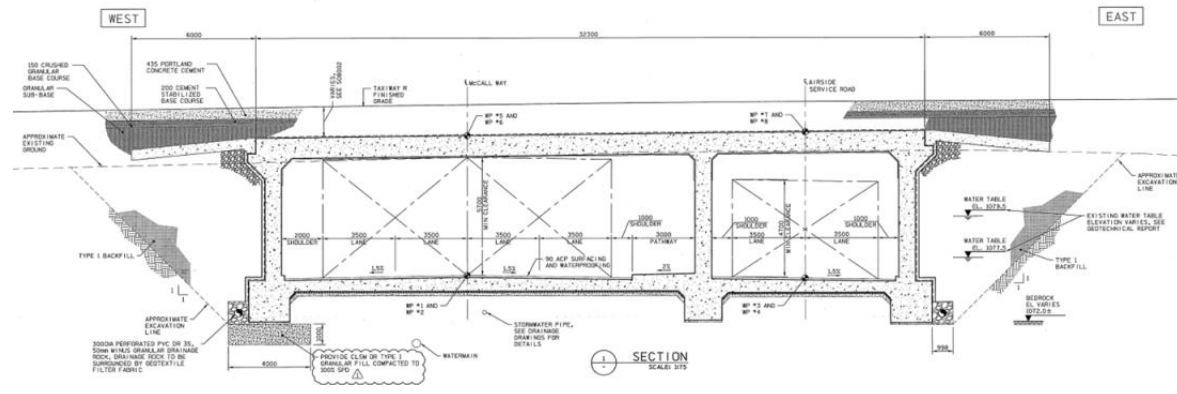


PCC Joint Layout Design

- Tie-ins to existing taxiways

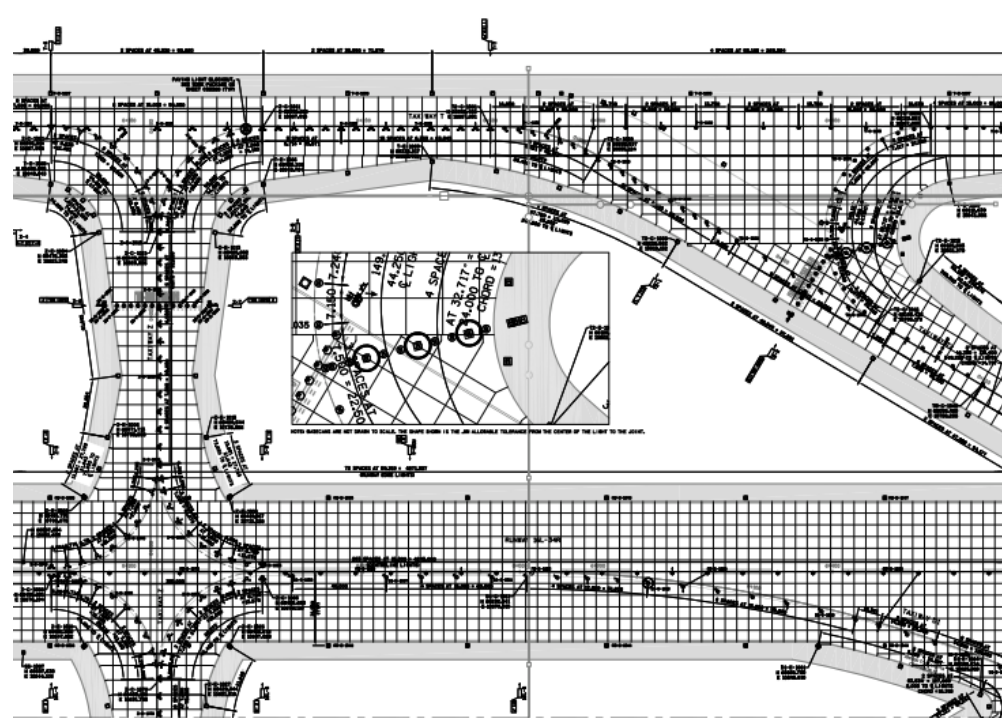
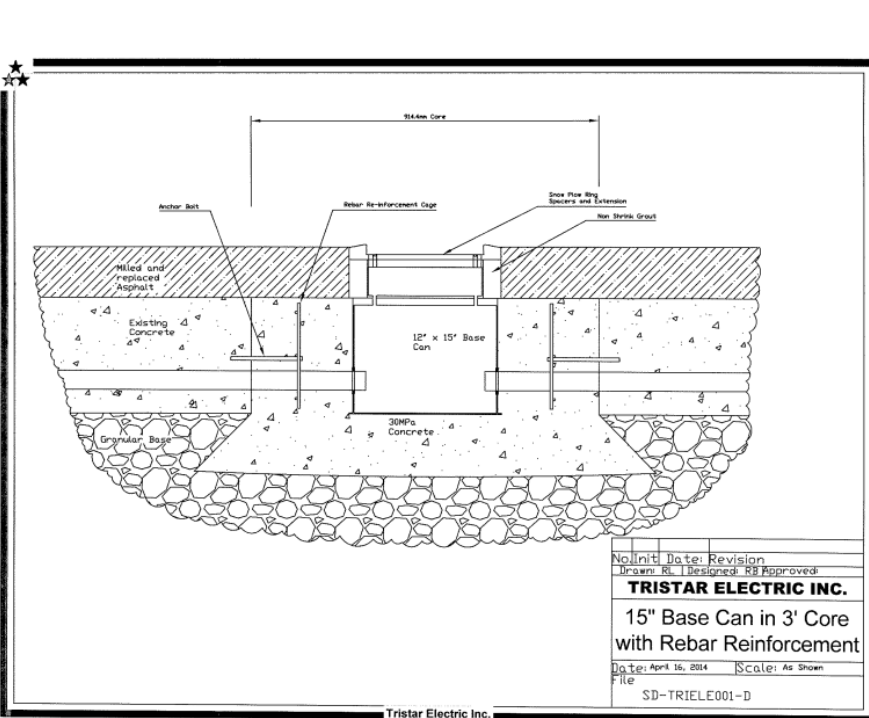


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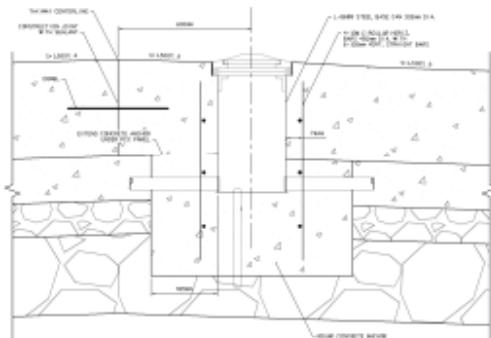
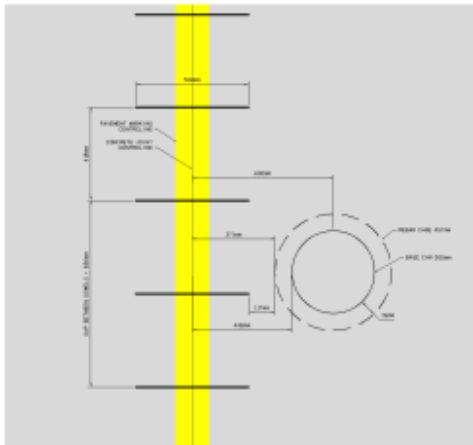
PCC Inset Light Details

- Two piece base cans where required
- Retrofit detail



PCC Inset Light Details

- Light base spacing, offset from PCC Joints



TAXIWAY CENTRELINE LIGHT WITH 60cm OFFSET FROM CENTRELINE
SCALE: 1:10



PCC Inset Light Details

- **Minimize Blockouts**



PCC Repairs



Questions ???

