

MANANUI MINERAL SANDS PROJECT



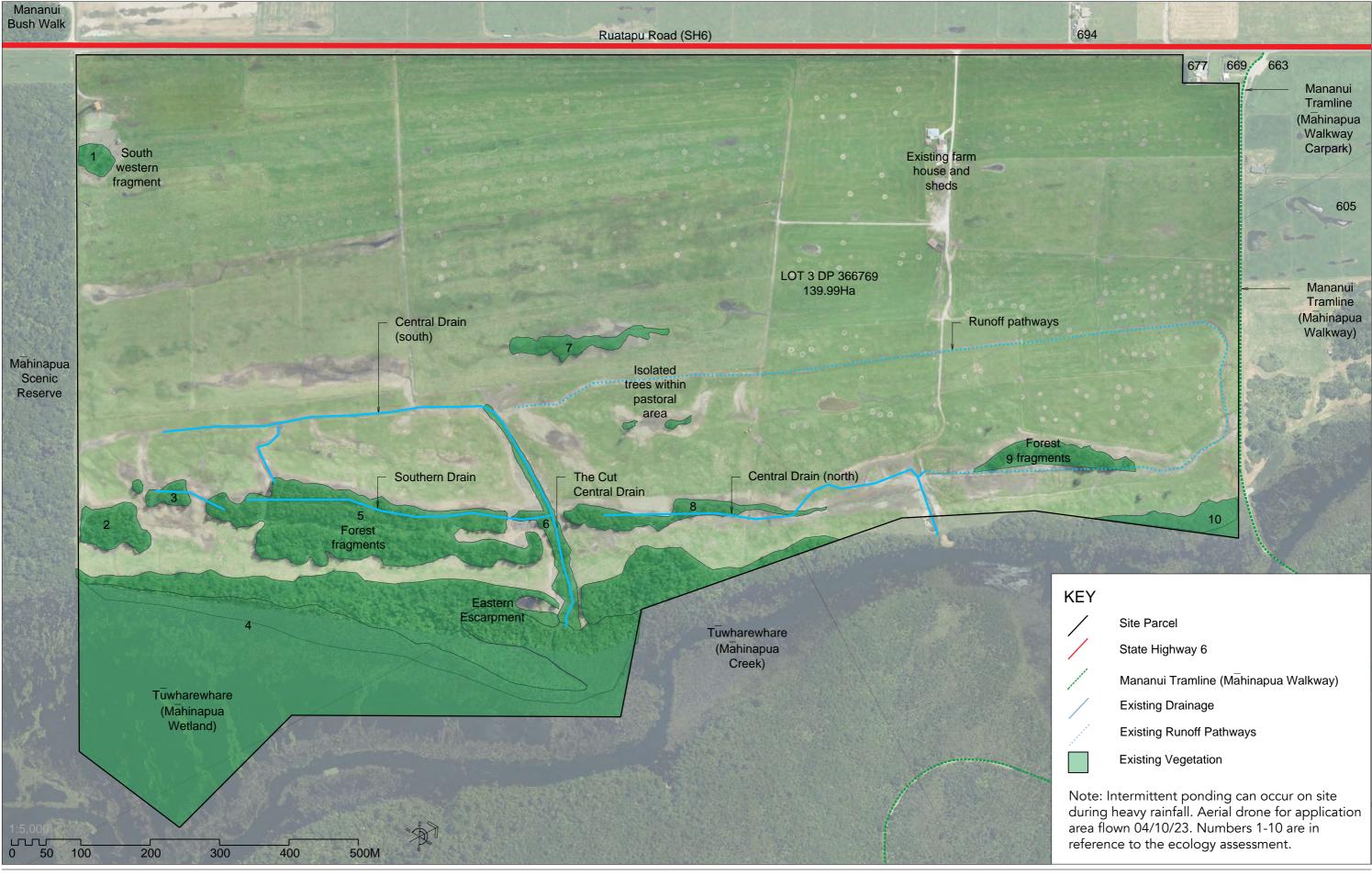
APPENDIX 3: Landscape and Visual - Mitigation November 2024 - Revision 1

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1.0 EXISTING SITE PLAN



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Existing Site Plan

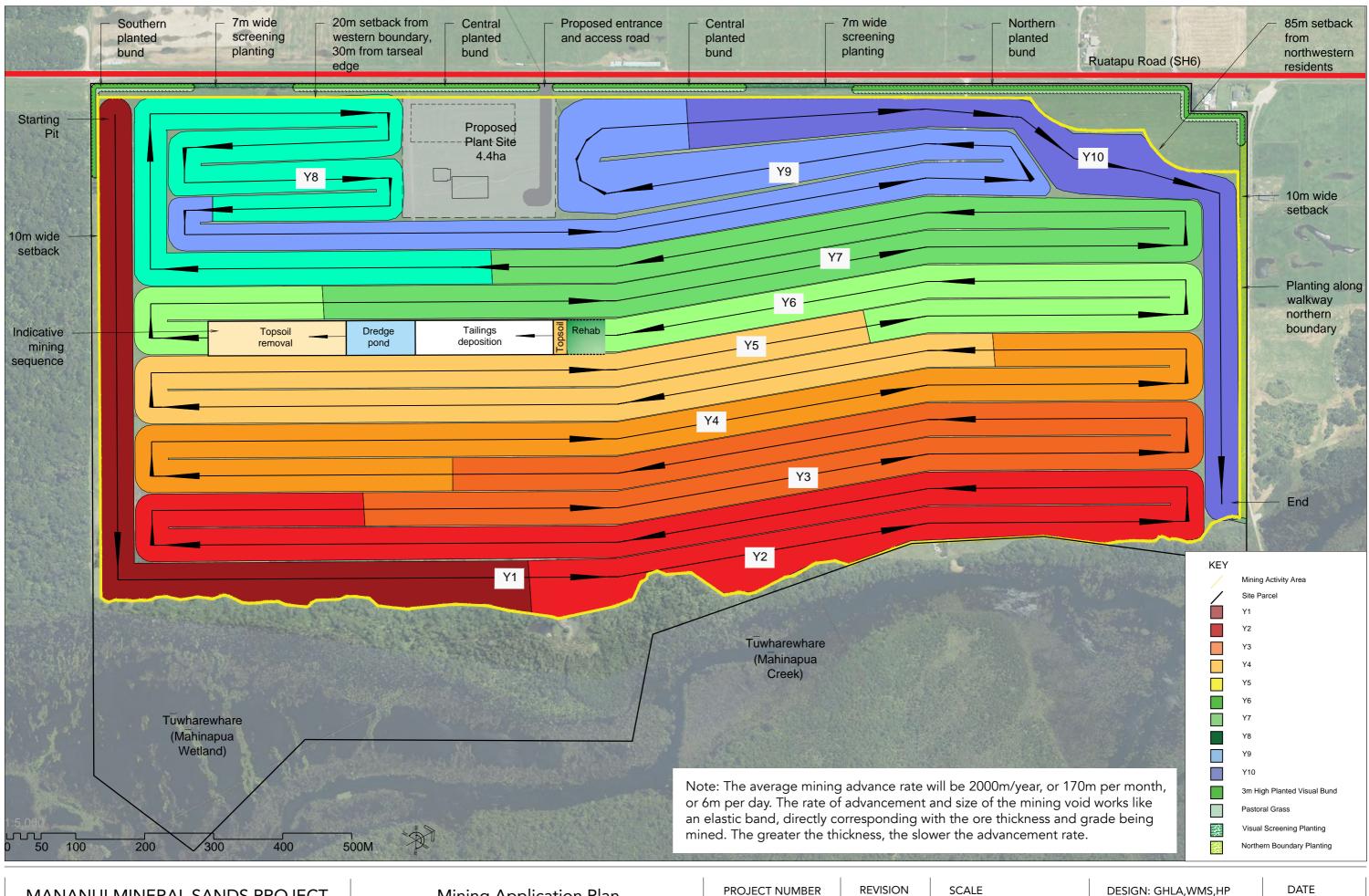
PROJECT NUMBER 2309

REVISION Final

SCALE 1:5000@A3 1:2500@A1

KEY					
/	Site Parcel				
/	State Highway 6				
	Mananui Tramline (Mahinapua Walkway)				
/	Existing Drainage				
	Existing Runoff Pathways				
	Existing Vegetation				
Note: Intermittent ponding can occur on site during heavy rainfall. Aerial drone for applicat area flown 04/10/23. Numbers 1-10 are in reference to the ecology assessment.					

2.0 MINING APPLICATION PLAN



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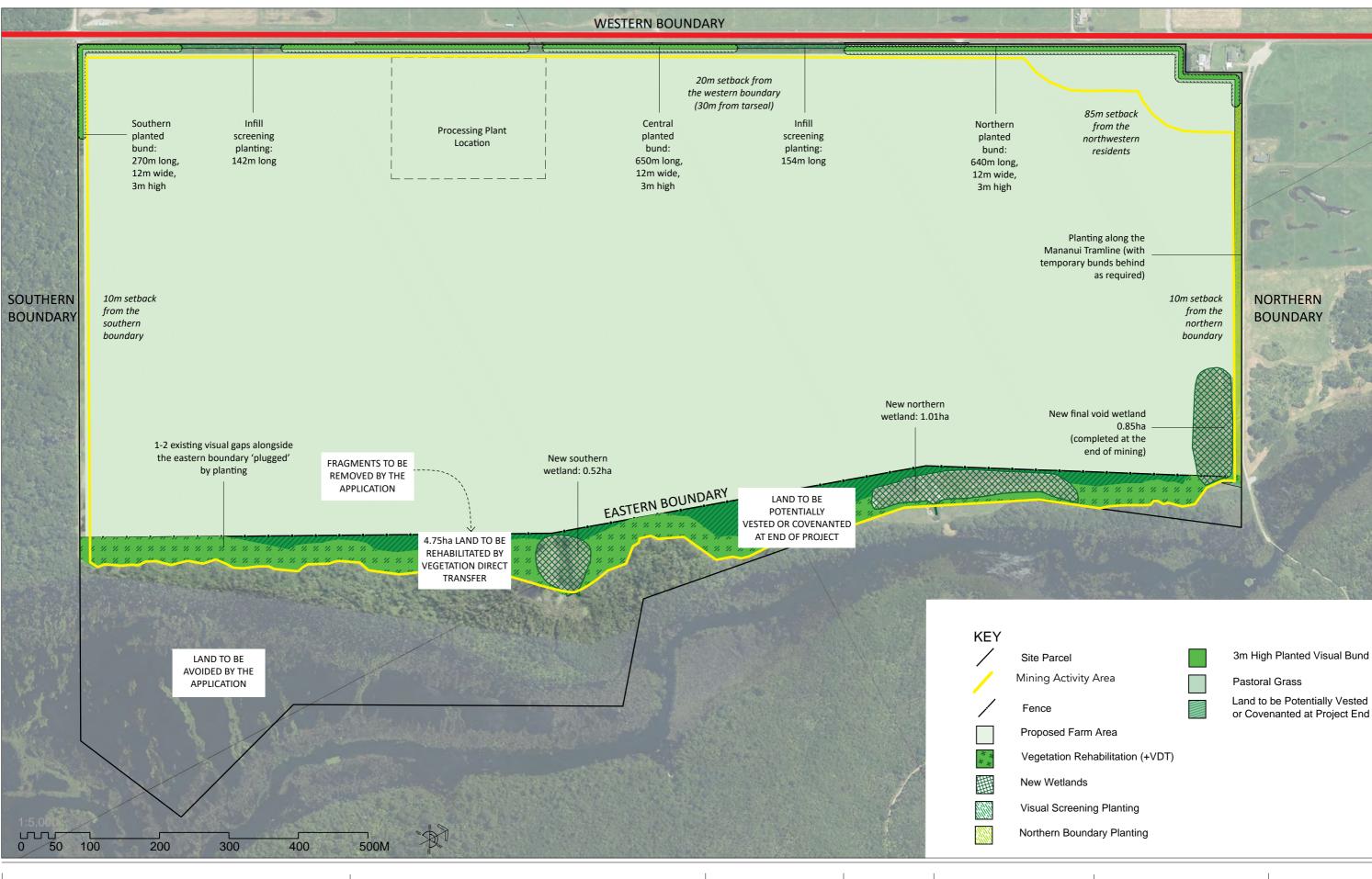
Mining Application Plan

PROJECT NUMBER 2309

Final

1:5000@A3 1:2500@A1

3.0 LANDSCAPE MITIGATION PLAN



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Landscape Mitigation Plan

PROJECT NUMBER 2309

REVISION

Final

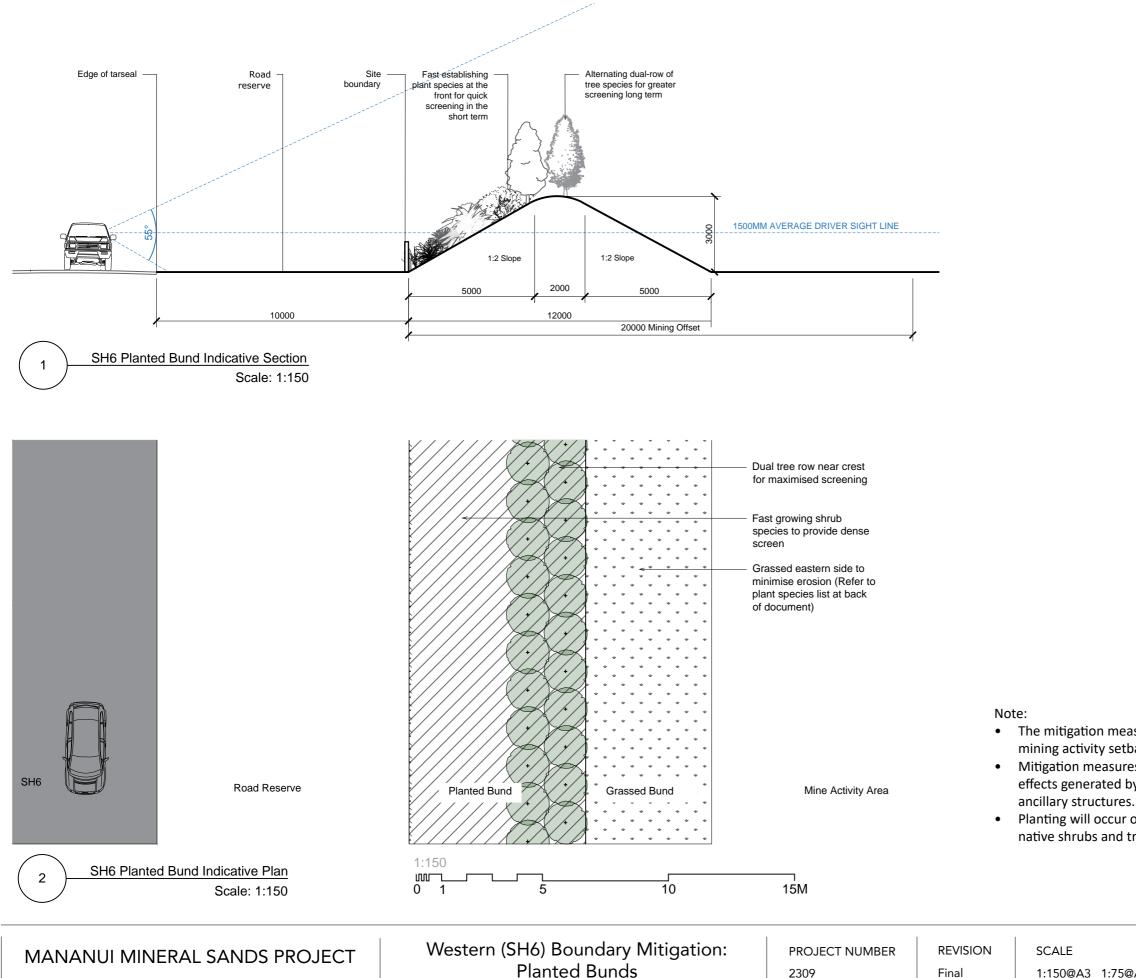
1:5000@A3 1:2500@A1

SCALE

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DESIGN: GHLA, WMS, HP DRAWN: EM APPVD: NC

4.0 WESTERN (SH6) BOUNDARY MITIGATION: PLANTED BUNDS

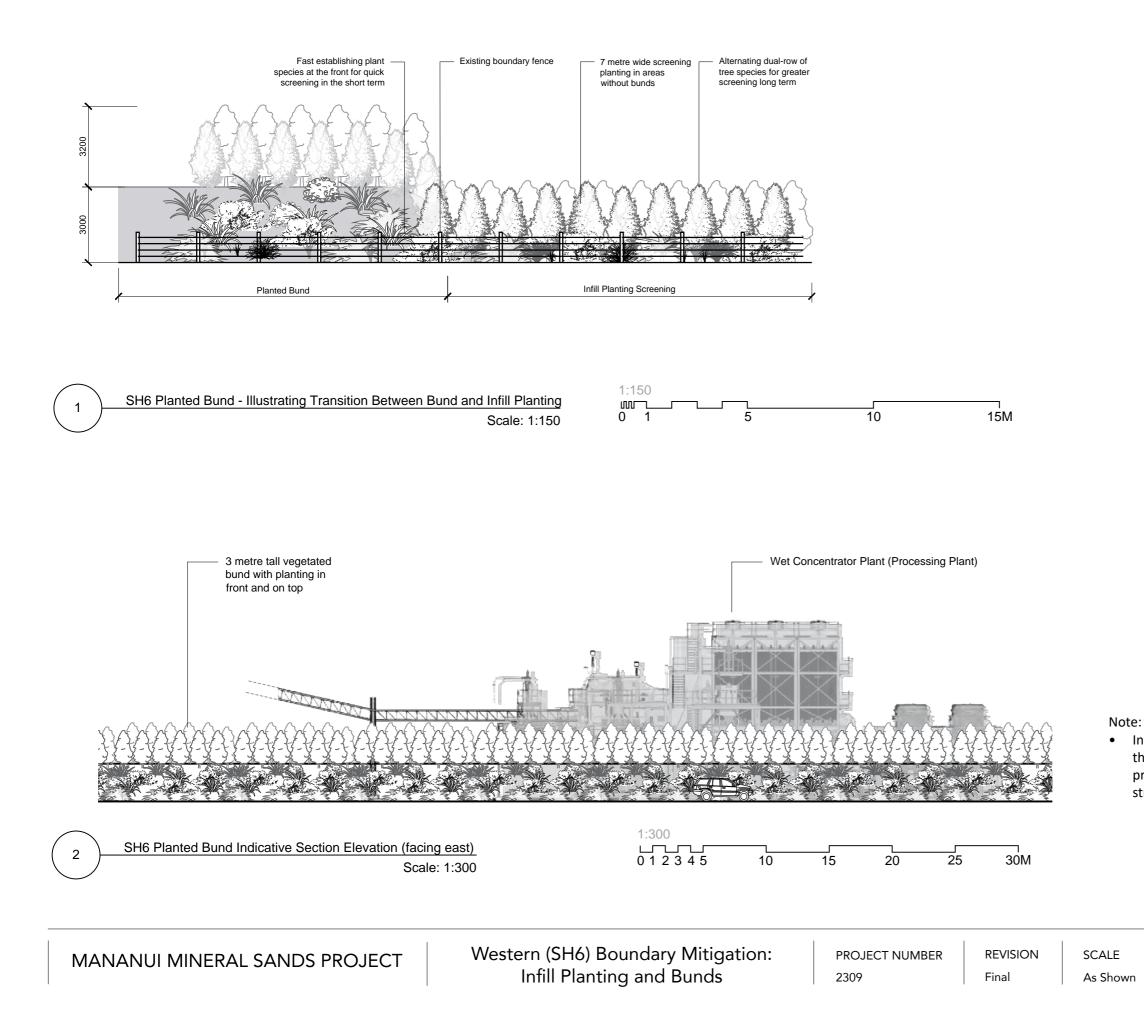


1:150@A3 1:75@A1

• The mitigation measures on the western boundary are located within the 20m mining activity setback from SH6 (30m from the edge of tarseal). • Mitigation measures are designed to mitigate the adverse visual and landscape effects generated by the mining activity, traffic, the Processing Plant and

• Planting will occur on the top and western faces of the bund and will consist of native shrubs and trees. The eastern 'inside' face will have pastoral grass cover.

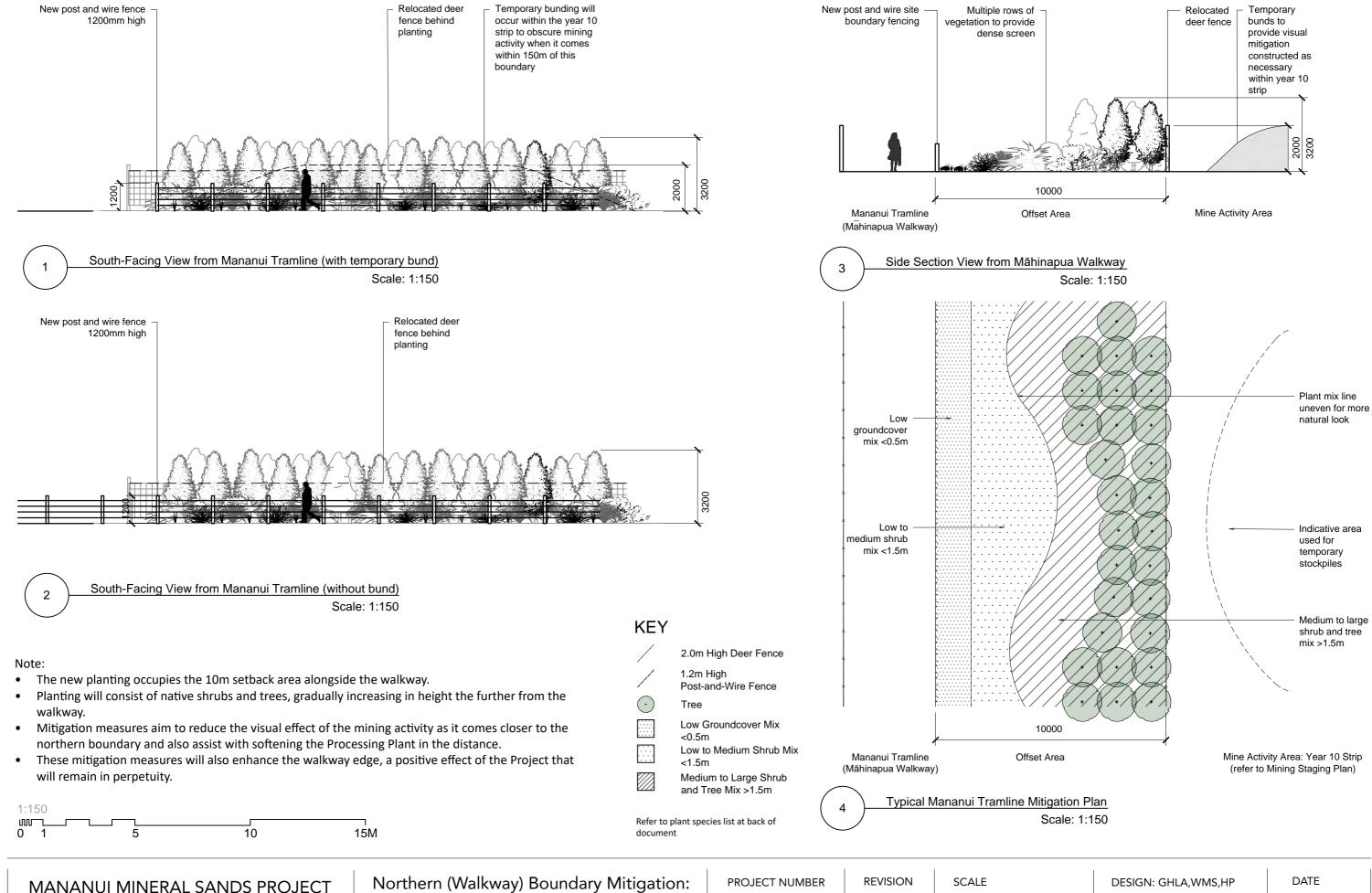
5.0 WESTERN (SH6) BOUNDARY MITIGATION: INFILL PLANTING AND BUNDS



Indicative section/elevation shows relationship between the Processing Plant and the planted bund, with the bund providing visual screening for the bottom third of the

structures.

6.0 NORTHERN (WALKWAY) BOUNDARY MITIGATION: PERMANENT PLANTING AND TEMPORARY BUNDS



Permanent Planting and Temporary Bunds

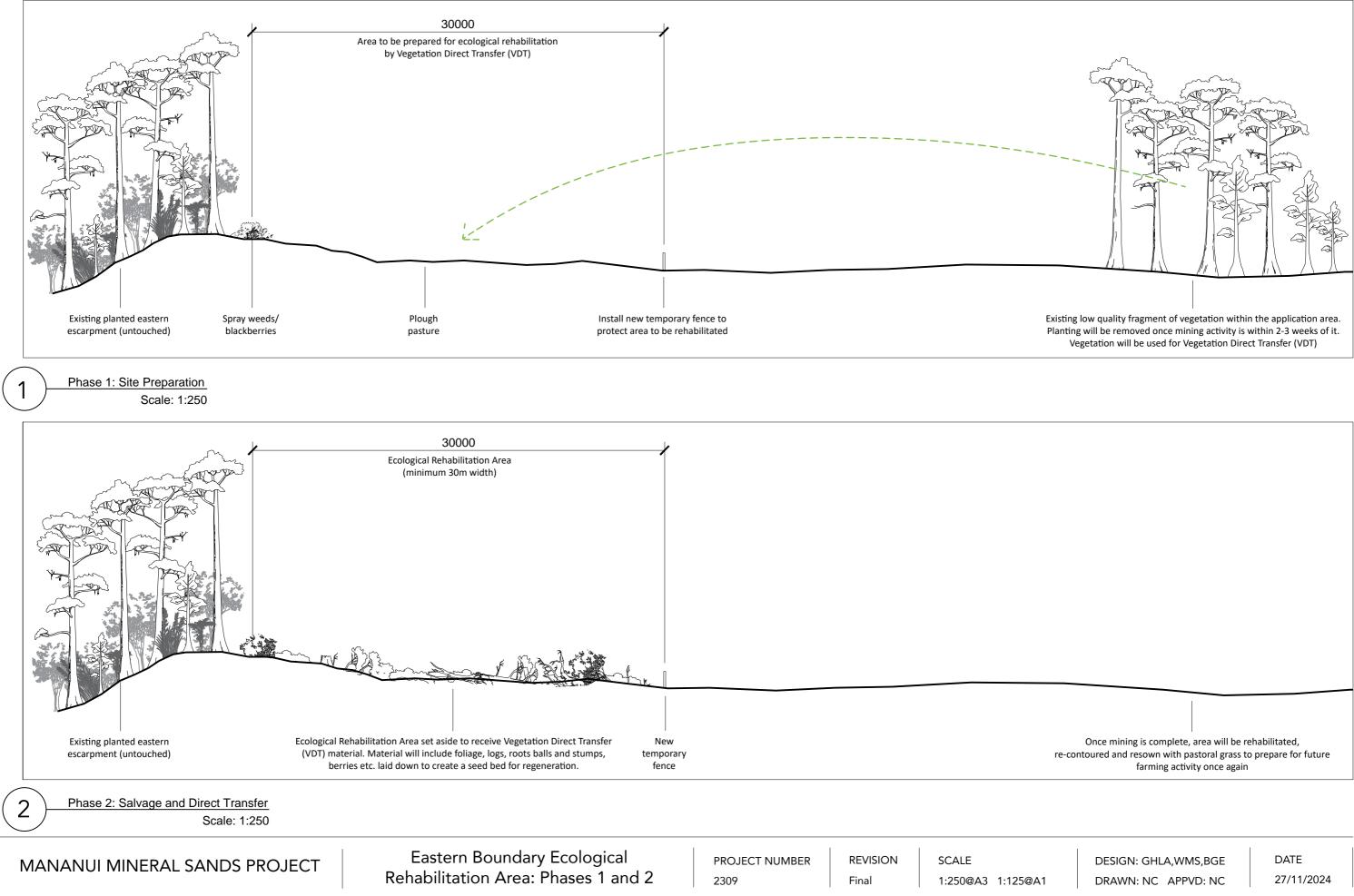
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Final

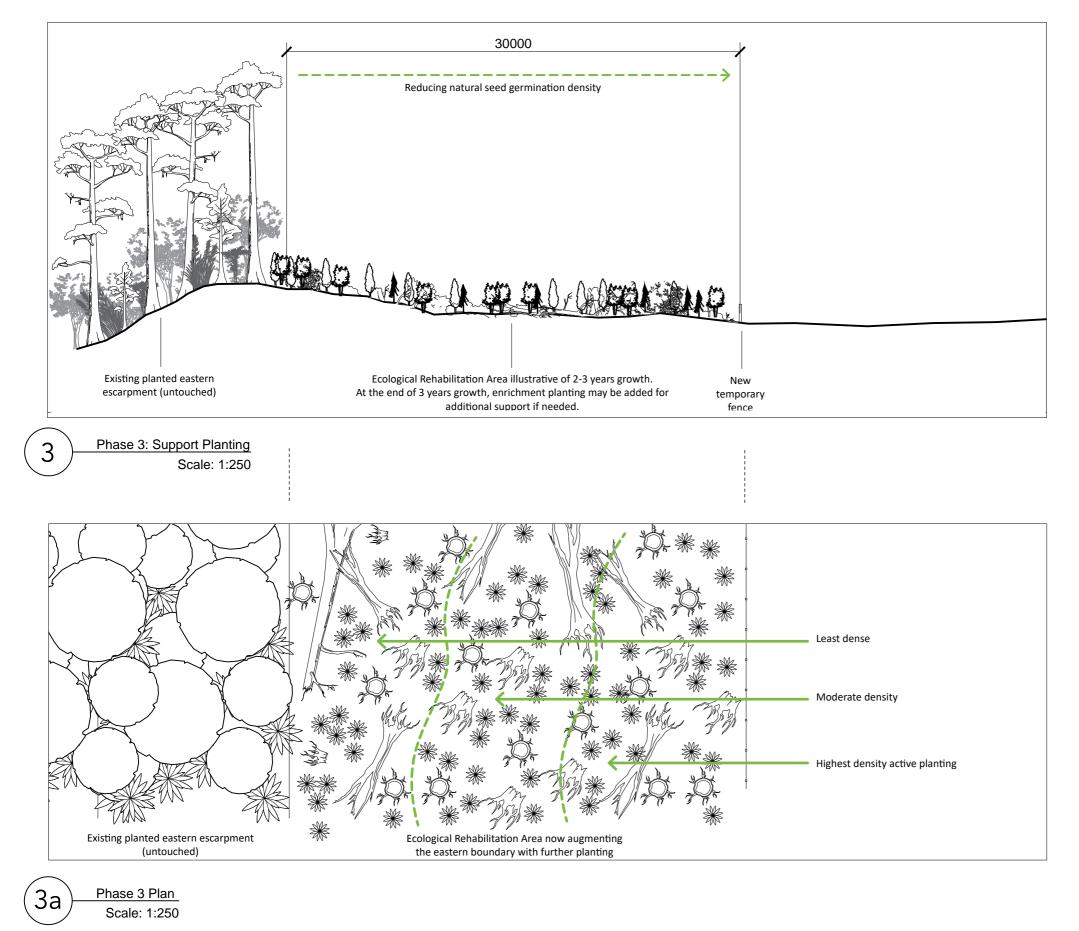
1:250@A3 1:125@A1

18/10/2023 DRAWN: EM APPVD: NC

7.0 EASTERN BOUNDARY ECOLOGICAL REHABILITATION AREA: PHASES 1 AND 2



8.0 EASTERN BOUNDARY ECOLOGICAL REHABILITATION AREA: PHASE 3



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Eastern Boundary Ecological Rehabilitation Area: Phase 3

PROJECT NUMBER 2309

REVISION Final SCALE

DESIGN: GHLA,WMS,BGE DRAWN: NC APPVD: NC

9.0 INDICATIVE LANDSCAPE PLANT SPECIES AND GROWTH RATES

SCIENTIFIC NAME	COMMON NAME	NORTHERN BOUNDARY LOW PLANTING <0.5M	NORTHERN BOUNDARY LOW TO MEDIUM PLANTING <1.5M	NORTHERN BOUNDARY MEDIUM	WESTERN BUND PLANTING	WESTERN INFILL PLANTING	VDT ENRICHMENT PLANTING	WETLAND PLANTING	PLAN
				TO LARGE PLANTING >1.5M					Year
Acaena inermis 'Purpurea'	purple bidibidi	х							
Anemanthele lessoniana	wind grass		х						
Apodasmia similis	oioi		х						
Aristotelia serrata	makomako, wineberry						х		
Carex geminata	rautahi							х	
Carex secta	purei							х	
Carex virgata	pukio							Х	
Chinochloa flavicans	dwarf toe toe		х						
Coprosma robusta	karamu			х	х	x	х		
Coprosma propinqua	mikimiki				х	x			
Cordyline australis	tī kouka, cabbage tree			x	х	x		x	
Dacrycarpus dacrydioides	kahikatea, white pine						x	х	
Dacrydium cupressinum	rimu						x	х	Notes:
Elaeocarpus dentatus	hinau						х		 Plant refin
Griselinia littoralis	broadleaf			х	х	x	х		sche and
Hebe salicifolia	koromiko			х	х	х			Seec Enric
Juncus edgariae	edgar's rush							х	are r ● Plan
Leptinella squalida	brass buttons	х							grow • An a
Leptospermum scoparium	mānuka			х	х	x	x		in co Ecol
Melicytus ramiflorus	māhoe, whiteywood				х	x	x		that
Muehlenbeckia australis	muehlenbeckia			х	Х	x	х		follo follo
Muehlenbeckia axillaris	creeping wire vine	х							a lor • Grov
Myrsine divaricata	weeping matipo				х	x			mair and
Phormium cookianum 'Emerald green'	dwarf mountain flax		х						
Phormium tenax	harakeke, korari			х	х	x	х	х	
Pittosporum eugenioides	tarata, lemonwood				х	x			
Podocarpus totara	totara						Х		
Pratia angulata	panakenake	х							
Pseudopanax crassifolius	lancewood			х	х	x	х		
Pittosporum tenuifolium	kohuhu			х	х	x			
Quintinia serrata	quintinia	1					х	Х	
Sophora prostrata	dwarf kōwhai	1		х	1				
Weinmannia racemosa	kamahi		1	1			х		

PLANT GROWTH

	Mine Year	Native Plant Height
1 2	-	Seed Collection Propagation
3	1	0.45M
4	2	0.90M
5	3	1.35M
6	4	1.8M
7	5	2.25M
8	6	3.60M
9	7	3.15M

Plant species and palettes provided will be subject to further refinement through detailed planting plans, accompanying plant schedules, and consultation with the Project Landscape Architect and the Project Ecologist.

Seedlings will establish from Vegetation Direct Transfer (VDT) Enrichment planting will only occur if seedlings in Rehabilitation Area are not sufficient.

Plant size shown in the previous cross sections are approx. $6\mathchar`-8$ years growth.

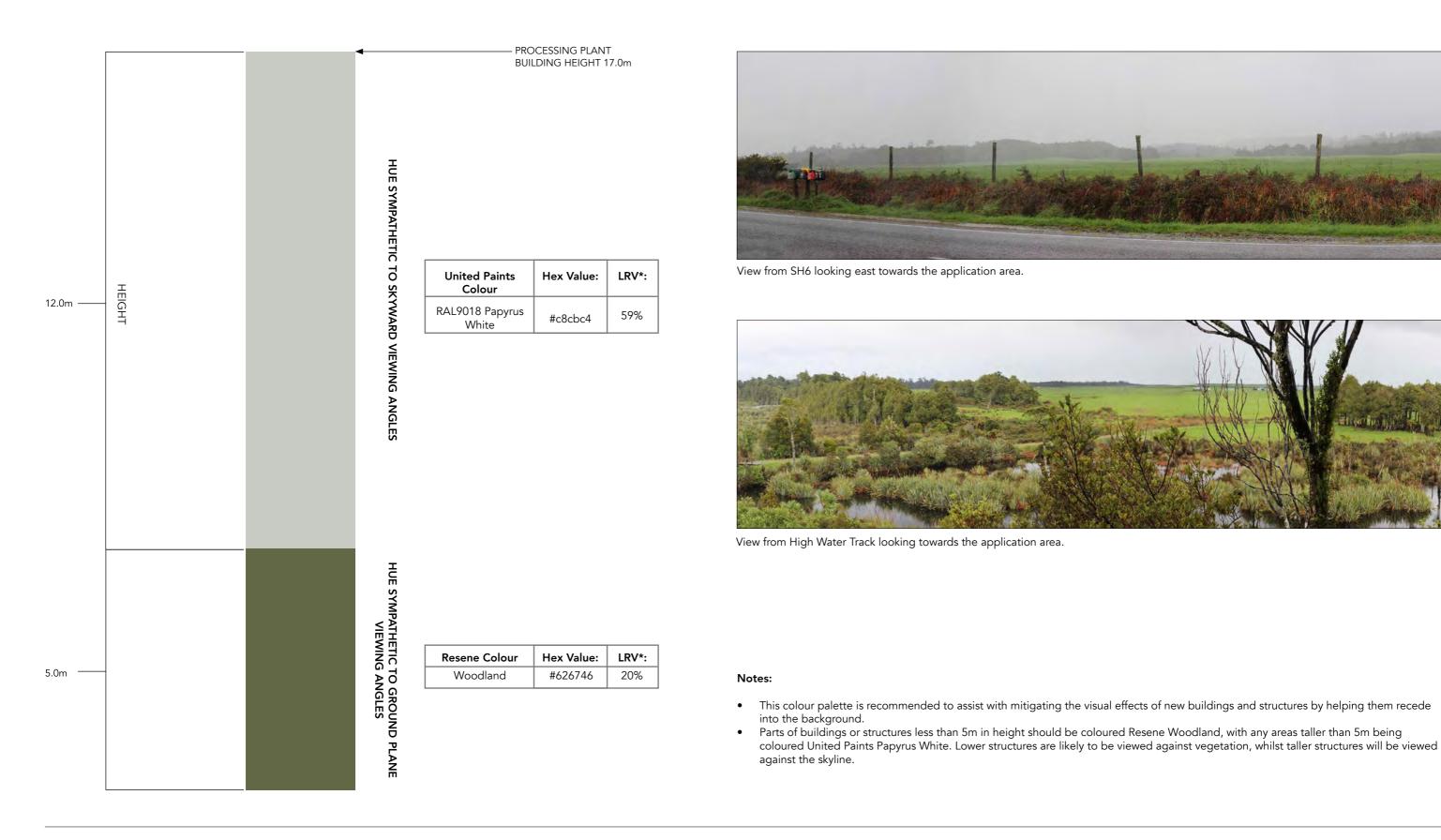
An approximate growth rate of 0.45m per year has been determined in consultation with the Project Landscape Architect and Project Ecologist. The combined experience of these two individuals notes that these plants will sit at a lower growth rate for the first two years following planting, and will have an increase in growth rates in following years. It is also noted that larger individual specimens have

a longer 'sitting' period than smaller ones.

Growth rates can be influenced by seasonal fluctuations,

maintenance, moisture/precipitation, exposure, ground conditions, and type of plant species.

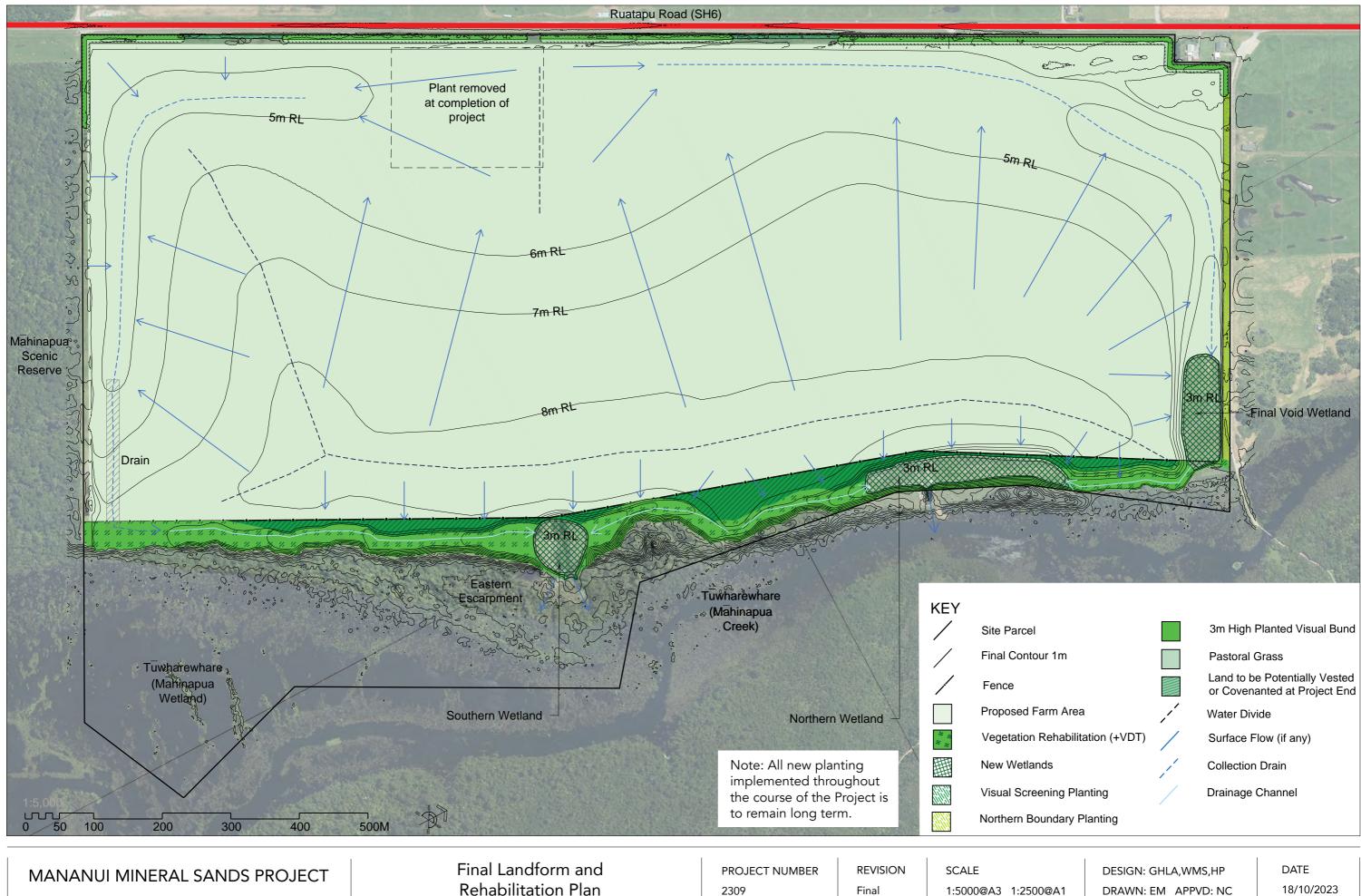
10.0 RECOMMENDED COLOUR PALETTE FOR STRUCTURES







11.0 FINAL LANDFORM AND REHABILITATION PLAN



DRAWN: EM APPVD: NC

18/10/2023