

*Bridges and
Highways*

Rail infrastructure

Water Supply

Basements

Car Parks

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Project: **Dawoodi Bridge, Al Ain Joint Replacement**
Location: **Sarooj District, Al Ain, UAE**
Civils Contractor: **Prime Builders Contracting Co LLC**
Client: **Al Ain Municipality Department of Infrastructure**

Quiet Joint Solves Clients Headache in Al Ain *Pitchmastic PmB delivers simple, quick, durable and quieter solution*

As part of the ongoing maintenance works within the Al Ain Municipality, Dawoodi Bridge a 55 metre long span concrete arch bridge is being rejuvenated by the removal of the expansion joints, roadway repairs and a new footway/median reconstruction.

Al Ain also known as the *Garden City* due to its greenery is the second largest city in the Abu Dhabi Emirate and the fourth largest city in the United Arab Emirates. With a population of 374,000 (2009), it is located approximately 160 km east of the capital Abu Dhabi and about 120 km south of Dubai.

The existing joints which were in place on the bridge had failed due to various inadequacies and were causing deformation to the adjacent asphalt. In view of this the engineer asked for an alternative expansion joint solution. Pitchmastic's extensive track record in the region meant they were approached and asked to put forward their recommendations for the most appropriate joint system for the project.

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The key criteria for the joint replacement solution were:

- Durability at elevated temperatures
- Low noise as sensitive residential area
- Quick to install and return to service time
- Ability to span joint widths of up to 1.0m without needing to replace the existing asphalt

Pitchmastic PmB proposed their Advanced (ANJ) expansion joint system. A surface mounted nosing joint, comprising of a pre-formed compression seal, bonded between high strength nosing's which are widely used in the UK and in other parts of the world on highway structures. This type of joint is ideal for movement up to $\pm 20\text{mm}$, is more durable than the current system and would not suffer the same symptoms as the problematic joint.

After careful consideration and in-depth meetings with various members of the municipality and main contractor, Pitchmastic's Advanced Nosing Joint was chosen ahead of the other options as it is seen as the ideal solution because of key company and product (USP's) benefits:

- Proven track record in Middle East Regions
- Local experience and reputation
- International approvals and accreditations
- Warranty for installed materials
- Short lead in time as project required early start
- Limited return to service time as major artery in Al Ain traffic disruption had to be kept to a minimum
- Client was not happy with alternative materials such as modular elastomeric due to installation times and noise issues
- Durability in heavily trafficked region with deck temperatures up to 70°C in summer months

The Works

Constraints of the contract meant completion was key as the road had to be open in time for the EID holiday religious festival.

The scheme comprised of placement of crossover to enable traffic to be switched onto separate carriageway to allow works to proceed on closed lanes. Once these changes were implemented removal of the existing mechanical comb type joint and bedding compounds were undertaken. The exposed joint was then prepared by scabbling.



Failed joint

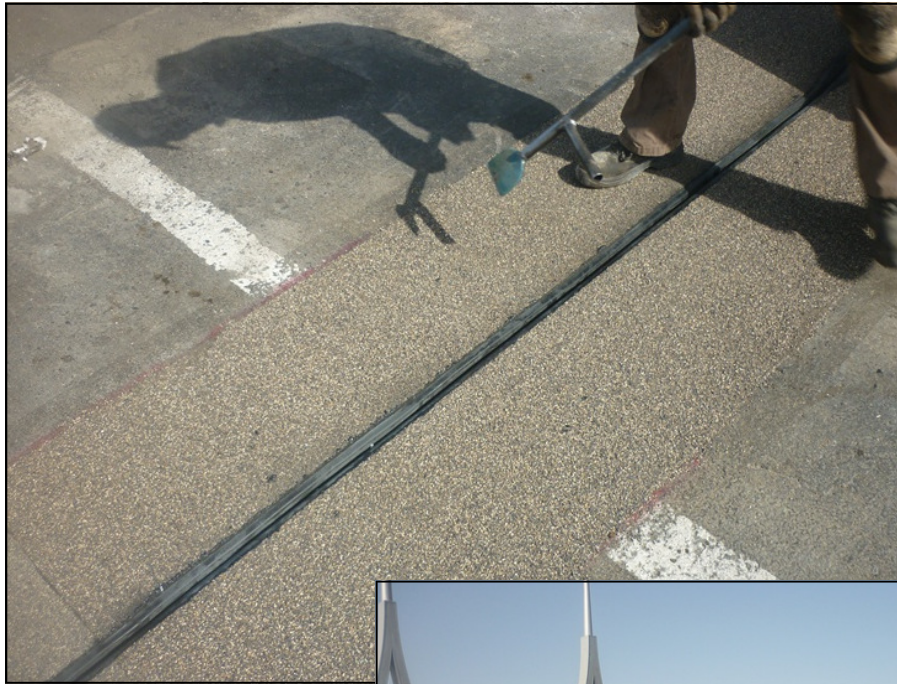


Completed Joint

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Once the deck was cleaned and prepared saw cutting of the existing asphalt was undertaken to allow neat termination of the new ANJ joint, ready for the placement of the polystyrene joint filler and former. The ANJ resin mortar was mixed on site and then placed into the prepared trench in the carriageway and trowelled flush with the surfacing. To reduce hydraulic pressure, drainage was placed at the base of the joint and through the air gap. In order to increase slid resistance, an anti skid finish was then be applied to exposed surface of the joint. The final procedure was the installation of the elastomeric insert using compressed tongs.

The scheme was completed on time, Opened to Traffic 24 Hours ahead of Schedule, on budget and to the complete satisfaction of the client.

**For More Information Please Contact:**

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