Carney Mill Road Bridge

2nd International Conference on Timber Bridges

Las Vegas, Nevada

2013 Sep 30 – Oct 02

Murray M. Johnson, P.Eng., PE

Buckland & Taylor Ltd.

BUCKLAND & TAYLOR | COWI

Existing Bridge

BUCKLAND & TAYLOR | COWI

Existing Bridge:
15 t Load Limit, Narrow for Pedestrians

BUCKLAND & TAYLOR | COWI

Existing Bridge:
Stream Banks OK, Abutments Poor!

BUCKLAND & TAYLOR | COWI

Existing Abutment

BUCKLAND & TAYLOR | COWI

Existing Bridge

- **25 m Span "Bailey" Bridge**
- **"Temporary" several decades earlier**
- **Load limited to 15 tonnes (approx. 20% of legal highway load)**
- **Steel deteriorating**
- **Poor abutments**
- **Pedestrians sharing narrow roadway with traffic**
- **Greater flood clearance desired**

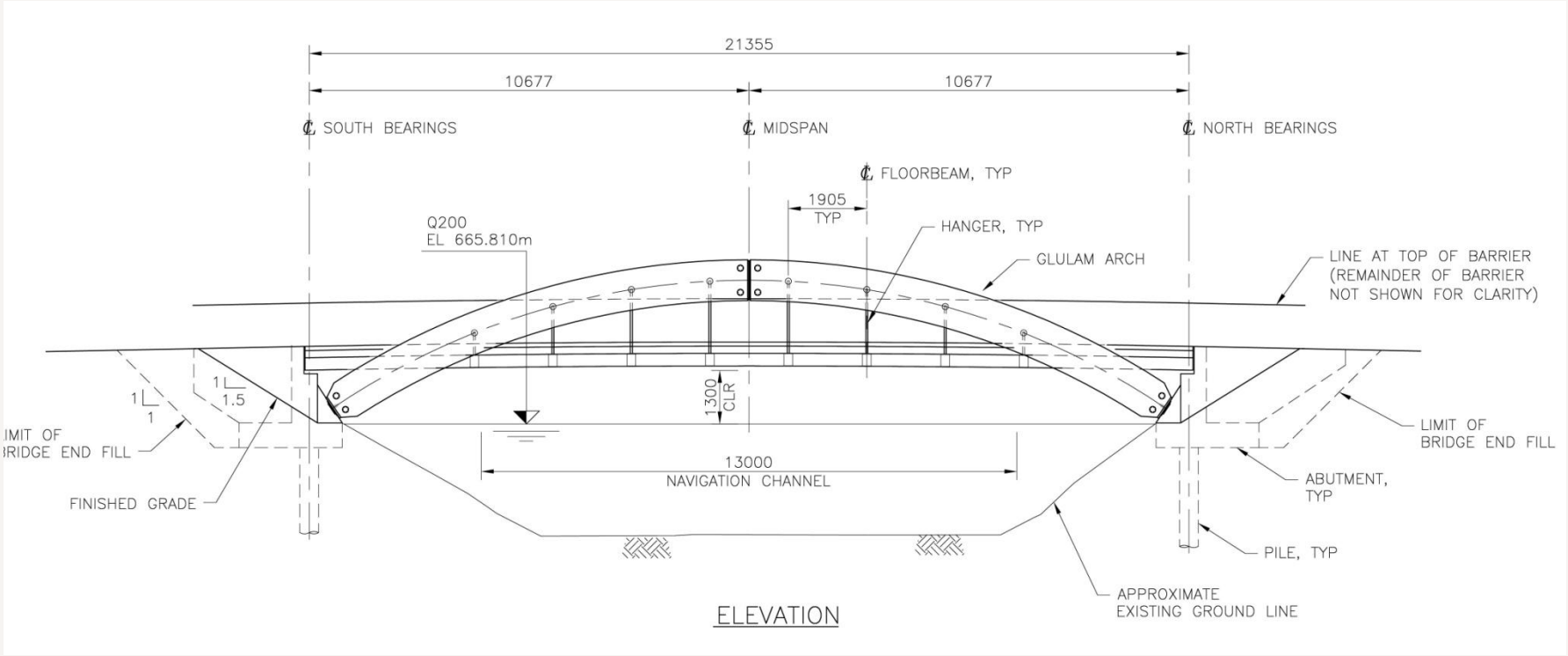
- **Could be removed and not replaced, existing highway bridge nearby**
- **Replacement not in Owner's current budget, until timber bridge incentive program provided**

New Bridge

- **Approx 20m minimum span required**
- **Permanent bridge**
- **No load limit (63,700 kg design vehicle)**
- **Timber structure desired**
- **One traffic lane, but wider to share with pedestrians**
- **Improved flood clearance to be provided**
- **Roadway not to be raised: existing streets and driveways**
- **Available depth for structure 0.6m**
- **Minimize disruption to stream**

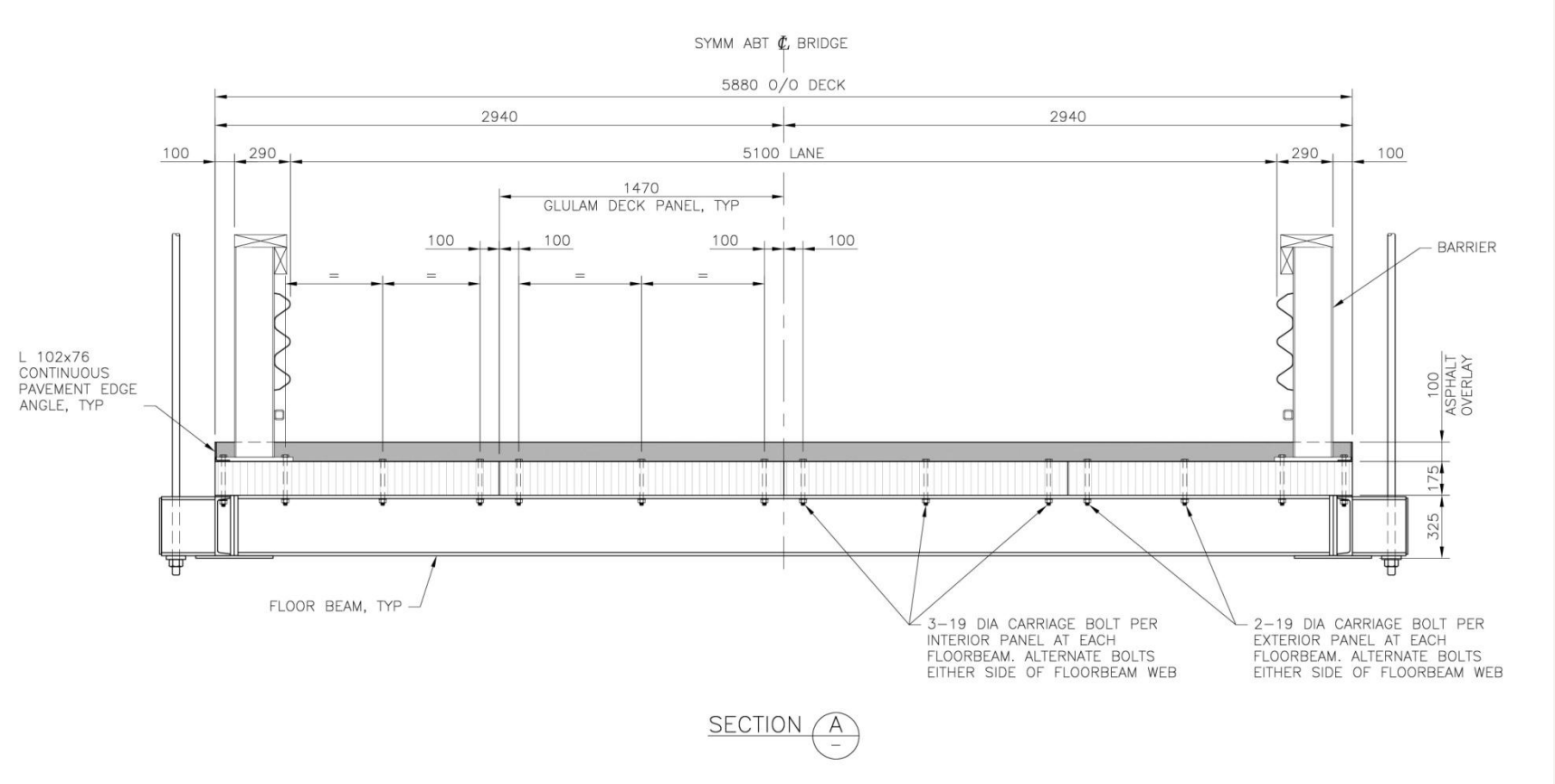
- **Solution: glulam timber arch with shallow deck structure**

New Bridge: Glulam Timber Arch



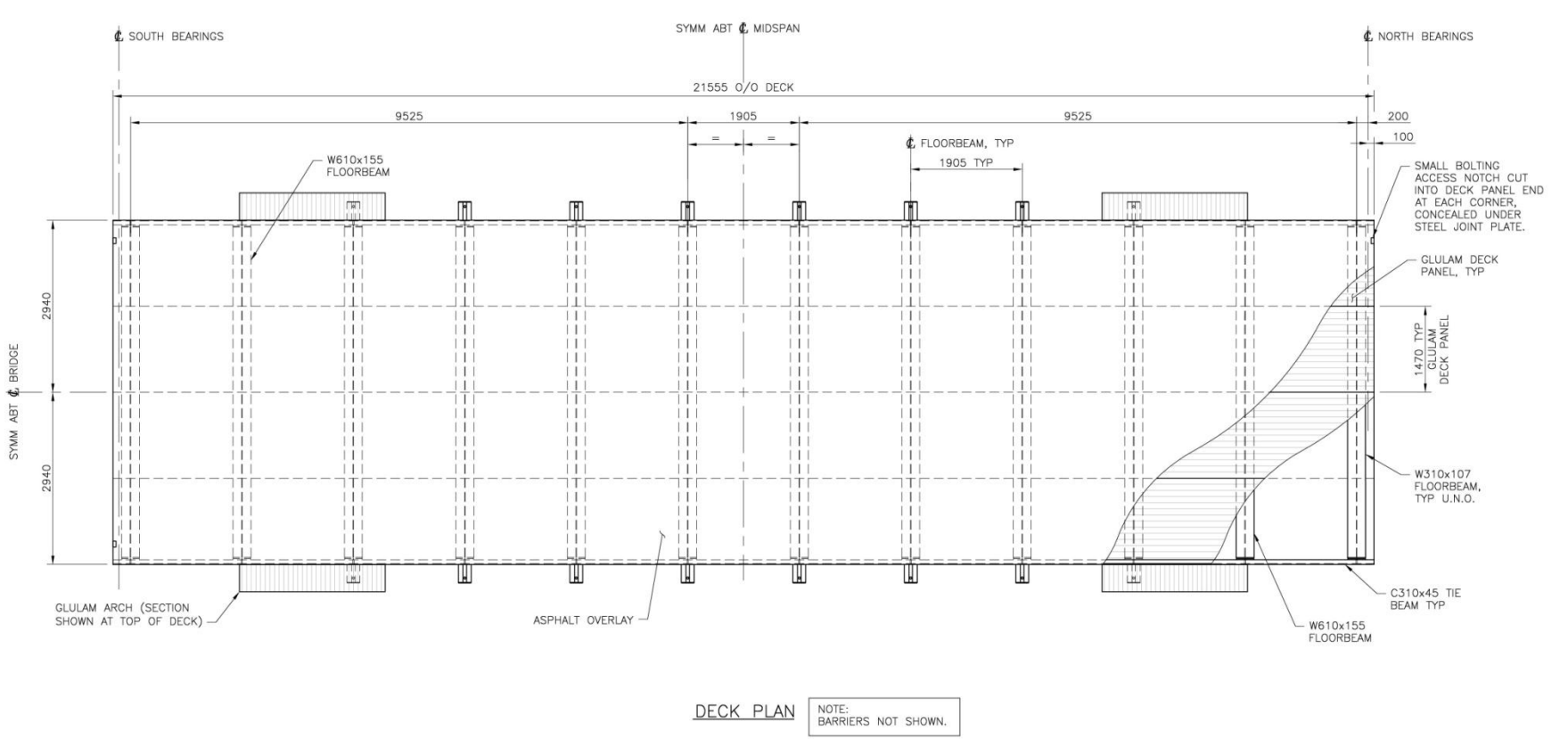
BUCKLAND & TAYLOR | COWI

Deck Cross Section



BUCKLAND & TAYLOR | COWI

Deck Plan



BUCKLAND & TAYLOR | COWI

Minimal Impact on Stream

BUCKLAND & TAYLOR | COWI

Abutments

BUCKLAND & TAYLOR | COWI

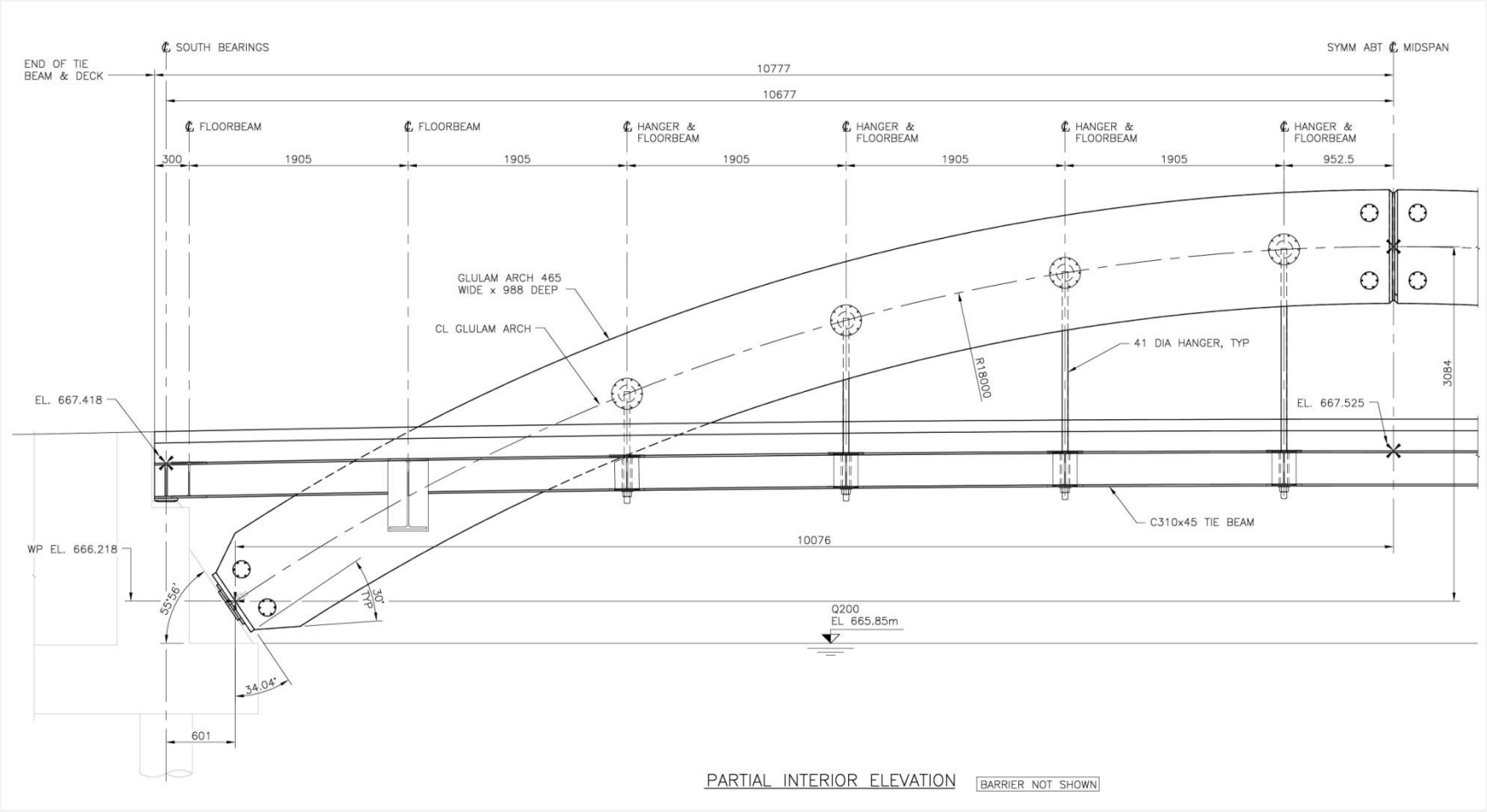
Single Truckload of Glulam Timber

BUCKLAND & TAYLOR | COWI

Galvanized Steel Deck Grid

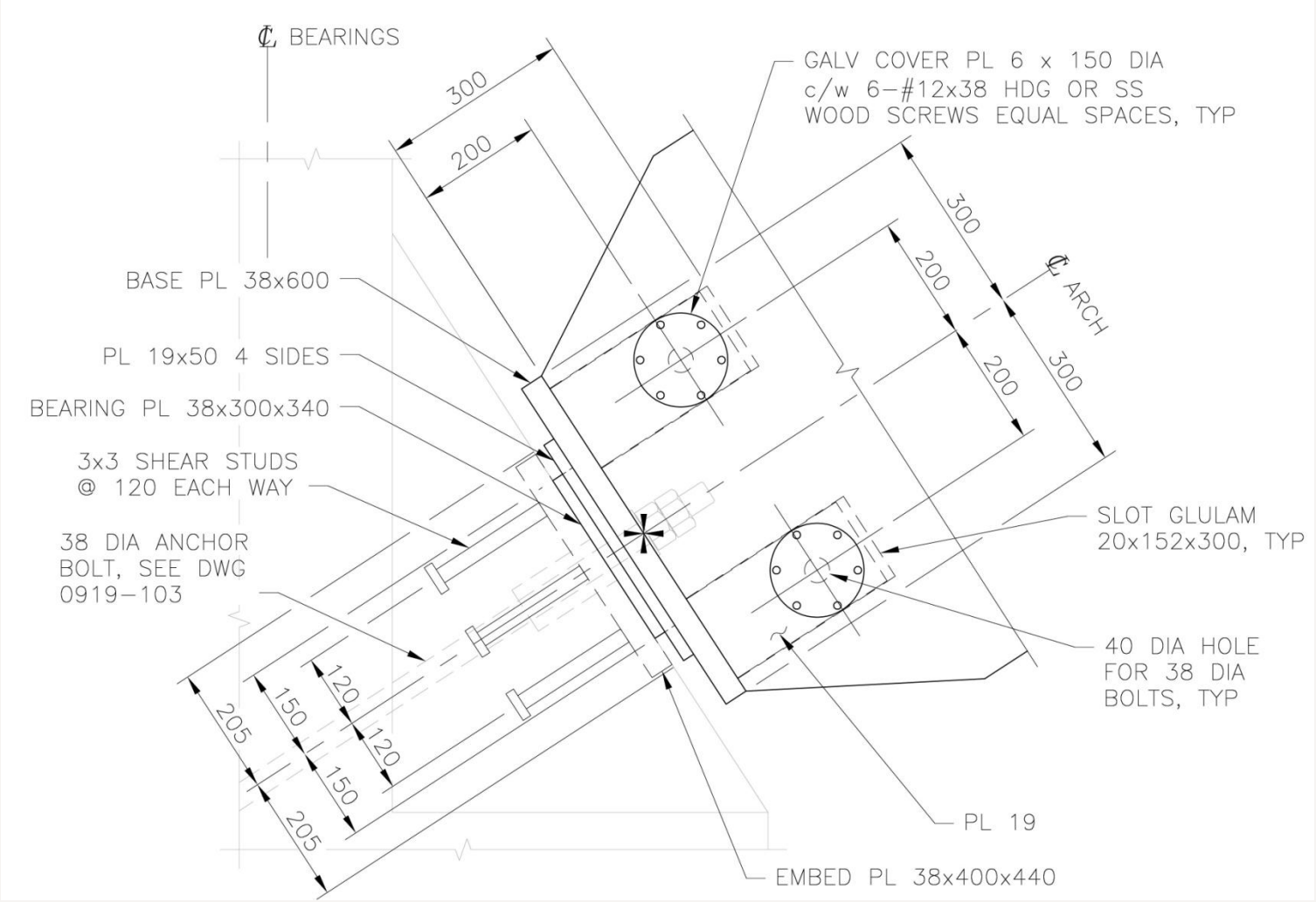
BUCKLAND & TAYLOR | COWI

Arch & Tie Beam



BUCKLAND & TAYLOR | COWI

Arch Bearing



BUCKLAND & TAYLOR | COWI

Arch Erection

BUCKLAND & TAYLOR | COWI

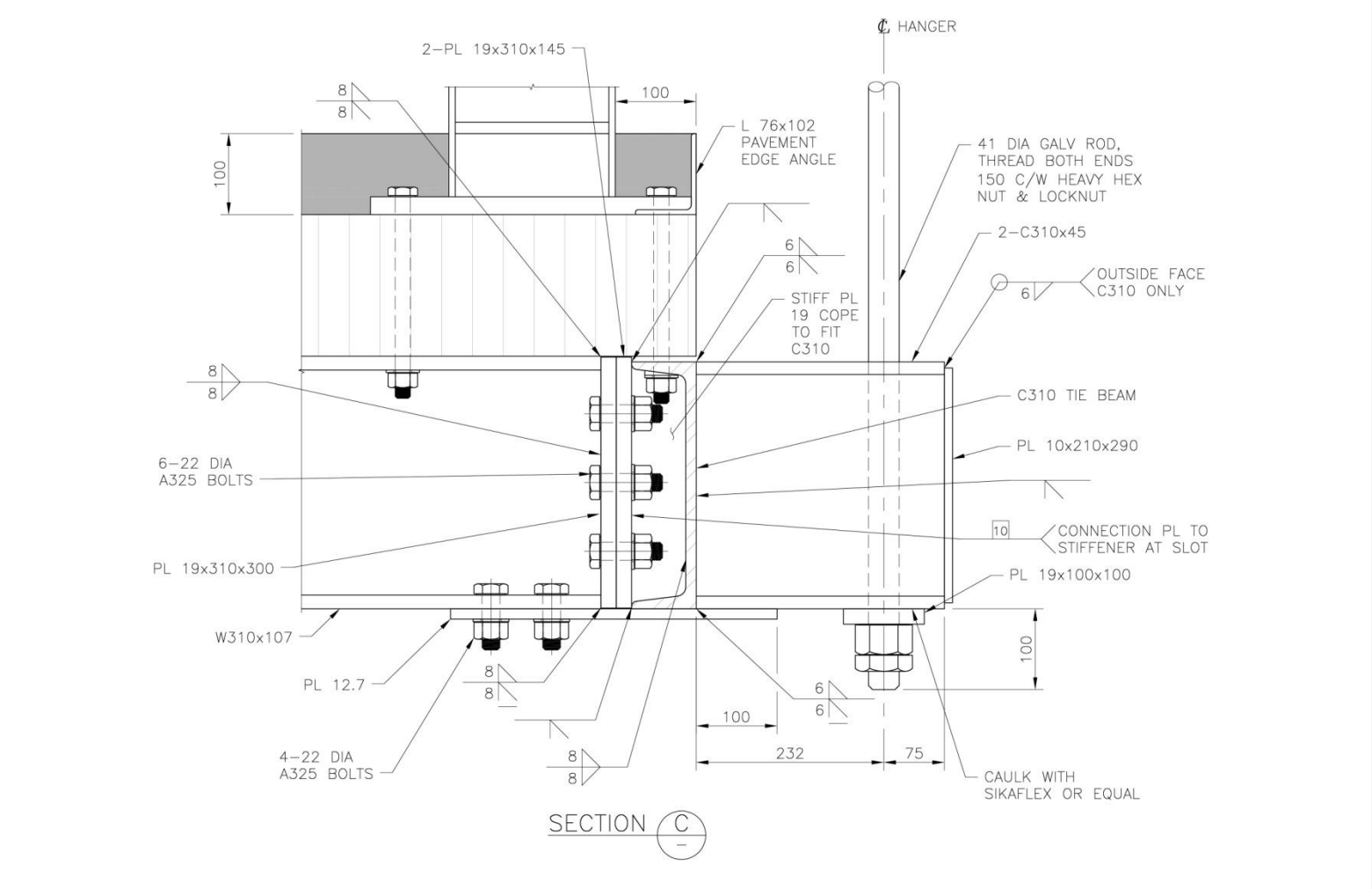
Arch Erection

BUCKLAND & TAYLOR | COWI

Arch End Details

BUCKLAND & TAYLOR | COWI

Hanger / Tie Beam / Deck Detail



BUCKLAND & TAYLOR | COWI

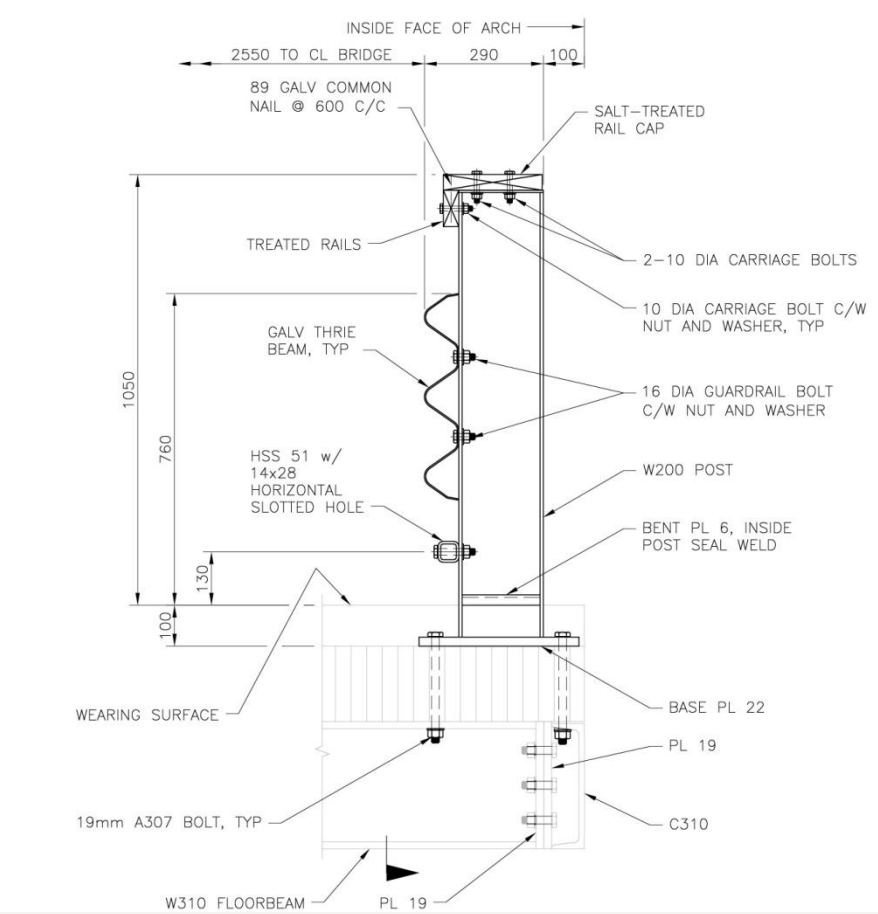
Deck Panels

BUCKLAND & TAYLOR | COWI

Crash-Tested Barrier Design

BUCKLAND & TAYLOR | COWI

Barrier Detail



BUCKLAND & TAYLOR | COWI

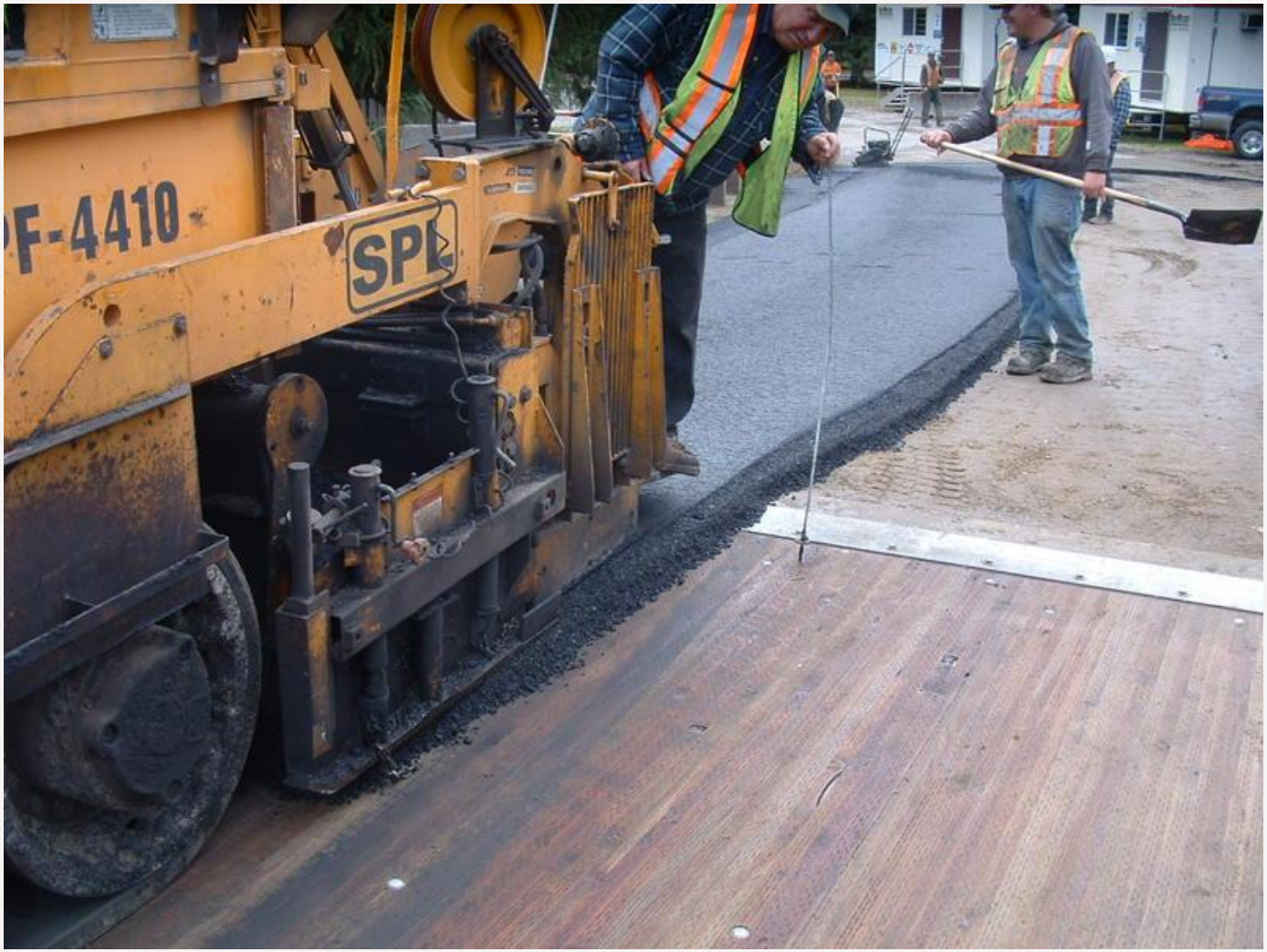
Barrier Post

BUCKLAND & TAYLOR | COWI

Complete Prior to Paving and Barrier

BUCKLAND & TAYLOR | COWI

Paving



BUCKLAND & TAYLOR | COWI

End Joint Sawcutting

BUCKLAND & TAYLOR | COWI

Completed Bridge

BUCKLAND & TAYLOR | COWI

Completed Bridge

BUCKLAND & TAYLOR | COWI

Completed Bridge

BUCKLAND & TAYLOR | COWI

Completed Bridge

BUCKLAND & TAYLOR | COWI

Thank You For Your Attention!
Questions ?

BUCKLAND & TAYLOR | COWI