WAKA KOTAHI NZ TRANSPORT AGENCY / Stantec	Downer	INSPECTION AND TEST PLAN	ITP no:	Z1-WB-PAV
		Project: NZTA 5363 CIP SH30 Te Ngae Road Corridor-Iles Rd to Coulter Rd	Associated Docs	
		Construction Process: Type A Pavement	Rev number:	7
Client: NZTA	Head Contractor Subcontractor	Specification: 600 - Pavement		

Item	Task/Activity/Description	Inspection/Test				Acceptance Criteria	Record Document	Responsibility	Comments	Checked by		
		Detail of Activity	Action (Hold, Monitor, Witness)	Minimum Test Frequency (Lot = 1 day's production or 2,500m2)	Inspection / Test method					Engineer	Contractor	Date
600	Pre-construction / Preliminary Compliance Requirements											
600.1	Method Statement Development / Job Safety Analysis / Enviro Site Specific Plans		H	Prior to Construction		Method Statement and JSEA Completed and signed by relevant authority		Downer				
600.2	Drawings and Specification		H	Prior to Construction		DWG's and Specifications are of For Construction and latest revision. Reviewed and approved by Designer and Client.		Downer				
600.3	Set out		H	Prior to Construction		Set out as per latest Design Model / For Construction Drawings.		Designer				
600.4	Material Approvals	Submit testing data fir the following materials: - AP65	H	Prior to Construction	Quarry Testing Data	Material approvals to be sent to the Engineer. Refer Project Specs and Drawings; • AP65: o Crushing Resistance < 100kN o Weathering Quality Index of A,AB, AC, BA, BB or CA o Sand Equivalent ≥ 25 if > 4% passing 75um sieve o CBR minimum 40 using heavy compaction o Grading		Designer				
600.5	Materials Approvals		H	Prior To Construction		Ensure underground services are positively identified and asbuilt. Where this interferes with design permanent works, Service provider and Designer to be notified immediately.	InEight Records	Contractor				
	Construction and Finshing											
600.6	Existing Pavement Assessment	Confirm Pavement Depth	H	50m centres	Test Pits / Visual Inspection	Mill 200mm. Dig/core test pits to confirm if existing pavement: - If existing underlying pavement is of sufficient depth (i.e. ≥250mm below mill surface/≥450mm below finished level), continue with "Existing Pavement" steps below (light green rows). - If insufficient depth or poor quality, advise WSP Engineer, mill/excavate to 450mm from FL, and complete "Full New Pavement" requirements below (light blue rows for Recycled or Mixed Materials, light yellow rows for Engineered Material only - i.e. AP65,).	QC Sheets	Contractor	Existing pavement to measure 450mm from finished level (minimum). If not "Full New Pavement" requirements are to be followed.			
600.7		Beam Test	H	20m centres, alternating wheel tracks where possible	Beam Testing	Review beam test results to determine if undercuts are required. <1mm: - No Undercut 1 - 2.5mm Beam Deflection: - Undercut 50mm - Backfill with 20/40 drainage aggregate 2.5 - 5mm Beam Deflection: - Undercut 100mm - Backfill with AP65 5+ mm Beam Deflection: - Undercut 200mm - Backfill with AP65	QC Sheets / Lab Result Sheet	Contractor				
600.8		Milled Surface Stringlines	M	20m centres	Visual Inspection	Finished Level – String Line, +20mm/-50mm (i.e. 20mm high, 50mm deep)	QC Sheets (String Sheet)	Contractor				
600.9	Existing Pavement - Subbase Stabilising (During Construction)	Mat Samples (1m2 canvas)	W	1 mat weighed every 400m2	Mat Samples	· Subbase to be stabalised with 3% cement. · Keep record of tonnage of stabilisation agent (cement) used per area 14. kg/m2 +/- 0.5kg/m2.	QC Sheets	Contractor				
600.10		Plateau Density Test	W	1 Plateau Density Test per lot	NDM	Determine minimum number of roller passes required to reach peak compaction strength using both primary compaction and finishing compaction rollers.	QC Sheets	Contractor				
600.11		Stabilisation Depth	M	Once per lot	Visual Inspection (with tape measure)	Stabilised to 200mm depth.	QC Sheets (Photos)	Contractor				
600.12		Beam Test	H	20m centres, alternating wheel tracks where possible	Benkleman Beam	≤ 2mm deflection	IANZ Accredited Lab Results	WSP Laboratory				

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600.13	Existing Pavement - Subbase Stabilising (Post Construction)	Stabilised Depth	M	Cores (1 per 2000m2, minimum 3 per lot)	Core Visual Inspection	· Cohesivity (cores hold together to be removed) · Grading of aggregate (i.e. good mix of different stone sizes) · Stabilised depth - Tolerance: 200mm +20mm / -60mm	QC Sheets (Photos / Coring Report)	Contractor				
600.14		Stringlines	H	Every 10m	Visual Inspection	Layer Finished Level – String Line, each lane Tolerance: +10mm/-30mm	QC Sheets	Contractor				
600.15	Full Depth New Pavement - Recycled/Mixed Material - Subgrade Layer	Subgrade Levels	H	20m centres	Visual Inspection	Cut subgrade to 450mm below finished level. String line tolerance to be within +20mm/-50mm (i.e. 20mm high, 50mm deep)	QC Sheets	Contractor	Remove to waste and excavate 530mm from top of kerb / 450mm from finished surface level.			
600.16		Scala Penetrometer	H	Inferred CBR, 5 tests per 500m2. 1 per 20lm	Scala Penetrometer	Scala (bearing Strength on insitu subgrade) to depth 500mm, with the following requirement to be achieved; ≥ 3 blows per 100mm - No Undercut 2-3 blows per 100mm - 200mm Undercut 1-2 blows per 100mm - 300mm Undercut <1 blow per 100mm - 450mm Undercut	QC Sheets (Scala Sheet)	Contractor	Scala results to meet or exceed per below: 0mm - 100mm - ≥ 3 blows per 100mm 100mm - 200mm - ≥ 2 blows per 100mm 200mm - 300mm - ≥ 2 blows per 100mm 300mm - 400mm - ≥ 1 blow per 100mm 400mm - 500mm - ≥ 1 blow per 100mm			
600.17		Proof Roll	H	One per lot	Visual Inspection	Proof roll – Check for uniformity, soft areas to be undercut 200mm and backfilled with recycled pavement, AP40 Hardfill or AP65.	QC Sheets/Site records	Contractor	Backfilled with recycled pavement (millings), Hardfill or AP65.			
600.18	Full Depth New Pavement - Recycled/Mixed Material - Subgrade Improvement Layer	Undercut Measurements	M	Every undercut section	Visual Inspection	Measure and record undercut area and depth	QC Sheets/Site records	Contractor				
600.19		Backfill Layers	M	Every 20m	Visual Inspection	Backfill and compact in 160mm-200mm layers	QC Sheets	Contractor	Use recycled pavement (millings), Hardfill or AP65 if available. We propose to use proof roll instead of NDM testing because of the variablity of the recycled material and the bitumen content in it making it hard to test. This supersedes clause 22.2.1 in the project Specification.			
600.20	Full Depth New Pavement - Recycled/Mixed Material - Subbase Layer	Construct Subbase	M	Per Lot	Visual Inspection	Construct subbase with 200mm of millings and top up with AP65 if needed. (330mm below TOK) Add 50mm of 20-40 drainage material. (280mm below TOK) Ensure material is compacted and enough volume to be stabilised.	QC Sheets	Contractor	Check each layer with strings			
600.21	Full Depth New Pavement - Recycled/Mixed Material - Subbase Stabilising (During Construction)	Mat Samples (1m2 canvas)	W	1 mat weighed every 400m2	Mat Samples	· Subbase to be stabalised with 3% cement. · Keep record of tonnage of stabilisation agent (cement) used per area 14. kg/m2 +/- 0.5kg/m2.	QC Sheets	Contractor				
600.22		Plateau Density Test	W	1 Plateau Density Test per lot	NDM	Determine minimum number of roller passes to achieve peak/maximum density using both primary compaction and finishing compaction rollers.	QC Sheets	Contractor				
600.23		Stabilisation Depth	M	Once per lot	Visual Inspection (with tape measure)	Stabilised to 200mm depth.	QC Sheets (Photos)	Contractor				
600.24	Full Depth New Pavement - Recycled/Mixed Material - Stabilised Subbase (Post Construction)	Beam Test	H	20m centres, alternating wheel tracks where possible	Benkleman Beam	≤ 2mm deflection	IANZ Accredited Lab Results	WSP Laboratory				
600.25		Stabilised Depth	M	Cores (1 per 2000m2, minimum 3 per lot)	Core Visual Inspection	· Cohesivity (cores hold together to be removed) · Grading of aggregate (i.e. good mix of different stone sizes) · Stabilised depth - Tolerance: 200mm +20mm / -60mm	QC Sheets (Photos / Coring Report)	Contractor				
600.26		Stringlines	H	Every 10m	Visual Inspection	Layer Finished Level – String Line, each lane Tolerance: +10mm/-30mm	QC Sheets	Contractor				

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600.27	Full Depth New Pavement - Engineered Material - Subgrade Layer	Subgrade Levels	H	20m centres	Visual Inspection	Cut subgrade to 450mm below finished level. String line tolerance to be within +20mm/-50mm (i.e. 20mm high, 50mm deep)	QC Sheets	Contractor	Remove to waste and excavate 530mm from top of kerb / 450mm from finished surface level.			
600.28		Scala Penetrometer	H	Inferred CBR, 5 tests per 500m2. 1 per 20lm	Scala Penetrometer	Scala (bearing Strength on insitu subgrade) to depth 500mm, with the following requirement to be achieved; ≥ 3 blows per 100mm - No Undercut 2-3 blows per 100mm - 200mm Undercut 1-2 blows per 100mm - 300mm Undercut <1 blow per 100mm - 450mm Undercut	QC Sheets (Scala Sheet)	Contractor	Scala results to meet or exceed per below: 0mm - 100mm - ≥ 3 blows per 100mm 100mm - 200mm - ≥ 2 blows per 100mm 200mm - 300mm - ≥ 2 blows per 100mm 300mm - 400mm - ≥ 1 blow per 100mm 400mm - 500mm - ≥ 1 blow per 100mm			
600.29		Proof Roll	H	One per lot	Visual Inspection	Proof roll – Check for uniformity, soft areas to be undercut 200mm and backfilled with recycled pavement, AP40 Hardfill or AP65.	QC Sheets/Site records	Contractor	Backfilled with recycled pavement (millings), Hardfill or AP65.			
600.30	Full Depth New Pavement - Engineered/Quarry/AP65 Material - Subgrade Improvement Layer	Undercut Measurements	M	Every undercut section	Visual Inspection	Measure and record undercut area and depth	QC Sheets/Site records	Contractor				
600.31		Backfill Layers	M	Every 20m	Visual Inspection	Backfill and compact in 160mm-200mm layers	QC Sheets	Contractor				
600.32	Full New Pavement - Engineered/Quarry/AP65 Material - Subbase Stabilising (During Construction)	MDD and OWC	M	MDD and OWC 1 test per 5000m² laid	Laboratory Test	Report value only	IANZ Accredited Lab Results	WSP Laboratory				
600.33		Mat Samples (1m2 canvas)	W	1 mat weighed every 400m^2	Mat Samples	· Subbase to be stabalised with 3% cement. · Keep record of tonnage of stabilisation agent (cement) used per area 14. kg/m2 +/- 0.5kg/m2.	QC Sheets	Contractor				
600.34		Plateau Density Test	W	1 Plateau Density Test per lot (take samples from behind stabiliser as required - min 3 - for lab testing to determine moisture correction)	NDM	Determine minimum number of roller passes required to meet 95% MDD using both primary compaction and finishing compaction rollers. Report values. Used for moisture contect correction	QC Sheets	Contractor				
600.35		Stabilisation Depth	M	Once per lot	Visual Inspection (with tape measure)	Stabilised to 200mm depth.	QC Sheets (Photos)	Contractor				
600.36		Indirect Tensile Strength (ITS)	H	Two (2) soaked & two (2) dry ITS - taken by IANZ accredited lab technician behind hoe	Laboratory Test	· Dry ITS > 500 Kpa · Soaked ITS >450 Kpa	IANZ Accredited Lab Results	WSP Laboratory				
600.37	Full New Pavement - Engineered/Quarry/AP65 Material - Stabilised Subbase (Post Construction)	Stabilised Subbase Compaction	H	Backscatter NDM (1 per 200m^2)	NDM	Mean ≥ 95% MDD, Min ≥ 92%	IANZ Accredited Lab Results	WSP Laboratory				
600.38		Stabilised Subbase Compaction	H	Direct Transmission NDM (1 per 200m^2)	NDM	Tests to be completed at 100mm depth increments starting at 200mm depth. Check for consistency/uniformity in test results.	IANZ Accredited Lab Results	WSP Laboratory				
600.39		Stabilised Depth	M	Cores (1 per 2000m2, minimum 3 per lot)	Core Visual Inspection	· Cohesivity (cores hold together to be removed) · Grading of aggregate (i.e. good mix of different stone sizes) · Stabilised depth - Tolerance: 200mm +20mm / -60mm	QC Sheets (Photos / Coring Report)	Contractor				
600.40		Indirect Tensile Strength (ITS)	H	Cores (1 per 2000m2, minimum 3 per lot)	Laboratory Test	Target lab results. Tolerance: Lab result +/- 25%	IANZ Accredited Lab Results	WSP Laboratory				
600.41		Stringlines	H	Every 10m	Visual Inspection	Layer Finished Level – String Line, each lane Tolerance: +10mm/-30mm	QC Sheets	Contractor				
	Close Out											
600.27	Collate above documentation	Document review	H	Each ITP	Review		N/A	Contractor				
600.28	As-built drawings	Survey	H	At completion of construction	Asbuilts to be submitted at the completion of construction	-As-built to be submitted at the completion of construction -Information to be captured: -Maintain Redline drawings through works.	N/A	Contractor				
600.29	RAMM Data		H		Info to be submitted by the completion of project construction	-Information to be captured:	N/A	Contractor				

Client Final Inspection - the signature below verifies that this ITP has been completed in accordance with NZTA Specifications and verifies lot compliance. Date: _____

Contractor's Rep Name:_____ Date: _____

BBO Engineers Rep Name:_____

H	Hold Point
W	Witness Point
M	Monitor Point