

## SECTOR 2 KAPITI TO MAZENGARB ROAD

### NZS 6806 – Assessment matrix

Impact key	Potential effects of noise mitigation option
3	significant positive effects
2	moderate positive effects
1	minor positive effects
0	insignificant (no effects)
-1	minor adverse effects
-2	moderate adverse effects
-3	significant adverse effects

A brief description of the basis for each rating should be added in the spaces below the ratings.

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Issues/Risks
Compliance with NZS 6806 noise criteria, and requirement for building-modification measures	Acoustics	+1	+2	+2	+2	+2	+2	
		122 in Cat A, 25 in Cat B	140 in Cat A, 7 in Cat B	145 in Cat A, 2 in Cat B (Note: 5 PPFs still non-compliant by up to 2 dB, barrier heights up to 5 m)	141 in Cat A, 6 in Cat B	137 in Cat A, 10 in Cat B	135 in Cat A, 12 in Cat B	
Effect of changes to the existing noise environment	Acoustics	-3	-3	-2	-3	-3	-3	
		Noise level increase by up to 19 dB, average about 10 dB	Noise level increase by up to 18 dB, average about 10 dB	Noise level increase up to 14 dB, average about 10 dB	Noise level increase up to 18 dB, average about 9 dB	Noise level increase up to 18 dB, average about 9 dB	Noise level increase up to 18 dB, average about 9 dB	

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Issues/Risks
Achievement of the NZS 6806 structural mitigation performance standards	Acoustics	0	+1	+2	0	0	0	
		3 dB average structural mitigation	4 dB average structural mitigation	5 dB average structural mitigation	3 dB average structural mitigation	3 dB average structural mitigation	3 dB average structural mitigation	
Value for money, including maintenance costs and consideration of benefit cost analysis	Acoustics	+3	+3	+3	+3	+3	+3	
		BCR 2.7	BCR 2.7	BCR 2.8	BCR 1.6	BCR 2.97	1.6	
Difference in cost compared to Transit's Guidelines (criteria for NZTA internal monitoring purposes)	Acoustics	+3	+3	N/A	-3	+3	-3	
		-57% compared with Transit Guidelines	-34% compared with Transit Guidelines		44% compared with Transit Guidelines (thought this may be incorrect as bund replacement difficult to price)	-32% compared with Transit Guidelines (thought this may be incorrect as bund replacement difficult to price)	37% compared with Transit Guidelines (thought this may be incorrect as bund replacement difficult to price)	
Compliance with relevant safety standards and guidelines	Roading	0	0	0	0	0	0	Going to have road barriers anyway.
	Structures	0	0	-2	0	0	0	
Constructability/technical feasibility	Roading	NA	NA	NA	NA	NA	NA	N/A - Covered under construction.
	Structures	0	0	-2	???	0	0	
	Construction	+1	0	-1	+2	+2	+2	Impractical. Prefer Opt

Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Issues/Risks
								4.
Availability of sufficient land for construction and maintenance and the extent to which NZTA would need to acquire land, or interests in land	NZTA	0	0	-1	0	0	0	Potential property issues with Option 3.
Potential effects on known heritage or cultural values	Cultural	?	?	?	?	?	?	No cultural representative present.
The extent to which the mitigation option promotes integration and establishes visual coherence and continuity in form, scale and appearance of structures and landscape proposals along the route	Visual / landscape	-2	-2	-3	0	0	+1	Option 4 much preferred. Option 6 lower close barriers, less visual impact.
Road users' views to the surrounding landscape and key features/ locations in particular	Visual / landscape	0	0	0	0	0	0	Not relevant. Options 4, 5 and 6 may require vertical faces so may not be as natural in appearance.
Maintenance or enhancement of visual amenity for surrounding residents	Visual / landscape	0	-1	-3	+1	+1	+2	Will need boundary fence anyway for Option 1
					Bund better than wall but dunes completely modified.	Dunes retained but walls between do not integrate into landforms.	Dunes retained with earth bunds between, preferred	
					Bund option better than walls for neighbours,	Same effects for neighbours for	Split barrier at Kāpiti Rd. Less immediate impact	



Assessment Criteria	Responsible	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Issues/Risks
indigenous vegetation and significant habitats of indigenous fauna	Visual / landscape	0	0	0	+1	+1	+1	Grow vegetation on bunds to create a continuous habitat.
Potential flooding effects	Hydrology	-1	-1	-1	+1	+1	+1	Hollows are easier to drain with Option 2 4 to 6.
Resource efficiency (including avoidance of waste)	Sustainability	+1	0	-1	+2	+2	+2	Big walls, lots of concrete so less sustainable. Options 4 to 6 use peat.
Potential effects on greenhouse gas emissions	Sustainability	-1	-1	-2	+1	+1	+1	

**Final Comments:** No one wants Op 3.

Preferred Option is Option 6. Hybrid of bund replacement and barriers where required for space reasons. Not too high on property boundary for visual and shading reasons.

Second preference for option 4 – continuous bund –need to check whether this is feasible (Doug and co.) Third preference is Option 1.

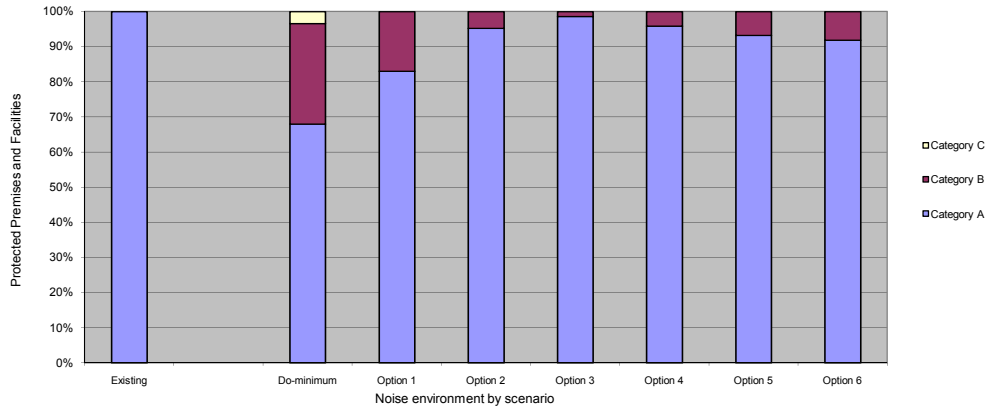
Project									
M2PP									
Sector 2 Kapiti to Mazengarb									
Protected Premises and Facilities		(still 5 PPF non-compliant by up to 2 dB)							
	Existing	Do-minimum	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	
Category A	147	100	122	140	145	141	137	135	
Category B	0	42	25	7	2	6	10	12	
Category C	0	5	0	0	0	0	0	0	
Total	147	147	147	147	147	147	147	147	

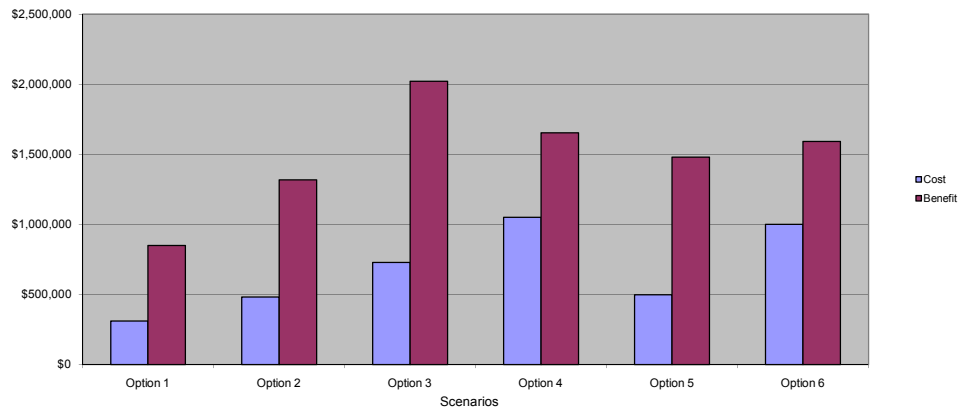
Benefit-Cost Ratio		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Cost		\$311,040	\$481,520	\$729,660	\$1,050,020	\$498,020	\$1,001,140
Benefit		\$850,222	\$1,317,542	\$2,021,753	\$1,653,065	\$1,479,058	\$1,591,473
BCR		<b>2.73</b>	<b>2.74</b>	<b>2.77</b>	<b>1.57</b>	<b>2.97</b>	<b>1.59</b>
Transit		-57%	-34%	0%	44%	-32%	37%
Structural		1.7 dB	2.4 dB	3.3 dB	2.7 dB	2.5 dB	2.6 dB

**Graphs**

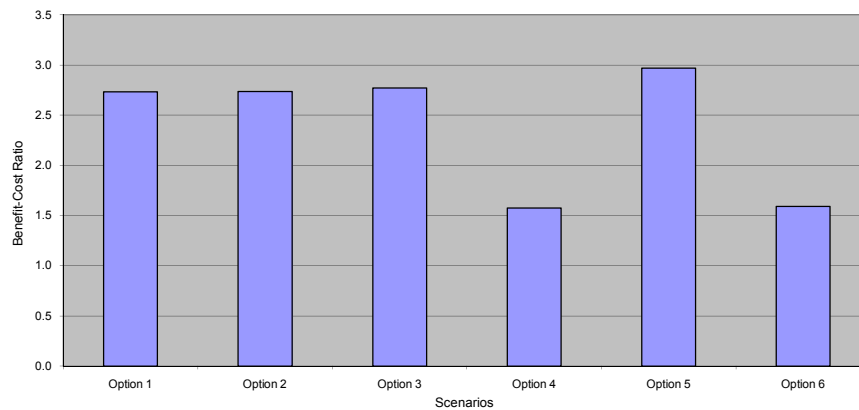
**Sector 2 Kapiti to Mazengarb**



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**Project:** M2PP  
**Area:** Sector 2 Kapiti to Mazengarb  
**AADT:**  2,000 to 75,000 vehicles per day  
 More than 75,000 vehicles per day  
**Transit:**  Option 3 (option to comply with Transit's Guidelines)

		Reformat	Altered	New							Preferred Mitigation Option
Protected Premises and Facilities		New or Altered	Existing L <sub>Aeq</sub> (24h) dB	Do-minimum L <sub>Aeq</sub> (24h) dB	Option 1 L <sub>Aeq</sub> (24h) dB	Option 2 L <sub>Aeq</sub> (24h) dB	Option 3 L <sub>Aeq</sub> (24h) dB	Option 4 L <sub>Aeq</sub> (24h) dB	Option 5 L <sub>Aeq</sub> (24h) dB	Option 6 L <sub>Aeq</sub> (24h) dB	
Street address	Floor										
Chilton Dr 10	1. Floor	New	44	50	49	49	48	49	49	49	
Chilton Dr 12	1. Floor	New	44	53	51	51	49	51	51	51	
Chilton Dr 14	1. Floor	New	44	53	51	51	49	51	51	51	
Chilton Dr 16	1. Floor	New	44	54	54	54	50	54	54	54	
Chilton Dr 18	1. Floor	New	44	56	56	56	50	56	56	56	
Chilton Dr 20	2. Floor	New	44	64	63	62	56	62	62	62	
Chilton Dr 22	2. Floor	New	44	62	60	58	54	58	59	59	
Chilton Dr 35	1. Floor	New	44	50	50	50	48	49	50	49	
Chilton Dr 37A	1. Floor	New	44	58	55	55	52	54	55	55	
Chilton Dr 37B	1. Floor	New	44	58	55	55	52	54	55	55	
Chilton Dr 41	2. Floor	New	44	62	58	58	55	57	58	57	
Chilton Dr 45	1. Floor	New	44	58	55	55	52	54	55	55	
Cypress Grove 11A/11B	1. Floor	New	44	51	51	51	51	51	51	51	
Cypress Grove 12	1. Floor	New	44	51	51	50	50	50	50	50	
Cypress Grove 13	1. Floor	New	44	52	52	52	52	51	51	51	
Cypress Grove 14	2. Floor	New	44	56	56	56	56	54	54	54	
Cypress Grove 14B	1. Floor	New	44	62	59	55	55	56	56	56	
Cypress Grove 15A/15B	1. Floor	New	44	51	51	51	51	51	51	51	
Cypress Grove 16A	1. Floor	New	44	53	52	52	52	51	52	51	
Cypress Grove 16B	1. Floor	New	44	61	58	55	55	56	56	56	
Cypress Grove 17A/17B	1. Floor	New	44	52	52	52	51	51	52	51	
Cypress Grove 18	1. Floor	New	44	55	54	53	53	52	52	52	
Cypress Grove 20A	1. Floor	New	44	53	52	51	51	51	50	51	
Cypress Grove 20B	1. Floor	New	44	53	53	53	53	52	53	53	
Cypress Grove 22	1. Floor	New	44	56	55	55	55	54	54	54	
Cypress Grove 24	1. Floor	New	44	56	56	55	55	54	55	55	
Cypress Grove 26	1. Floor	New	44	55	55	55	55	53	54	54	
Cypress Grove 28A	1. Floor	New	44	54	53	52	52	52	52	52	
Cypress Grove 28B	1. Floor	New	44	56	56	55	55	55	55	55	
Elder Grove 1A	1. Floor	New	44	51	50	50	49	50	50	50	
Elder Grove 2A	1. Floor	New	44	50	50	50	49	50	50	50	
Elder Grove 3	1. Floor	New	44	56	54	52	51	54	52	53	
Elder Grove 4	2. Floor	New	44	55	54	54	53	54	54	54	
Elder Grove 5	1. Floor	New	44	55	54	52	51	54	52	53	
Elder Grove 6A/6B	1. Floor	New	44	52	51	51	51	51	51	51	
Elder Grove 7	1. Floor	New	44	62	57	57	55	58	57	59	
Elder Grove 8	1. Floor	New	44	52	51	51	50	51	51	51	
Elder Grove 8A	1. Floor	New	44	58	56	54	54	54	54	55	
Elder Grove 9/9A	1. Floor	New	44	61	58	57	55	57	57	58	
Greenwood Pl 09	1. Floor	New	49	51	51	50	50	51	50	50	
Greenwood Pl 11	1. Floor	New	49	53	53	51	51	52	52	52	
Greenwood Pl 12	1. Floor	New	49	51	51	50	50	51	50	50	
Greenwood Pl 13	1. Floor	New	49	52	52	50	50	51	50	51	
Greenwood Pl 14	1. Floor	New	49	55	54	52	51	54	52	53	
Greenwood Pl 15	1. Floor	New	49	61	58	55	54	57	55	58	
Greenwood Pl 15A	1. Floor	New	49	55	54	52	52	54	52	53	
Greenwood Pl 16	1. Floor	New	49	60	57	54	53	57	54	56	
Greenwood Pl 17	1. Floor	New	49	64	59	56	54	57	56	60	
Greenwood Pl 18	1. Floor	New	49	63	58	55	53	57	55	58	
Kapiti Rd 86	1. Floor	New	49	54	54	54	53	54	54	54	
Makarini St 001A/B	1. Floor	New	43	53	52	51	50	52	51	51	
Makarini St 003	1. Floor	New	43	56	55	53	52	55	53	54	
Makarini St 005	1. Floor	New	43	55	54	52	51	54	52	52	
Makarini St 005A	1. Floor	New	43	58	56	54	53	56	54	56	
Makarini St 009	1. Floor	New	43	55	54	52	51	54	52	53	
Makarini St 009A	1. Floor	New	43	55	54	53	52	54	53	53	
Makarini St 011	1. Floor	New	43	55	54	52	51	54	52	53	
Makarini St 059A/B	1. Floor	New	43	55	51	51	49	50	51	50	
Makarini St 061	1. Floor	New	43	50	50	50	50	50	50	50	
Makarini St 063A/63B	1. Floor	New	43	61	56	56	54	53	56	53	
Makarini St 065	1. Floor	New	43	58	55	55	52	52	55	52	
Makarini St 067	1. Floor	New	43	58	56	56	53	53	56	53	
Makarini St 069	1. Floor	New	43	57	57	57	53	53	57	53	
Makarini St 071	1. Floor	New	43	57	56	56	54	53	56	53	
Makarini St 073	1. Floor	New	43	56	55	55	54	53	55	53	
Makarini St 075	1. Floor	New	43	55	55	55	54	53	54	53	
Makarini St 077	1. Floor	New	43	53	52	52	52	51	51	51	
Makarini St 079	1. Floor	New	43	59	57	55	54	54	55	54	
Makarini St 081	1. Floor	New	43	60	57	56	54	54	55	54	
Makarini St 083	1. Floor	New	43	60	57	55	53	53	54	53	
Makarini St 084	1. Floor	New	43	51	50	50	50	50	50	50	
Makarini St 085	1. Floor	New	43	61	58	56	54	54	55	55	
Makarini St 086	1. Floor	New	43	51	51	51	50	50	51	50	
Makarini St 087	1. Floor	New	43	61	58	56	54	54	55	54	
Makarini St 088	1. Floor	New	43	51	51	51	50	50	50	50	
Makarini St 089	1. Floor	New	43	62	59	57	55	55	56	55	
Makarini St 091	1. Floor	New	43	61	59	57	55	54	56	55	
Makarini St 092	1. Floor	New	43	51	51	51	51	50	50	50	
Makarini St 093	1. Floor	New	43	61	58	56	54	55	56	55	
Makarini St 094	1. Floor	New	43	51	51	51	51	50	50	50	
Makarini St 095	1. Floor	New	43	58	55	54	52	53	54	53	
Makarini St 096	1. Floor	New	43	51	51	51	51	50	50	50	




**Project:** M2PP  
**Area:** Sector 2 Kapiti to Mazengarb  
**AADT:**  2,000 to 75,000 vehicles per day  
 More than 75,000 vehicles per day  
**Transit:**  Option 3 (option to comply with Transit's Guidelines)

Preferred Mitigation Option

Protected Premises and Facilities		New or Altered	Existing L <sub>Aeq</sub> (24h) dB	Do-minimum L <sub>Aeq</sub> (24h) dB	Option 1 L <sub>Aeq</sub> (24h) dB	Option 2 L <sub>Aeq</sub> (24h) dB	Option 3 L <sub>Aeq</sub> (24h) dB	Option 4 L <sub>Aeq</sub> (24h) dB	Option 5 L <sub>Aeq</sub> (24h) dB	Option 6 L <sub>Aeq</sub> (24h) dB
Street address	Floor									
Makarini St 097A/97B	1. Floor	New	43	60	56	55	52	54	56	55
Makarini St 098	1. Floor	New	43	51	51	51	51	51	50	51
Makarini St 099A	1. Floor	New	43	51	49	49	49	49	49	49
Makarini St 099B	1. Floor	New	43	64	59	55	52	56	58	56
Makarini St 100	1. Floor	New	43	50	50	50	50	50	49	50
Makarini St 101	1. Floor	New	43	52	51	50	50	50	50	50
Makarini St 102	1. Floor	New	43	50	50	50	50	50	50	50
Makarini St 103	1. Floor	New	43	53	51	50	50	50	50	50
Makarini St 104	1. Floor	New	43	50	50	50	50	50	50	50
Makarini St 105	1. Floor	New	43	65	60	55	52	56	58	57
Makarini St 106	1. Floor	New	43	50	50	50	49	49	49	49
Makarini St 107	1. Floor	New	43	65	63	57	54	56	58	58
Makarini St 110	1. Floor	New	43	50	50	50	50	50	50	50
Palmer Ct 01	1. Floor	New	42	48	48	48	48	48	48	48
Palmer Ct 02	1. Floor	New	42	48	48	48	48	48	48	48
Palmer Ct 02A	1. Floor	New	42	50	49	49	49	49	49	49
Palmer Ct 03	1. Floor	New	42	50	49	49	49	49	49	49
Palmer Ct 04	1. Floor	New	42	51	50	49	49	49	49	49
Palmer Ct 05	1. Floor	New	42	50	50	50	50	50	50	50
Palmer Ct 06A	1. Floor	New	42	52	50	50	49	49	49	49
Palmer Ct 06B	1. Floor	New	42	64	59	58	53	55	57	57
Palmer Ct 07A	1. Floor	New	42	50	50	50	50	49	50	50
Palmer Ct 08/08B	1. Floor	New	42	65	60	59	54	57	58	58
Palmer Ct 10	1. Floor	New	42	60	57	57	56	55	56	56
Palmer Ct 11	1. Floor	New	42	49	49	49	49	49	49	49
Palmer Ct 12	1. Floor	New	42	57	55	55	55	54	55	55
Palmer Ct 14	1. Floor	New	42	59	56	56	56	55	56	56
Palmer Ct 15	1. Floor	New	42	48	48	48	48	48	48	48
Palmer Ct 16	1. Floor	New	42	59	56	56	55	55	56	56
Palmer Ct 17A	1. Floor	New	42	52	51	51	51	51	51	51
Palmer Ct 17B	1. Floor	New	42	52	51	50	50	50	50	50
Palmer Ct 18A/18B	1. Floor	New	42	64	61	57	54	58	58	58
Spackman Cres 08	1. Floor	New	44	51	51	51	51	50	50	50
Spackman Cres 08A	1. Floor	New	44	51	51	51	51	50	50	50
Spackman Cres 09	1. Floor	New	44	49	49	49	49	49	49	49
Spackman Cres 10	1. Floor	New	44	51	51	51	50	50	50	50
Spackman Cres 11	1. Floor	New	44	52	52	51	51	50	50	50
Spackman Cres 12	1. Floor	New	44	51	51	51	50	50	50	50
Spackman Cres 14	1. Floor	New	44	50	50	50	50	50	50	50
Spackman Cres 15	1. Floor	New	44	59	58	56	56	55	54	55
Spackman Cres 17	1. Floor	New	44	59	58	56	56	54	54	54
Spackman Cres 19	1. Floor	New	44	58	57	55	55	54	54	54
Spackman Cres 20	1. Floor	New	44	50	50	50	50	50	50	50
Spackman Cres 21	1. Floor	New	44	56	55	54	54	54	54	54
Spackman Cres 22	1. Floor	New	44	49	49	49	49	49	49	49
Spackman Cres 23	1. Floor	New	44	54	54	53	53	53	53	53
Spackman Cres 25	1. Floor	New	44	53	53	53	53	52	53	52
Spackman Cres 27	1. Floor	New	44	53	52	52	52	51	52	51
Spackman Cres 29	2. Floor	New	44	56	56	56	55	54	55	54
Spackman Cres 31	1. Floor	New	44	54	53	53	52	52	53	51
Spackman Cres 33	1. Floor	New	44	57	55	55	53	52	54	52
Spackman Cres 35	1. Floor	New	44	58	55	55	52	52	55	52
Spackman Cres 37A	1. Floor	New	44	51	48	48	47	47	48	47
Spackman Cres 37B	1. Floor	New	44	61	56	56	54	53	56	53
Spackman Cres 39	1. Floor	New	44	51	50	50	49	49	50	49
St James Ct 03	1. Floor	New	44	51	50	50	48	50	50	49
St James Ct 05	2. Floor	New	44	52	52	51	50	51	51	51
St James Ct 07	1. Floor	New	44	52	50	50	49	50	50	50
St James Ct 09	1. Floor	New	44	60	57	56	55	56	56	56
St James Ct 11	1. Floor	New	44	61	58	57	55	56	56	56
St James Ct 15	2. Floor	New	44	66	63	62	58	60	60	60
St James Ct 18/20	2. Floor	New	44	53	52	52	52	52	52	52
St James Ct 20B	1. Floor	New	44	49	49	49	49	49	49	49
St James Ct 22	1. Floor	New	44	51	50	49	49	49	49	49
St James Ct 24	2. Floor	New	44	65	63	62	58	59	58	58



Noise level  
dB LAeq(24h)

-  ≤ 57 Category A
-  57 < ≤ 64 Category B
-  64 < Category C



Legend

-  Cadastral bdy
-  Traffic line
-  Road surface
-  Bridge
-  Bridge barrier
-  Bund crown
-  Noise barrier



Initials: SW  
Date: 18/8/2011  
Calculation No: 241

**MARSHALL DAY**  
Acoustics



**MACKAYS TO PEKA PEKA EXPRESSWAY**  
**Sector 2**  
**Kapiti Road to Mazengarb Road (South)**  
**Do-minimum Scenario**

NOISE PREDICTION  
SCENARIOS  
SHEET 22 OF 75

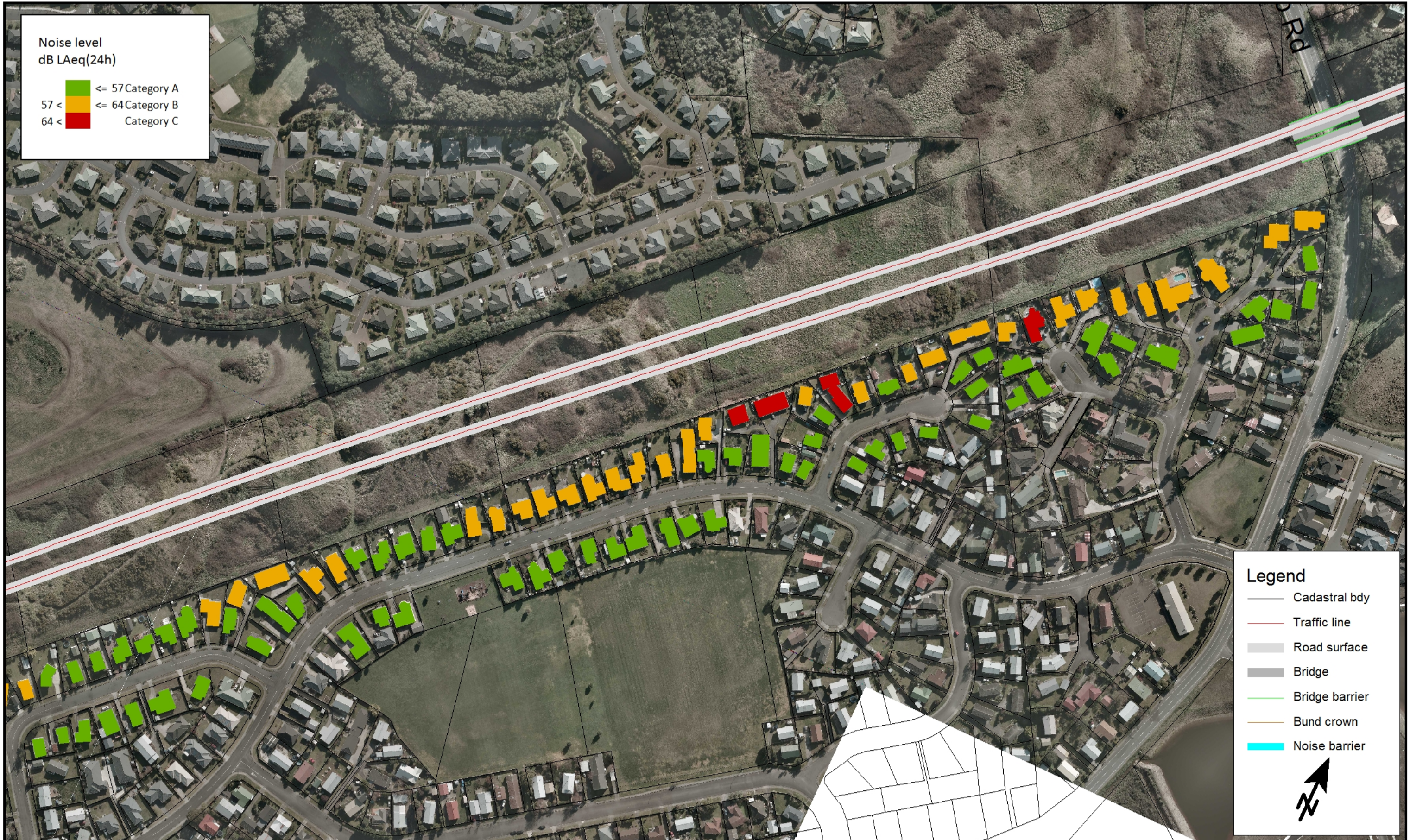
Document Set:  
M2PP-AEE-DWG

Drawing No.:  
EN-NV-041

A3 Scale 1:2500  
0 12.5 25 50 75 100 m

Noise level  
dB LAeq(24h)

- ≤ 57 Category A
- 57 < ≤ 64 Category B
- 64 < Category C



**Legend**

- Cadastral bdy
- Traffic line
- Road surface
- Bridge
- Bridge barrier
- Bund crown
- Noise barrier



Initials: SW  
Date: 18/8/2011  
Calculation No: 241

**MARSHALL DAY**  
Acoustics



**MACKAYS TO PEKA PEKA EXPRESSWAY**  
**Sector 2**  
**Kapiti Road to Mazengarb Road (North)**  
**Do-minimum Scenario**

NOISE PREDICTION  
SCENARIOS  
SHEET 23 OF 75

Document Set:  
M2PP-AEE-DWG  
  
Drawing No.:  
**EN-NV-042**

A3 Scale 1:2500  
0 12.5 25 50 75 100 m