Inspection and test plan – Concrete Blinding, Pile Caps and Slab Footings

Project no. CC0398 **Project name** VIVA ULSG **Date** **13/12/2023** **Approved by** Ari Birch
ITP no. 31 **Revision no.** C **Revision date** 13/12/2023 **Plant and equipment used**
Lot no. **Location (chainages, detailed description or marked up plan)**
Layer thickness **Estimated qty**

Attach Dockets, Certificates and QA Documents to ITP

					Verification or test by					Remarks / record (eg. test frequency, reports, certificates, checklist etc)
					Symal Infrastructure			MDR/VIVA		
Item no.	**Activity**	**Ref docs**	**Acceptance criteria**	**Acceptance**	**Key**	**Resp.**	**Initial/ date**	**Key**	**Sign date**	
Section A – Preliminaries and Blinding										
1.0 General										
1.1	Material Submission / Approval	AS 3600 235929-000-CV-SP-00007	Has the mix design to be approved prior to placement. Material properties meet project specification, AS 3600, AS 1379? Do Structural Elements meet: Minimum Concrete strength 40 MPa or as specified in Drawings? Do Non-Structural Elements meet: Minimum Concrete strength 15 MPa or as specified in Drawings? Has Steel Reinforcement schedule provided to MDR for review and approved? Do admixtures shall conform with AS 1478.1 and are permitted if used in accordance with manufacturers instructions? Mixtures containing calcium chloride shall not be used.	☐ Yes ☐ No ☐ N/A	H			H		Mix Design Number Bar Bending Schedules Material compliance certificates

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1.2	Determine lot size		Lot Size = Each pour section per day (location or m^2) or each structural (Pilecap) _____		S			S		
1.4	Permits		The following are relevant, in place and signed onto: - Penetration permit - Hot works permit - Temporary work permit - Working at heights permit	☐ Yes ☐ No ☐ N/A	H			S		
2.0 Blinding/Lean Concrete										
2.1	Set out	IFC drawings	Extents, grades and levels correct to relevant drawings. All services have been marked out.	☐ Yes ☐ No ☐ N/A	W			W		
2.2	Pre-Pour Inspection	Bulk Earthworks ITP 02 Underlying lot number: -------- ----------	Has a pre-pour inspection been completed with the client, and they have verified in writing that the pour is able to commence? The foundation base excavation shall be tested, surface compacted and approved prior to placement of the blinding. The foundation location, depth and dimensions shall also be checked and confirmed prior. to placing the blinding. Approval shall be provided, in writing, by McDermott to the foundation. subcontractor before commencing with concrete placement. Has this been completed?	☐ Yes ☐ No ☐ N/A	H			H		Pre-Pour Checklist 235929-000-CV-SP-00007 Appendix 7.1 Pre-Concrete Placement Checklist

Commented [TR1]: I would still add in a dashed line here to confirm the underlying lot number. This is not really for you on the sign off date, but rather for future reference where the reviewer may need to refer to the bulk earthworks lot. We need to be able to locate the underlying lot.

Commented [DH2R1]: Ok

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2.3	Lean Mix Concrete	Section 5.1.2 of document 235929-000-CV-SP-00007	Approved Concrete Mix Design.	☐ Yes ☐ No ☐ N/A	W			W		Dockets
2.4	Placement of Lean Mix	235929-000-CV-SP-00007	Has the blinding been poured to the correct level? The following are acceptable: - Minimum Thickness = 50mm	☐ Yes ☐ No ☐ N/A	W			W		As-built Survey
Section B – Pilecap Construction										
3.0 Formwork										
3.1	Temporary works requirements	SYM-INF-Temporary Work Procedure IFU 05122	Formwork above 1.0m to be designed by temporary works engineer. Has design to be undertaken by external consultant complying with AS1170 and AS3610 plus any project specification requirements?	☐ Yes ☐ No ☐ N/A	H			S		
3.2	Pile Penetration	Civil Drawings IFC	Pile C.O.L to penetrate 50mm above blinding of pile cap (+/- 25mm). Has the pile been determined to be free of cracking and concrete damage following cropping?	☐ Yes ☐ No ☐ N/A	H			H		Survey Report
3.3	Formwork Setout and positioning correct	Civil drawings 235929-000-CV-SP-00008; Section 6	Is formwork checked for potential loose sections, ensuring no movement upon placement of concrete? Is formwork in line with survey markings?	☐ Yes ☐ No ☐ N/A	W			W		

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			Have chamfers (if required) been attached to formwork in level manner?							
3.4	Concrete jointing	Civil drawings	Have construction joints to be installed as detailed on Drawings and notes using correct materials?	☐ Yes ☐ No ☐ N/A	W			S		
4.0 Reinforcement										
4.1	Steel reinforcement supply		Have steel tags checked against supply schedule prior to installation? Does the manufacturer hold a valid ACRS certificate? Is reinforcement is free from rust and other contaminates that may affect bonding?	☐ Yes ☐ No ☐ N/A	S			S		Delivery Dockets / certificates / product tags Incoming material checklist Photo's
4.2	Steel reinforcement installation	235929-000-CV-SP-00009 AS3600 17.5.3 235929-000-CV-01-92002-010002	Is steel installed as per the latest IFC drawings? Does steel reinforcement conform with Steel Reinforcement Specification? **17.5.3 Tolerance on position of reinforcement and tendons** The deviation from the specified position of reinforcement and tendons shall not exceed the following: (a) For positions controlled by cover— (i) in beams, slabs, columns and walls ..... –5, +10 mm; (ii) in slabs-on-ground ..... –10, +20 mm; and (iii) in footings cast in the ground ..... –10, +40 mm, where a positive value indicates the amount the cover increases and a negative value indicates the amount the cover decreases. (b) For positions not controlled by cover, namely— (i) the location of tendons on a profile ..... 5 mm; (ii) the position of the ends of reinforcement ..... 50 mm; and (iii) the spacing of bars in walls and slabs and of fitments in beams and columns ..... 10% of the specified spacing or 15 mm, whichever is greater. Has minimum cover to inside face of wall must be maintained? All reinforcement shall be in accordance with AS 3600 & Civil drawings.	☐ Yes ☐ No ☐ N/A	H			S		IFC Drawing Number and Revision

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			8.1 CONCRETE COVER SHALL BE INACCORDANCE WITH AUSTRALIAN STANDARD AS 3600 OR THE VALUES STATED BELOW, WHICH EVER IS GREATER. • PAVING (TOP) = 30mm • PAVING (BOTTOM - AGAINST GROUND) = 50mm • FOUNDATIONS CAST AGAINST FORMWORK (INCL. EXPOSED WEATHER FACE) = 45mm • FOUNDATIONS CAST AGAINST GROUND = 65mm • EXPOSED TO WASH DOWN WATER AND/OR PROCESS SPILLAGE = 50mm • CAST ON LEAN CONCRETE = 45mm • CFA PILES = 70mm							
5.0 Structural Concrete Pour										
5.1	Pre-pour Inspection	235929-000-CV-SP-00007 Appendix 7.1 Pre-Concrete Placement Checklist	Has a pre-pour inspection checklist completed prior to placement?	☐ Yes ☐ No ☐ N/A	H			H		235929-000-CV-SP-00007 Appendix 7.1 Pre-Concrete Placement Checklist
5.2	Placement	235929-000-CV-SP-00007 Appendix 7.3 Concrete Truck Record	Concrete shall not be placed when temperature is less the 5°C or greater than 36°C. Between 32°C and 36°C admixtures and placing requirements must be met. Concrete shall be transported, handled and placed to prevent segregation, loss or leakage of materials. Concrete shall not be dropped from a height greater than 2m. Concrete shall be discharge within 90 minutes of dispatch from plant. For continuous pours, the maximum time lag between truck loads shall not exceed 25 minutes. Concrete shall be thoroughly vibrated to ensure no honey combing, voids or surface defects occurs and compaction is achieve throughout structure.	☐ Yes ☐ No ☐ N/A	H			W		235929-000-CV-SP-00007 Appendix 7.3 Concrete Truck Pour Record/Dockets

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			Water shall not be added to achieve slump greater than that specified. Slump test to be completed after water is added.							
5.3	Slump Test	Section 5.1.1 235929-000-CV-SP-00007	Slump must be within tolerance of designed slump. Testing shall be +- 15% of stated. Approved mix design slump	☐ Yes ☐ No ☐ N/A	S			S		Test docket
5.4	Strength Testing	235929-000-CV-SP-00007 Section 6.8	Samples to be taken from chute. 5 cylinders collected per sample – 1x 7day, 3x 28day, 1x reserve. 1 test for the first 20m3 1 test per 40n3 thereafter Frequency reduce to 1 test per 80m3 for pours over 400m3	No. of samples / Volume of concrete (m^3): 1 / <20; 2 / 20-60; 3 / 60-100; 4 / 100-140	H			S		Test report
5.6	Curing of Concrete	235929-000-CV-SP-00007 Section 6.5	As per the approved Curing Methodology. - Applied once bleed water has gone - Continuous uniform film achieved - Rate of $5m^2/L$ Has curing been conducted as per approved curing methodology?	☐ Yes ☐ No ☐ N/A	H			W		Approved Curing Technical Data Sheet
5.7	Concrete Finishing	235929-000-CV-SP-00007 Section 6.4	Finish concrete per schedule below: • Interior walls or columns exposed: smooth form/rubbed finish. • Exterior walls or columns exposed: smooth form/rubbed finish. • Walls below grade: rough form finish. • Exterior slabs for spill containment: float finish. • Other exterior slabs (i.e. foot traffic): broom finish. • Interior slabs: steel trowel. • Interior slabs to accept additional finish: steel trowel.	☐ Yes ☐ No ☐ N/A	S			S		235929-000-CV-SP-00007 Appendix 7.3 Concrete Truck Pour

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			• Surfaces to be grouted: rough [6 mm amplitude] but even finish with laitance removed to provide good bond between grout and concrete.							
5.8	Formwork Stripping	235929-000-CV-SP-00007 AS1510 AS1509 Section 6.6 of 235929-000-CV SP-00008 CONC FORMWORK	Has Remove formwork progressively so no unbalanced loads are applied to the structure, or concrete is damaged? Has the formwork been removed in the same sequence as concrete placement to achieve similar concrete surface coloration? In accordance with AS3600 Table 4.4 and Section 17.1.5, removal of forms before 7 days would require a curing membrane conforming to AS3799 to be applied immediately or any other approved acceptable method of water retention in the concrete. Has this been completed?	☐ Yes ☐ No ☐ N/A	S			S		
5.9	Post Pour inspection		All abovementioned works have been completed in-line with the drawings and specification and backfilling around structure can be completed (if applicable)	☐ Yes ☐ No ☐ N/A	H			H		
Section C – Completions – All Sections A and B										
6.0 Completion										
6.1	As Built		As built to be submitted after pour, showing set out, RLs, grades, extents, bolts, grout tubes, starter bars, etc.	☐ Yes ☐ No ☐ N/A	S			H		Survey Conformance report
6.2	Concrete Test Results	235929-000-CV-SP-00007 AS3600 AS1379 AS3610	Submission of 28 days results. Results meet requirements of 40MPa.	☐ Yes ☐ No ☐ N/A	H			S		NATA endorsed test report

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		IFC drawings								
6.3	Concrete cracking approval		Contractor is to submit a concrete crack repair methodology to MDR prior to commencing any crack repair. Has this been approved? **Maximum Allowable Crack Widths in New Concrete** **Service Exposure Condition** / **Crack Width, µm** Interior: 300 Exterior air (or soil): 200 Water-retaining structures: 100	☐ Yes ☐ No ☐ N/A	H			H		Concrete Repair Method Document Approval
6.4	Concrete cracking repair		Has concrete crack repair been undertaken as per the approved method?	☐ Yes ☐ No ☐ N/A	H			H		Photo's

Works complete (sign SS) _____ Date works complete _____

Lot conforms (sign PE) _____ Date lot closed _____

NCR no. raised _____ Date NCR closed for this lot _____

Lot acceptance:

Symal Infrastructure representative name _____ MDR/VIVA representative name _____

Symal Infrastructure representative signature _____ MDR/VIVA representative signature _____

Responsibility (resp.) key: PM – Project Manager**, PE –** Project Engineer**, SE –** Site Engineer**, SS –** Site Supervisor

Inspection key: W – Witness, **H –** Hold Point, **S -** Surveillance

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Concrete pre-pour QA checklist

Project no. CC0398 **Project name** VIVA ULSG **Date**

Items to be checked off	OK	NOK	Comments
Design items			
Correct concrete MPA and mix design ordered	☐	☐	
Concrete tester organised and testing as required	☐	☐	
Correct slump for project ordered	☐	☐	
Max slump 80 or less if specified.	☐	☐	
Correct finish type, please note:	☐	☐	
Pre pour items			
Confirmed area to be poured including:			
• Levels	☐	☐	
• Step downs	☐	☐	
• Items to be stripped during the pour	☐	☐	
• Finishes	☐	☐	
• Extent	☐	☐	
Checked reinforcing for the following:			
• Cover	☐	☐	
• Reinforcing installed vs. drawings	☐	☐	
• Bar chairs adequate	☐	☐	
• DJC,SCJ, CJ, and all other joints confirmed	☐	☐	
• Correct curing organised	☐	☐	
• Saw cutting	☐	☐	
Hold point do not proceed without an inspection			
Post pour items			
Adequate founding depth achieved	☐	☐	
Strip formwork	☐	☐	
Concrete curing	☐	☐	
Levels checked	☐	☐	

Additional comments:

Pre-pour checklist completed by _____ Signature _____

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Project No.

Project Name

Date

CONCRETE POUR RECORD

			Batching Information								Concrete Mix				Pour Log		
Pour Area	Lot Number	Pour Date	Truck No.	Docket No.	Quantity (m3)		Air Temp. (>5 and <35)	Batch Time	Truck Arrival Time	Water Added on Site (Ltr)	Supplier	Concrete Strength	Mix Code Supplied	Measured SLUMP (mm)	Concrete Pouring		Comments/ notes
					Truck	Cumulative									START	FINISH	