Structural Concrete Checklist

ITP REF	ITP007a-VC235-	CHECKLIST TITLE	Structural Concrete Checklist

This checklist is to compliment the structural concrete ITP – ITP007a.					
Pour Date:	/ /	**Vic Civil Engineer**	Ben Thomas	**Checklist**	_____of_____
Pour Description:	Pouring of architectural / structural concrete columns for the Ballarat Road Bridge at the New Footscray Hospital				

ITP Ref #	ITP Activity	Acceptance Criteria	Check Box	Verification Record	Vic Civil Sign/Date*	Multiplex Sign/Date*
4.0 CONSTRUCTION ACTIVITIES – PREPOUR						
4.1	Incoming Inspection of Materials	All materials conform to IFC drawings and specs- ferrules, galvanised dowels, drainage conduits etc.	☐ Yes ☐ No ☐ N/A	Delivery Dockets Compliance Certificates		**Project Engineer (HP):**
4.6	Reinforcement	Type, size, position, chairs, cover all as specified & within tolerance; laps and splices as specified; tack welds not undercut	☐ Yes ☐ No	Reinforcement Schedule		**Project Engineer (HP):**
		Ensure starter bars match precast stitch bars (if applicable)	☐ Yes ☐ No ☐ N/A	Survey Report		
		Placement, size and configuration as per drawings ± 5mm position.	☐ Yes ☐ No			
		Cover (including tire wire) specified in drawings 0mm, + 5mm. Cover checked to FSL.	☐ Yes ☐ No			
		Surface condition free from thick rust, grease, mud etc	☐ Yes ☐ No			
		Min lap lengths N12 – 300mm N24 – 1000mm N16 – 500mm N28 – 1250mm N20 – 750mm N32 – 1500mm	☐ Yes ☐ No			
		Tack Welding not within 50mm of bends	☐ Yes ☐ No ☐ N/A			
		Mechanical splices (couplers or similar) fully engaged and installed as per manufacturers recommendations.	☐ Yes ☐ No ☐ N/A	Coupler Delivery Docket Compliance Certificates		

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4.7	Formwork/ falsework setup, alignment and integrity	Installed as per temp design; design confirmed by survey; forms clean & release agent/oil applied.	☐ Yes ☐ No ☐ N/A			
		Falsework/formwork over 1m high has a temporary design	☐ Yes ☐ No ☐ N/A	Temp Works Design		**Project Engineer (HP):**
4.8	Construction Joints	Concrete cast against concrete to be clean & free of laitance. Roughened and coarse aggregate exposed to depth of 3mm	☐ Yes ☐ No ☐ N/A			
4.11	Cast-in items, void formers, block-outs and hold down bolts	Type, quantity and location as per design. Checked with survey and relevant stakeholder	☐ Yes ☐ No ☐ N/A	Delivery Dockets		
4.12	Installation of thermocouples	Thermocouples installed as per VR610.22	☐ Yes ☐ No ☐ N/A	Install Photos		

HOLD POINT

Concrete pre-pour checks completed in accordance with the applicable ITP, drawings, specifications and approved changes

PROJECT ENGINEER NAME (Vic Civil)		**SIGN**		**DATE**	
PROJECT ENGINEER NAME (Multiplex)		**SIGN**		**DATE**	

4.0 CONSTRUCTION ACTIVITIES – CONCRETE PLACEMENT

4.13	Concrete Supply & Concrete Testing – Slump Test	**Concrete Mix on Docket Checked.** Ensure delivery dockets. Tester onsite. Visual assessment of quality.	☐ Yes ☐ No	Concrete Delivery Dockets Field Test Docket Concrete Pour Record (Refer pg 7)		
		1 slump test per strength test If mix contains superplasticiser, all batches shall be tested. If 5 consecutives batches comply, superintendent may reduce frequency to 1 per strength testing Test within 45 mins of adding cement to aggregates, or immediately prior to discharge when actual haul time is >45mins, or after addition of water. All other slumps to be estimated visually. **VR Tolerances:**	☐ Yes ☐ No	Concrete Pour Record (Refer pg 7)		

Specified slump, mm	Tolerance, mm
<60	± 10mm
≥60mm to ≤80mm	± 15mm
>80mm to ≤110mm	± 20mm
>110mm to ≤150mm	± 30mm
>150mm	± 40m

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<table>
<tr><th rowspan="2">ITP Ref #</th><th rowspan="2">ITP Activity</th><th rowspan="2">Acceptance Criteria</th><th rowspan="2">Check Box</th><th rowspan="2">Verification Record</th><th>Vic Civil</th><th>Multiplex</th></tr>
<tr><th>Sign/Date*</th><th>Sign/Date*</th></tr>
<tr><td rowspan="5">4.14
4.15</td><td rowspan="5">Discharge & Placement of Concrete</td><td>Each load placed within 60mins of batching, unless approved otherwise</td><td>☐ Yes ☐ No</td><td rowspan="5">Concrete Pour Record (Refer pg 7)</td><td></td><td></td></tr>
<tr><td>No water added once discharge commenced</td><td>☐ Yes ☐ No</td><td></td><td></td></tr>
<tr><td>Max and min temps:
<table><tr><th></th><th>MIN (°C)</th><th>MAX (°C)</th></tr><tr><td>AMBIENT</td><td>5</td><td>35</td></tr><tr><td>CONCRETE</td><td>10</td><td>32</td></tr></table></td><td>☐ Yes ☐ No</td><td></td><td></td></tr>
<tr><td>Max. lag between trucks is <=25 mins. If > 25min aliphatic alcohol to be used.
Interval between final discharge and start of discharge of next truck is <45 mins for a continuous pour.</td><td>☐ Yes ☐ No</td><td></td><td></td></tr>
<tr><td>Vertical drop not exceeding 2.0m
Placed in not more than 350mm layers.</td><td>☐ Yes ☐ No</td><td></td><td></td></tr>
<tr><td>4.16</td><td>Concrete Testing –

Compressive Strength</td><td>Compressive Strength Testing =<u>> 28 days</u> post-pour
Refer VR 610
3 cylinders (1 x 7day, 2 x 28 Day) taken for each sample, minimum no. of samples:<table><tr><th>Quantity, m3</th><th># Samples</th></tr><tr><td>0-10</td><td>1</td></tr><tr><td>10 to 25</td><td>2</td></tr><tr><td>25 to 50</td><td>3</td></tr><tr><td>50 to 100</td><td>4</td></tr><tr><td>>100</td><td>1 sample for each 50m^3 >100</td></tr></table></td><td>☐ Yes ☐ No
☐ NA</td><td>Concrete Pour Record (Refer pg 7)</td><td></td><td></td></tr>
<tr><td>4.19</td><td>Visual check on formwork</td><td>Any significant deformation observed?</td><td>☐ Yes ☐ No</td><td></td><td></td><td></td></tr>
<tr><td>4.20</td><td>Surface Finish</td><td>Surfaces finished to the class specified in the drawings.</td><td>☐ Yes ☐ No</td><td></td><td></td><td></td></tr>
<tr><td>4.22</td><td>Curing of exposed surfaces</td><td>Curing in accordance with BCRC report recommendations</td><td>☐ Yes ☐ No
☐ N/A</td><td>Curing Methodology or Compound: BCRC Report (attached)</td><td></td><td></td></tr>
<tr><td>4.23</td><td>Removal of falsework and stripping of formwork</td><td>Falsework and formwork removed as per VR Table 610.251 (See Pg 5)
If early removal or loading is required, relevant approvals and test results to be reviewed by design engineer

Days since pour_____</td><td>☐ Yes ☐ No
☐ N/A</td><td>RFI Reference #:
_____
Maturity Report</td><td></td><td>Project Engineer (HP):</td></tr>
</table>

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ITP Ref #	ITP Activity	Acceptance Criteria	Check Box	Verification Record	Vic Civil Sign/Date*	Multiplex Sign/Date*
	Inspection of stripped surface	Stripped surface finish has been achieve in accordance with specifications (VR610.31) and design drawings?	☐ Yes ☐ No	Surface Finish Class: _____		
4.25	Patch Repair (where applicable)	Inactive crack and/or Patch repairs conducted as per approved procedure, where required	☐ Yes ☐ No ☐ N/A	Repair method approval- RFI- _____ Repair Product TDS		
4.26	Crack Repair & Monitoring (where applicable)	Cracks greater than acceptable widths as per VR Table 610.241 are mapped and repaired in accordance with VR 687 and approved methodology specific to location. Cracks requiring repairs monitored. Exposure Classification / Maximum Acceptable Crack Widths (mm): A 0.20; B1 0.20; B2 0.15; C, U 0.10	☐ Yes ☐ No ☐ N/A	Repair method approval- RFI- _____ Repair Product TDS		**Project Engineer (HP):**
5.0 TESTING AND COMMISSIONING REQUIREMENTS – POST POUR CHECK & TESTING						
5.1	As Built survey complete	As-built survey is within tolerance when compared to Design & Specifications	☐ Yes ☐ No	As-Built Record – conformance report	**Site Engineer (R):**	**Site Engineer (R):**
5.2	Maturity Testing	Concrete has achieved minimum strength prior to the removal of falsework/ formwork	☐ Yes ☐ No ☐ N/A	Strength Achieved: _____ Maturity Report	**Site Engineer (R):**	**Site Engineer (R):**
5.3	Concrete Cover	For every 25m2 of exterior surface area a 3m2 'Test Area' will be selected. Within this 'Test Area' 10 concrete cover checks will be conducted.	☐ Yes ☐ No	Cover Checks Record (Refer pg 6)	**Site Engineer (R):**	**Site Engineer (R):**
5.4	Temperature Monitoring (VR610.22)	Ensure temperature differential across the concrete member being constructed is < 20°C during the period of curing, and internal concrete temperature doesn't exceed 75°C	☐ Yes ☐ No ☐ N/A	Temperature Monitoring Report	**Site Engineer (R):**	**Site Engineer (R):**
5.5	Compressive strength and slump results	7 and 28 day strength results achieve min requirements as per VR table 610.051. Slump tests with tolerances.	☐ Yes ☐ No	NATA Test Results	**Site Engineer (R):**	**Site Engineer (R):**

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6.0 SUB-LOT – COMPLETION REQUIREMENTS					
6.1	Works Completion Inspection	Ensure works completed in accordance with IFC Dwg & Specifications Inspection completed & recorded prior to releasing activity	☐ Yes ☐ No ☐ N/A	Punch List Items	**Project Engineer (HP):**
6.2	Close out NCR(s)	NCR(s) raised & closed formally All out of tolerances notified via Site NCR reporting system	☐ Yes ☐ No ☐ N/A	NCR/s related to lot:	**Project Engineer (HP):** **Quality Representative (HP):**
6.3	RFI(s)	All RFIs have been closed-out prior to work lot submission	☐ Yes ☐ No ☐ N/A	RFI & DCN Register relevant to sub-lot only	**Project Engineer (HP):**
6.4	Red Line Mark Ups	Confirm redline drawings are being progressively marked up	☐ Yes ☐ No ☐ N/A	Redline Drawings Summary of Material Quantities	**Project Engineer (HP):**

Check List Close Out

PROJECT ENGINEER NAME (Vic Civil)		**SIGN**		**DATE**	
PROJECT ENGINEER NAME (Multiplex)		**SIGN**		**DATE**	

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Cover Checks

For every 25m2 of exterior surface area a 3m2 'Test Area' will be selected. Within this 'Test Area' 10 concrete cover checks will be conducted.

COVER CHECKS	RESULTS									
Cover Check Date					Cover Check Element					
COVER CHECKS	RESULTS									
Test Area No:	1	2	3	4	5	6	7	8	9	10
Test Area 1: 0-25m^2										
Test Area 2: 25-50m^2										
Test Area 3: 50-75m^2										
Test Area 4: 75-100m^2										

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STRUCTURAL CONCRETE POUR RECORD

Pour Date:	/ /	ITP No.		Work Location:		Concrete Mix		Pour Record:	_____of_____

Structure	TRUCK ID No.	DOCKET No.	QUANTITY (m3)		BATCH TIME	Truck Delivery Arrival Time	Water Added on Site (Ltr)	Measured SLUMP (mm)	Concrete Sample Taken? (Y/N)	Concrete Pouring		Truck Departure Time	Placement Time (Pour Finish - Batch Time)	Truck Interval on site (max 25 min). *
			TRUCK	CUMULATIVE						START	FINISH			

Comments:

* Truck Interval on site = Pour finish - Pour start of next load. **Aliphatic alcohol to be used if truck interval exceeds 25 min.**	**Approved aliphatic alcohol used?**	Yes	No

All concrete pouring completed in accordance with applicable procedures, drawings, specifications and approved design changes (if applicable)

Vic Civil Engineer Name:		Signed:		Date:	/ /
Multiplex Engineer Name:		Signed:		Date:	/ /