WAKA KOTAHI NZ TRANSPORT AGENCY	Downer	Construction Process: **Modified Basecourse Layer**	**Start RP**		**INSPECTION AND TEST PLAN - VERSION CONTROL**		**A**	**B**	**C**	**0 - IFC**
			Finish RP		Prepared by Pavement Designer:	Thorsten Froebel	26/6/24	12/8/24	19/8/24	1/08/2024
		Project Name: **T2W - Tirau to Waiouru - Rehabilitation Works**			Reviewed by Construction Manager:	Wayne Bowden				2/09/2024
					Reviewed by Surf./ Pavmt Manager:	Aiden Smith / Nick Schilov	27/6/24	19/8/24	30/8/24	2/09/2024
Client's Rep. : Engineers Rep Name	**Contractor's Rep. :** Contractor's Rep Name	Specifications: **NZTA B/5: Specification for In-Situ Stabiisation of Modified Pavement Layers, NZTA M/4: Spec forBasecourse Aggregate, NZTA T/19: Procedures for Direct and Indirect Tensile Strength Testing of Modified and Bound Pavement Materials**			Approved Quality Manager.:	Graeme Stokes				2/09/2024
					Approved by: Pavements SME.:	Thorsten Froebel				3/09/2024
					Issued by: Project Director	Chris Seath				3/09/2024

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1.0. AGGREGATE AND BINDER OPTIMISATION / ACCEPTANCE TESTING / DESIGN and DRAWINGS													
1.01	AP40 Basecourse Aggregates used for overlay (if applicable) Notes: H = Hold point up to approval of Optimisation Testing M = Monitor during production	Crushing Resistance	H	1 per 10,000 m3	NZS4407:3.10	< 10% passing 2.36mm sieve at 130kN	IANZ report	Contractor		A	I	R	dd/mm/yy
1.02		Weathering Quality Index	H	1 per 10,000 m3	NZS4407:3.11	AA, AB, AC, BA, BB, CA	IANZ Report	Contractor		A	I	R	dd/mm/yy
1.03		Calfornia Bearing Ratio (CBR)	H	1 per 10,000 m3	NZS4402:4.1.3 NZS4407:3.15	Compaceted using NZ Vibe Hammer 4-day soaked CBR ≥ 80%	IANZ Report	Contractor		A	I	R	dd/mm/yy
1.04		Quality of Fines, either PI or SE or CI	H	1 per 1,000 m3	NZS4407:3.4 - PI NZS4407:3.5 - CI	PI ≤ 5 CI ≤ 3	IANZ Report	Contractor	NZTA M04: 2024 AP40 - Class 2 PI and CI applies	A	I	R	dd/mm/yy
1.05		Broken Faces Content	H	1 per 1,000 m3	NZS4407:3.14	≥ 70% more than two broken faces on aggregates between 37.5mm and 4.75mm	IANZ Report	Contractor	Waived if aggregate is from crushed hard rock quarry	A	I	R	dd/mm/yy
1.06		Particle Size Distribution	H	1 per 1,000 m3	NZS4407:3.8.1	NZTA M04:2024-Class 2 Class 2 in Table 12 for PSD Table 13 for shape control	IANZ report	Contractor		A	I	R	dd/mm/yy
1.07	Optimisation of Stabilising Agent(s)	Blend Particle Size Distribution	H	1 per 1,000 m3	NZS4407:3.8.1	Check if average of existing (from TPs) and any overlay will meet the ideal FBS / BE grading.	Report using IANZ Reports for AP40 and TP PSDs	Designer	Designer to advise if "average" blend is acceptable.	R	A	I	dd/mm/yy
1.08		Indirect Tensile Strength, ITS	H	1 Optimisation test per aggregate type	NZTA T/19: 2020	Testing at 1mm/min: BSM Dry ITS: 175 kPa to 400 kPa BSM Soaked ITS: 150 kPa to 350 kPa Testing at 50.8mm/min: BSM Dry ITS: 210 kPa to 480 kPa BSM Soaked ITS: 180 kPa to 450 kPa	IANZ Report	Designer	Designer to advise on binder content(s) Note that the min.design ITS is as per T/19 Notes + 25kPa to ensure that the min.ITS values are obtained in the field	R	A	I	dd/mm/yy
1.09		Unconfined Compressive Strength, UCS	H	1 Optimisation test per aggregate type	CCNZ / NPTG / CETANZ Industry Guide	UCS limits set by the design engineeer	IANZ Report	Designer		R	A	I	dd/mm/yy
1.10		Modified Maximum Dry Density	H	Single Point DD vs WC during optimisation test	NZS 4402.4.1.3	To determine target density	IANZ Report	Designer	Required before Stabilisation comences	R	A	I	dd/mm/yy

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2.0. BEFORE BITUMEN STABILISATION STARTS													
2.01	Setout section	Install offset pegs / check geometric model; record centreline, edge line or mark out stabilisation extents from existing line marking	H	Prior to each section	Survey	Document existing furniture	Electronic survey files	Contractor			I	R	dd/mm/yy
2.02	Pre-hoe, shape and proof roll	Pre-hoe to depth specified and shape as instructed in the site spcific methodology statement and/or IFC drawings and proof roll while compacting	H	Prior to stabilisation per section	Use grader's machine control and inspect shape		N/A	Stabilising Contractor	Intention is to carry out only minor correction (eg.2% to 3%). Any major shape corrections to be identified prior to site establishment and included in the site specific methodology statement		A	R	dd/mm/yy
2.03					Visual check or Vibratory Roller's response meter		Stabilising Contractor confirm no obvious soft areas found	Stabiliisng Contractor	Any soft spots identified by visual means or that show up as significantly different to be raised with the ER for further instructions		A	R	dd/mm/yy
2.04	Compaction	Plateau Density Test	H	On first day per site and then 1 per 10,000m2 unless material or anvil conditions change	Draft NZTA T/24 (Aug-2024)	To establish suitability of rollers and compaction mode / pattern to achieve FBS-MDD	Field PDT sheet photos into ConQA for ER and Pavement designer to assess. IANZ report when processed	Stabilising Contractor	If FBS-MDD can't be achieved then the PDT-MDD must be approved by the ER	I	A	R	dd/mm/yy
2.05		Maximum Dry Density	M	On the first day on a new treatment section, then 1 per 10,000m2 unless the material changes	NZS 4402.4.1.3	For analysis of DoC To be done at the sampled MC, at hand squeze test MC and 1% above the hand squueze test on site	IANZ Report	Stabilising Contractor	MDD briqutte to be produced on site if travel time to lab > 30 minutes Note that if the Stabilising Contractor notices changes in material then another one point DD at the hand squeeze test moisture content shall be carried out.	I	A	R	dd/mm/yy
2.06		Degree of Compaction (DoC)	H	5 per 1,000m2	NZS 4407.4.2.1 (DT full stabilising depth)	Average DoC ≥ 95% Minimum DoC ≥ 92%	IANZ Report	Stabilising Contractor		I	A	R	dd/mm/yy
2.07	Overlay and check levels	Supply, pre-compact and trim to line and level with NZTA M/4 AP40	H	Prior to stabilisation per section	Survey	As per NZTA Z/16	Check with Grader and visual inspection	Stabilising Contractor with Main Contractor	This is the last opportunity to check items before adding the FB. Assess items such as (but not limited to): - overlay aggregate quality / consistency - moisture content - any concerns with shape and tie in - etc.		I	R	dd/mm/yy
2.08	Production Plan	Plan showing cut lines and sequencing of works	M	Prior to each section	Daily Report	Points covered in NZTA B/5	Daily Production Plan	Stabilising Contractor			I	R	dd/mm/yy

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3.0. BITUMEN STABILISATION OPERATION													
3.01	Stabilising Agents	Lime (if applicable - check PI delete otherwise)	M	Per Batch	TNZ M/15	Conform to Specification	Certificate in contractor's site folder	Stabilising Contractor			I	R	dd/mm/yy
3.02		Cement, GP	M	Per Batch	NZS 3122	Conform to Specification	Certificate in contractor's site folder	Stabilising Contractor			I	R	dd/mm/yy
3.03		Bitumen (130/150)	M	Per Batch	M/1	Conform to Specification	Certificate in contractor's site folder	Stabilising Contractor			I	R	dd/mm/yy
3.04	Weather conditions	Material behind stabiliser	M	Prior to spreading	Measurement	Material after stabilisation: BE: > 20°C, FB: > 20°C and Ambient: >5 deg.C	Daily work Log	Stabilsing Contractor			I	R	dd/mm/yy
3.05	Weather conditions	Wind	M	Prior to spreading cement or lime	Local weather stations	Wind speed < 25 km/hr	Daily work Log	Stabilsing Contractor			I	R	dd/mm/yy
3.06	Weather conditions	Rain	M	Prior to spreading cement or lime	Local weather stations	No spreading of cement / lime if it is raining or likely to rain before these can be mixed in with the material	Daily work Log	Stabilsing Contractor			I	R	dd/mm/yy
3.07	Spreading of powdered stabilising agent (Cement / Lime)	Place 1m2 canvas or 0.5m x 0.5m trays along spreader run	M	every 400 m2 every 150m for a 2.4m width	Weigh mat or tray	± 0.5kg/m2 of specified rate	Daily work Log	Stabilising Contractor			I	R	dd/mm/yy
3.08		Compare area spread with weight used for each spreader load	M	On-going measurement by computer/load cells	Measurement each run	± 2.5% of specified rate	Daily work Log	Stabilising Contractor			I	R	dd/mm/yy
3.09	Injection of bituminous stabilising agent (FBS or BE)	Flow meter and operator's display readings	M	Continous monitoring by the operator and the grounds person	Visual display reading	± 5% of specified rate	N/A	Stabilising Contractor			I	R	dd/mm/yy
3.10		Compare tonnes used (from the stabiiser's PCU) with the measured area	M	Record usage from PCU at the end of each run	Record readings at the end of each run	± 3% of specified rate	Daily work Log	Stabilising Contractor			I	R	dd/mm/yy
3.11		Compare tonnes used (from delivery docket) with measured area	M	For each bitumen tanker load	Dip bitumen tanker before and after	± 2.5% of specified rate	Daily work Log	Stabilising Contractor			I	R	dd/mm/yy
3.12	Injection & Mixing of Water	In-situ Stabilisation process	M	On-going visual assessment	Visual and hand squeeze test	Mixed material free of pockets or streaks. Overlaps minimum of 150mm	Daily work Log	Stabilising Contractor			I	R	dd/mm/yy
3.13	Depth of stabilisation	Depth of stabilisation	M	Every 200m	Measurement	+15mm / -5mm from specified depth	Daily work Log	Stabilising Contractor			I	R	dd/mm/yy

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3.14	FBS material	Stabilised material strength - ITS	M	3 soaked ITS + 3 dry ITS per Lot or when the material changes	NZTA T/19N: 2020	Testing at 1mm/min: BSM Dry ITS: 150 kPa to 400 kPa BSM Soaked ITS: 120 kPa to 350 kPa Testing at 50.8mm/min: BSM Dry ITS: 180 kPa to 450 kPa BSM Soaked ITS: 150 kPa to 420 kPa	IANZ Report	Stabilising Contractor	ITS briquettes to be produced on site if travel time to lab > 30 minutes.	I	A	R	dd/mm/yy
3.15	Compaction	Plateau Density Test	H	On first day per site and then 1 per 10,000m2 unless material or anvil conditions change	Draft NZTA T/24 (Aug-2024)	To establish suitability of rollers and compaction mode / pattern to achieve FBS-MDD	Field PDT sheet photos into ConQA for ER and Pavement designer to assess. IANZ report when processed	Stabilising Contractor	If FBS-MDD can't be achieved then the PDT-MDD must be approved by the ER	I	A	R	dd/mm/yy
3.16		Maximum Dry Density	M	On the first day on a new treatment section, then 1 per 10,000m2 unless the material changes	NZS 4402.4.1.3	For analysis of DoC To be done at the sampled MC, at hand squeze test MC and 1% above the hand squueze test on site	IANZ Report	Stabilising Contractor	MDD briqutte to be produced on site if travel time to lab > 30 minutes Note that if the Stabilising Contractor notices changes in material then another one point DD at the hand squeeze test moisture content shall be carried out.	I	A	R	dd/mm/yy
3.17		Degree of Compaction (DoC)	H	5 per 1,000m2	NZS 4407.4.2.1 (DT full stabilising depth)	Average DoC ≥ 98% Minimum DoC ≥ 95%	IANZ Report	Stabilising Contractor		I	A	R	dd/mm/yy
3.18	Part of Pre-Seal Inspection (left in here and repeated in the Chipseal as it is part of the Pavement to Surfacing handover)	Clegg Impact Value	H	5 per 1000m2		CIV ≥ 50	CIV form - ConQA	Stabilising Contractor		I	A	R	dd/mm/yy
3.19		Degree of Saturation, DOS	M	5 per 1000m2	NZS 4407.4.2.2 and DOS calculation in NZTA B/5	aim for DOS ≤ 80%	IANZ report	Contractor	Report only	I	A	R	dd/mm/yy

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4.0. Testing and Sgnoff													
4.01	Finished Pavement	Crossfall	H	every 20m	Measurement	± 0.5% of specified crossfall measure 2m apart	Survey	Stabilising Contractor			A	R	dd/mm/yy
4.02		Stabilised width	H	1 every 20m	Measurement	-20mm, +100mm	Survey	Stabilising Contractor			A	R	dd/mm/yy
4.03		Surface Shape	H	every 20m	Measurement	< 10mm using 3m straight edge	Survey	Stabilising Contractor	Only required if the visual inspection appears unsatisfactory		A	R	dd/mm/yy
4.04		Surface Levels	H	every 20m	Measurement	-5mm, +15mm	Survey	Stabilising Contractor			A	R	dd/mm/yy
4.05		Surface Finish	H	Per Lot	Visual	1. Larger aggregate held in pace with a matrix of smaller aggregate 2. Smaller aggregate held in place by fine material 3. matrix does not displace under normal trafficking and/or sweeping	Survey	Stabilising Contractor	ER to be present at pre-seal inspection		A	R	dd/mm/yy
4.06		Roughness	H	Before Sealing	TNZ TM 7003 v1	100m rolling average ≤ 75 counts/km	Test Certificate	Contractor			A	R	
4.07	Pavement Layer Signoff	Assessment of all test results for conformity	H	Each Lot	Site Inspection	Reporting of any non-conforming results to Designer via NCR	NCR	Engineers Representative					dd/mm/yy

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