SECTION 1 – GENERAL DETAILS

Project Name:	Peacocke Whatukooruru Drive	**ITP Number:**	103
Project Number:	DS1205	**ITP Status:**	Draft For Approval
ITP Description:	Insitu Concrete Construction	**Revision:**	D

Contract Number:	Peacocke Whatukooruru Drive	**Drawing Sets:**	
Customer:	Hamilton City Council	**Specification:**	Project Specification and Appendices.
Quality Specified:	NZTA Z/1		

Review / Update History

Rev:	Status:	Date:	Reviewed By:	Revision Details:
A	Draft for Approval			First Revieion for Review and Approval
B	Draft for Approval			In response to Engineer's comments on 15 February 2023 for Review and Approval
C	Draft for Approval			In response to Engineer's comments on 11 May 2023 for Review and Approval
D	Draft for Approval			In response to Engineer's comments on 19 May 2023 for Review and Approval

Verification Activity

Activity Key		Responsibilities Key	
A	Action	ENG	Engineer / Engineer's Rep
B	Report by Breach	CR	Customer Rep
C	Check	PD	Project Director
D	Dimension Inspection	PM	Project Manager
E	Examine	OP	Operations Manager
HP	Hold Point (Engineer)	HSE	HSE Manager / Rep
H	Hold Point (Internal)	QM	QA Manager / Rep
I	Inspection	PE	Project Engineer
M	Monitor on Random Basis	SE	Site Engineer
O	Operation	QE	Quality Engineer
R	Review	SUP	Superintendent / Supervisor
S	Subcontractor	SV	Surveyor
V	Visual Verification	ITP	Third Party Inspector
W	Witness Point	SPEC	Specialist

SECTION 2A – Master ITP Approval

Position	Name:	Signature:	Date:
Downer PM			
Downer QM			
Client (If Applicable)			

SECTION 2B – ITP CLOSEOUT

Position	Name:	Signature:	Date:
Downer PM			
Downer QM			
Client (If Applicable)			

Insitu Concrete Construction Inspection and Test Plan

Project: Peacocke Whatukooruru Drive
Number and Revision: DS1205 - 103 - Rev D

Item No.	Inspection and Test Point	Acceptance / Conformance Criteria	Standard / Specification	Verifying Document	Frequency	Verification Activity	
						Activity	By
SECTION 1 – PRE-CONSTRUCTION (P&G / ESTABLISHMENT)							
1.01	Site Requirements						
1.01.01	Construction Pack	Construction Pack including a Methodology and JESA to be assembled , uploaded and transmitted on InEight before works commence.	Downer	Construction Pack	Prior to Works	H	PE
1.01.02	Survey Setout	The Contractor shall verify the setting out position, level and line of the bridge, prior to commencing construction. The Contractor shall advise the Engineer of any apparent anomalies identified.	Downer PS - 11.2	Survey Records	Prior to Works	H	PE
1.01.03	Internal Permits	Complete internal Permits as required to complete works including but not limited to: Hot works, concrete saw, lift, confined space, working at height etc.	Downer	Internal Permits	Prior to activity being undertaken	H	SE
1.01.04	External Permits	Obtain External Permits as required to complete works including but not limited to: Close approach, Worksafe Notice etc.	Downer	External Permits	Prior to commencment of activity	H	SE
1.01.05	Approved Construction Drawings	Prior to starting works, Ensure that the construction drawings are both IFC and the Current Version.	Downer	IFC Drawings	Prior to works start	H	PE
1.01.06	Construction Methodology	The Contractor must submit their proposed construction methodology and justification to the Engineer for review at least 10 Working Days prior to commencement of bridge construction. The Engineer's review will be limited to conceptual assessment of any potential impact on critical elements of the structure.	PS - 11.3 SS 2146 - 3	Methodology	At least 10 Working Days prior to commencement	HP	ENG
1.01.07	Stakeholder	Inform stakeholder of upcoming pours. Special considerations to early morning pours, potential for noise monitoring requirements being triggered. *Forward correspondence around notifications of early morning pours to the Engineer and HCC before pours are carried out.	CNVMO / CCCP	correspondence with stake holders	per pour	H	PE
SECTION 2 – MATERIAL, PERSONNEL & THIRD PARTY APPROVAL							
2.01	Temporary Works						
2.01.01	Chartered Engineer	The Contractor shall employ or retain a Chartered Engineer registered with Engineering New Zealand and experienced in the design of temporary works and erection engineering activities to design and provide construction oversight for all temporary works as specified in these Contract Documents and/or as may be necessary to complete the Physical Works.	PS - 11.14	Chartered Engineer Details	Prior to Temporary Works	HP	PE
2.01.02	Drawings and calculations	The drawings and calculations for the temporary works and/or erection engineering activities prepared by the Contractor shall be submitted to the Engineer for review in advance of proceeding with any temporary works covered by the drawings and calculations to facilitate construction. In no case shall construction commence until the Engineer has reviewed and accepted the drawings and calculations.	PS - 11.14	Approved Drawings and calculations	Prior to Temporary Works	HP	ENG
2.02	Concrete						

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2.02.01	Concrete Mix Design	Concrete mix design to be completed and reviewed by the contractor prior use on site. The following criteria are to be satisfied: • Strength: 40Mpa • Normal maximum aggregate size: 20mm • Basic drying shrinkage strain 720 microstain • Concrete materials and manufacturing are to comply with NZS3109 • All concrete shall contain a minimum of 25kg/m3 of micro silica for enhanced durability. • Only one brand of cement shall be used throughout the works without prior Engineer's written acceptance. • Details of the types and rates of application of the admixtures proposed are to be supplied to the Engineer for acceptance. • Trials undertaken in advance of production to verify outcomes are being achieved in accordance with mix design expectations. This is to include if the mixes will be pumped. • The Contractor shall identify appropriate preventive measures and to justify those measures to the Engineer to minimise the risk of Alkali Silica Reaction (ASR).	PS - 11.5 SS 2140 - 3, 4, 9, 6.1, 6.3, 6.5	Concrete Mix Design	All Mix Designs	H	PE
2.02.02	Concrete Mix Design Checklist	Each mix design shall have a completed concrete checklist with supporting data including Trial Results, submitted at least 5 Working Days prior to production of that mix design, for the Engineer's review and acceptance.	PS - 11.5 SS 2140 - 9	Concrete Checklist	5 Working Days prior to production of that mix design	HP	ENG
2.03	Reinforcement						
2.03.01	Reinforcement	3D modelling completed, bar bending schedule checked against latest construction drawings and submitted to the Engineeer for review	Downer	Reinforcment shop drawings	Each batch of reinforcement	H	PE
2.03.02	Reinforcement	Mill & test certificates for each batch of reinforcement used to be provided to the Engineer. Unless specifically nominated otherwise on the Drawings, only Grade 500E reinforcement manufactured using the micro-alloyed process is acceptable.	SS 2142 - 3 PS - 11.6	Mill Certs	Each Batch assigned to Each Pour	R	ENG
2.03.03	Welding reinforcing	Prior to welding reinforcement, approval from the Engineer must be obtained. The person undertaking the weld must hold the relevant certification.	SS 2142 - 9	Approval	Prior to welding (if required)	HP	ENG
2.03.04	Steel supply	Certificate of origin for all steel reinforcing supplied	NA	Certificate	Each batch of reinforcment	R	ENG
SECTION 3 – CONSTRUCTION ACTIVITY							
3.01	Pre pour						
3.01.01	Temporary Works	Temporary works to be installed as per design drawings. Permit to load to be issued by temporary works inspector prior to loading element	Downer	Permit to load	As defined in the temporary works design	H	PE
3.01.02	Reciept of Reinforcment	Reinforcement checked against bending schedule. Bars correct length, size, shape, grade, and free of defects.	IFC Drawings SS 2142	Photos / delivery dockets	Each pour	I	SE
3.01.03	Reinforcing Welding and NDT Inspections	All reinforcing steel welding should comply with AS/NZS 1554.3; and all welded splices shall also conform with NZS 3109 Clause 3.7.2 or 3.7.3.	SS 2142 - 9 AS/NZS 1554:3 NZS 3109 Cl 3.7.2 or 3.7.3	TPI Report	Each weld prior to installation	H	TPI

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3.01.04	Pre pour inspection	Pre-pour inspection checklist undertaken by the Site Engineer and captured on the ConQA web app. All aspects of the element to be checked against latest construction drawings and specification requirements.	Downer	Pre Pour	Each Pour	H	SE
3.01.05	Engineers Inspection	The Contractor shall advise the Engineer when he intends to commence placing concrete. No concrete shall be placed until the Engineer is satisfied that the requirements of this Specification and the Drawings relating to formwork, reinforcement and construction joints have been complied with entirely. No concrete shall be placed in the absence of the Engineer without prior acceptance.	SS 2146 - 6 PS - 2.2.16	Hold Point Release	Min 48h Notice	HP	ENG
3.01.06	ESCP	All erosion and sediment control measures are to be installed and maintained in accordance with Site Specific ESCP	Site Specific ESCP	Acceptance	Each pour	I	SE
3.01.07	Concrete Cover	Concrete Cover: 75mm - all concrete cast in contact with the ground 50mm - where protected from soil contact during casting by formwork or by a suitable damp-proof membrane 40mm - standard unless noted otherwise on the drawings Tolerances: i) In slabs and walls ..... +10, -0mm ii) In beams and columns ..... +10, -0mm iii) At ends of members ..... +25, -0mm	IFC Drawing NZS 3109 Secion 3.9	Approval	Before concreting	I	SE
3.02	Concrete Pour						
3.02.01	Unfavourable Conditions - Cold Weather	Concrete shall not be placed in conditions where temperature is below 5°C with temperature decreasing or below 2°C with temperature increasing.	PS - 11.5 NZS3901 cl 7.2	Pre Pour	Each Pour	R	SE
3.02.02	Unfavourable Conditions - Hot Weather	Concrete shall not be placed in excessively hot dry conditions. Concrete temperature should not be higher than 30°C	NZS3901 Cl. 7.2.1 & Cl. 7.2.2	Pre Pour	Each Pour	R	SE
3.02.03	Unfavourable Conditions - Rain	Concrete shall not be commenced when heavy rains is falling or threathening and if rain commences during a pour, the work shall be protected as directed to prevent damage to the concrete or to any newly finished surfaces until the concrete has set to such a stage as to withstand leaching of the cement.	BBO SS2146	Pre / During Pour	Each Pour	R	SE
3.02.04	Construction Joints	Where a concrete surface is to act as a construction joint to receive infill over or adjacent, the contact surface interface shall be prepared to the Engineer's satisfaction to be clean, free of laitance, and with a peak to trough roughness of not less than 5mm to ensure compliance with Type B construction joints as defined by NZS3109 Section 5.6.	PS - 11.5 NZS3109 Section 5.6	Pre / Post Pour	Each Pour	I	SE
3.02.05	Delivery dockets	Each batch delivered shall be accompanied by a delivery docket certifying the cement type, maximum aggregate size, specified strength, slump or spread, date, time mixing completed, and time water added at the plant.	SS 2140 - 4	Dockets	Each Delivery	R	SE

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3.02.06	Slump tests and spread tests	Slump tests or spread tests shall be taken for each delivery of concrete and the results recorded by the Contractor **Table 9.1 – Tolerances for nominated slump** Nominated slump (mm) / Tolerance for snatch sample (mm) 60 or less: ±20 70 – 110: ±30 Greater than 110: ±40	SS 2140 - 7 NZS3109 Table 9.1	Photos or slumps and on-site records	Each Delivery	I	SE
3.02.07	Time Limits	Concrete not placed and vibrated in forms after 90 minutes have lapsed from the stated time that water was added at the plant, or within 30 minutes after discharge from the mixer or agitator truck, may be rejected by the Engineer. Concrete not placed in its final position in the forms before initial set has occurred shall not be used. For concrete mixes containing set accelerating admixtures the above times shall be halved.	SS 2146 - 7	Site Notes Batching record Delivery dockets	Each Delivery	R	SE
3.02.08	Compression Testing	Compression testing shall be carried out at an independent laboratory accepted by the Engineer. A set of specimens for compression tests shall consist of four specimens for each concrete pour, one of which is to be tested at 7 days and the remainder at 28 days. Cylinders are to be cast on-site straight from the truck, not at the batching plant. Larger pours greater than 75m^3 will require an additional set of cylunders to be taken.	SS 2140 - 4 SS 2140 - 7	Compression Tests	Each pour	R	SE
3.02.09	Concrete finishes	Concrete finish are to be as specified by NZS3114, scheduled as follows: Barriers: F5 Precast elements - exterior faces : F5, connecting faces to other elements: Type B construction joints to NZS3109 Exposed concrete : F5 Element below ground: F2/U2 Top surface of desk: U5	NZS3114 NZS3109	Approval	Post concreting	R	ENG
3.02.10	Curing	Minium of 7 days wet curing for all concrete including prestressed concrete after completion of accelerated curing	SS2146 -11 Construction Drawing	Acceptance / Repair Details	post concreting	H	SE
3.03	Post Pour						
3.03.01	Falsework and Formwork Removal	Formwork shall not be removed until minimum periods set down in Table 5.3 of NZS3109 have elapsed. The stripping time may be reduced if it is shown by field-cured tests that compressive strength has been attained of twice the stress to which the member will be subjected at the time of stripping or as directed by the temporary works engineer.	SS 2144 - 10 NZS3109 Table 5.3 Downer	Approval	Before removal of Falsework and Formwork	H	SE
3.03.02	Post Pour Inspection	Post pour inspection undertaken by the site engineer and captured in the ConQA web app. Engineer notified of any defects.	Downer	Site Photos	Each pour	H	SE

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3.03.03	Concrete Repair	Repair of any minor surface defect or structural defect of concrete shall only be carried out with the Engineer's acceptance. All repaired concrete shall have the same strength, durability and surface finish as the parent concrete unless otherwise accepted by the Engineer.	SS 2146 - 11 PS - 11.5	Acceptance / Repair Details	Prior to Each Repair	HP	ENG
SECTION 4 – POST CONSTRUCTION							
4.01	Site Post Construction Activities						
4.01.01	Construction Record Compilation	Compile construction records for final submission ensuring defects (NCRs) / Snags / missing records are captured or closed out, all tests have been received and passed, and changes / omissions have been noted.	Downer	Records	Post construction	H	SE
4.01.02	Survey Records	Ensure all items have been surveyed and records are assembled for asbuilting	Downer	Records	Post construction	H	SV
4.01.03	Redline Drawings	Create a set of Redline Drawings for Asbuilt creation noting all changes and departures in red pen.	Downer	Redlines	Post construction	H	SE
4.01.04	Defect, Snag and Punch List	Update the project Defect, Snag and Punch List Register	Downer	Register	Post construction	H	SE
4.01.05	Delivery dockets	At the completion of the Contract a schedule of delivery docket numbers for all concrete supplied shall be forwarded to the Engineer.	SS 2140 - 4	Dockets	Post construction	H	SE