



Linden to MacKays (Transmission Gully)

Guide to the lodgement documentation



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1 Contents and structure of the lodgement documentation

The lodgement documentation for the Transmission Gully Project is made up of six volumes and is structured as follows:

- Volume 1: Assessment of Environment Effects report
- Volume 2: Resource Management Act 1991 forms
- Volume 3: Technical reports and supporting documents
- Volume 4: Plan set
- Volume 5: Draft management plans
- Volume 6: Transmission Line Relocation Project

A full list of the contents of Volumes 1 - 6 is contained as **Attachment 1** to this document.

1.1 Volume 1: Assessment of Environmental Effects report

This report covers all of the aspects required for the assessment of environmental effects in support of NoRs and the applications for resource consent. Much of the technical information is from reports contained in Volume 3 and a cross-reference is provided to these reports where necessary.

The AEE report should also be read in conjunction with the plans contained in Volume 4 and the draft management plans contained in Volume 5. A cross-reference to relevant plans is provided in the AEE report where necessary.

1.2 Volume 2: Resource Management Act 1991 forms

The forms required under the RMA for the NoRs and resource consent applications are contained in Volume 2.

There are forms relating to:

- the lodgement of matters with the EPA by the NZTA and PCC;
- notices of requirement by the NZTA and PCC; and
- applications for resource consent by the NZTA and PCC.

In general, the forms provide a reference to where in the lodgement documentation the required information is located.

1.3 Volume 3: Technical reports and supporting documents

Technical reports and supporting documents are contained in Volume 3. Each report has been assigned a number for easy reference.

Within each report, the numbering of figures, tables and appendices also relates to the report number.

For example:

- **Figure 6.1** refers to the first figure of Technical Report 6;
- **Table 6.1** refers to the first table of Technical Report 6; and
- **Appendix 6.A** refers to the first appendix of Technical Report 6.

This numbering system is intended to avoid confusion when referring to figures, tables and appendices within reports contained in Volume 3.

Technical reports refer to specific plans in Volume 4 as necessary. In addition, some reports should also be read in conjunction with specific plans (contained in Volume 4):

Report number	Report name	To be read in conjunction with...	
1	Road design philosophy	Road layout plans	GM01- 21
		Longitudinal sections and cross-sections	GM22- 84
2	Design philosophy: Bridges and retaining walls	Structures plans	S01- 29
5	Assessment of landscape and visual effects	Landscape plans	LA01- 124
12	Assessment of acoustic effects	Noise plans	NA series NB01- 21 NC series
14	Assessment of hydrology and stormwater effects	Drainage plans	DR01- 21

1.4 Volume 4: Plan set

All of the main plans and drawings are contained in Volume 4 and are referenced by other documents.

1.5 Volume 5: Draft management plans

All of the draft management plans lodged for the Project are contained in Volume 5.

There are three types of management plans:

- the construction environmental management plan;
- topic specific management plans (e.g. noise, traffic etc.); and

- site specific environmental management plans.

1.6 Volume 6: Transmission Line Relocation Project

Applications by Transpower New Zealand Limited for resource consents to relocate an existing transmission line required as enabling works for the Transmission Gully Project are contained in Volume 6.

Volume 6 contains an AEE report for the works as well as relevant supporting technical reports.

2 Terminology used

A complete list of abbreviations used is provided as **Attachment 2** and a glossary of terms used is provided as **Attachment 3**.

2.1 Key terms

Particular attention is drawn to the following key terms:

Term	Meaning
Main Alignment	A proposed 27km expressway between Linden (Wellington City) and MacKays Crossing (Kapiti Coast).
Kenepuru Link Road	A proposed State highway from the Kenepuru Interchange to Kenepuru Drive, providing vehicular access to the Main Alignment from western Porirua.
Porirua Link Roads	Refers collectively to the Whitby Link Road and the Waitangirua Link Road, which will both provide vehicular access to the Main Alignment from eastern Porirua.
NZTA Project	The construction, operation and maintenance of the Main Alignment and the Kenepuru Link Road.
PCC Project	The construction, operation and maintenance of the Porirua Link Roads.
Transmission Line Relocation Project	The works required to the existing 110kV PKK-TKR-A electricity transmission line to enable the Transmission Gully Project.

2.2 Transmission Gully

The term 'Transmission Gully' is not used widely throughout the documents as this can create confusion as to whether the Project or a geographical place is being referred to. In a few specific instances, Transmission Gully is used to refer to a geographical place. While not an official geographical place name, Transmission Gully is used colloquially to refer to a general route up the Te Puka Valley to the Wainui Saddle and down the Horokiri Valley to Pauatahanui.

2.3 Transmission Gully Motorway

Historically, former versions of the Project have been referred to in a number of different ways, including:

- the **Transmission Gully Motorway (or TGM)**; or
- the **Inland Route**;

These terms have not been widely used in this set of documents and are only used in reference to historical versions of the Project.

3 Referencing conventions

3.1 Position along the Main Alignment

The position of features along the Main Alignment is given as a station value (or chainage distance) from MacKays Crossing. For example, a feature described as being at 2,200m is located approximately 2.2km south of MacKays Crossing.

3.2 Sections of the Main Alignment

The Main Alignment has also been divided into nine sections which are used to refer to specific lengths of the Main Alignment:

Section number	Section name	Station value (m)	Length (km)
1	MacKays Crossing	0 – 3,500	3.5
2	Wainui Saddle	3,500 – 6,500	3.0
3	Horokiri Stream	6,500 – 9,500	3.0
4	Battle Hill	9,500 – 12,500	3.0
5	Golf Course	12,500 – 15,500	3.0
6	State Highway 58	15,500 – 18,500	3.0
7	James Cook	18,500 – 21,500	3.0
8	Cannons Creek	21,500 – 24,900	3.4
9	Linden	24900 – 27700	2.8

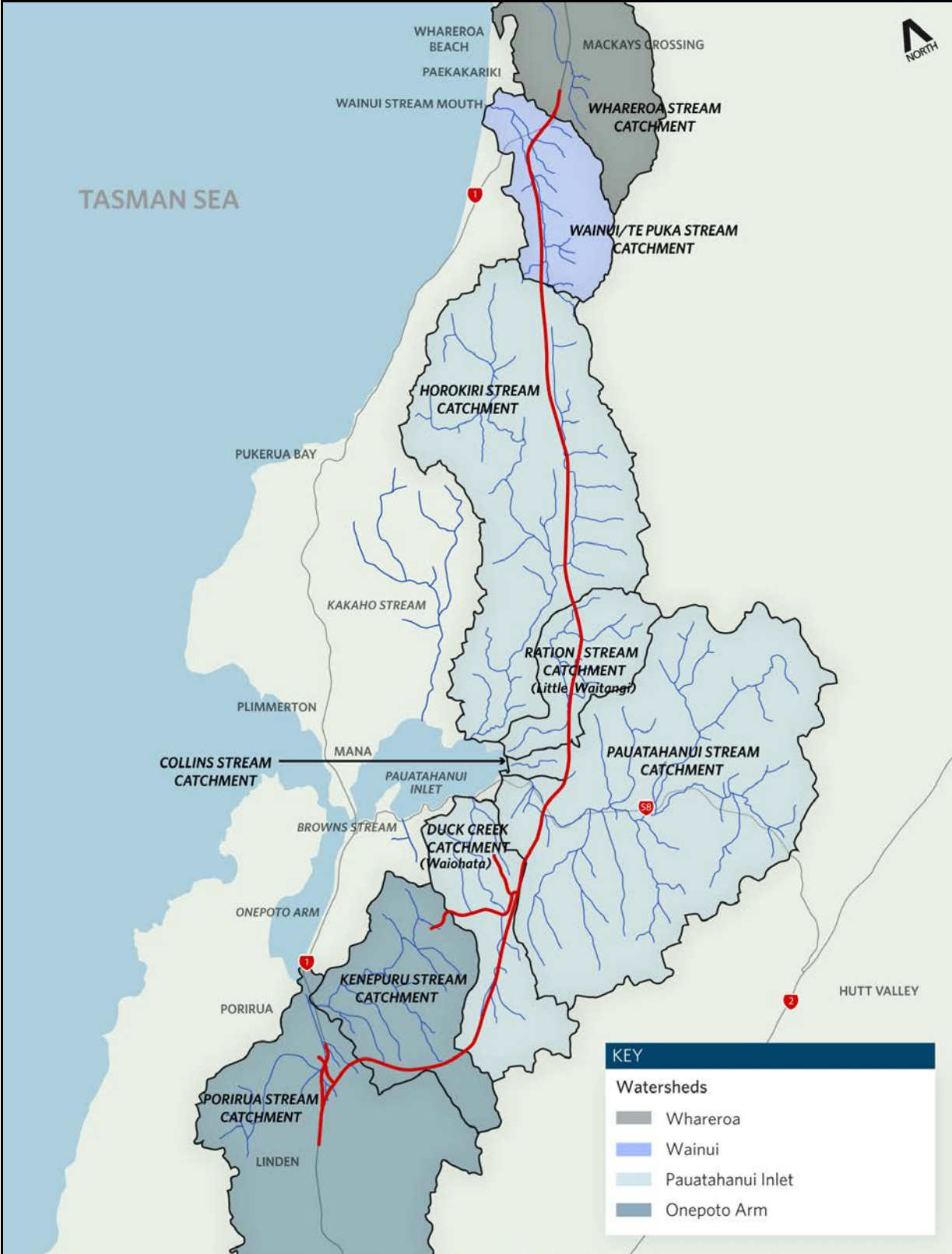
3.3 Numbering of features

The following features are numbered sequentially from north (MacKays Crossing) to south (Linden):

- bridges;
- culverts;
- stream realignments; and
- erosion and sediment control ponds.

3.4 Hydrological catchments and watersheds affected by the Project

The Project involves works in nine (9) separate hydrological catchments which are part of four (4) separate watersheds, as shown below.



The scale of the proposed works varies between catchments but in particular the following points are highlighted:

- The Project involves earthworks and stream works in all catchments except the Whareroa Stream catchments.
- In the Whareroa catchment a small amount of earthworks are proposed, but no stream works.
- Te Puka Stream is a tributary of the Wainui Stream and they are in the same catchment. However, as the confluence of the two streams is downstream of the Project, they have been treated as different streams.
- The Project does not involve works in the Browns Stream and Kakaho Stream but the location of them is shown for reference.
- Duck Creek is also known as Waiohata Stream.
- Ration Stream is also known as Little Waitangi Stream.

3.5 Referring to properties

Where all or part of a property is required, it is listed in the Land Requirement Schedule (plans **LR19 and LR20**) and has been assigned a property number. This number will be used to refer to the property.

Properties not listed on the schedule are referred to by their street address and legal description.

3.6 Phases of the Project

The development of the Project has been divided into six phases:

Phase	Name	Indicative timeframe
1	Scheme assessment	2007 – 2009
2	Preliminary design and preparation of regulatory consent applications	2009 – 2011
3	Consideration of the regulatory consent applications	2011 – 2012
4	Completion of a complying specimen design	2012 – 2014
5	Construction (including enabling works)	2014 – 2021
6	Commissioning	2021

These phases are referred to throughout the documents.

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Attachment 2: List of abbreviations

Abbreviation	Meaning
AADT	Annual average daily traffic
AAQG	Ambient air quality guidelines
AEE	Assessment of environmental effects
AEP	Annual exceedence probability
ASCV	Area of significant conservation value
AST	Aboveground storage tank
ATMS	Advanced traffic management system
BCR	Benefit-cost ratio
BHFFP	Battle Hill Farm Forest Park
BoI	Board of inquiry
BPO	Best practicable option
BRP	Belmont Regional Park
BS	British Standard
CAU	Census area unit
CEMP	Construction environmental management plan
CIA	Cultural impact assessment
CLMG	Contaminated land management guidelines
CH ₄	Methane
CLS	Contaminated land specialist
CMA	Coastal marine area
CNVMP	Construction noise and vibration management plan
CO	Carbon monoxide
CO ₂	Carbon dioxide
COPTTM	Code of practice for temporary traffic management [NZTA]
CRTN	Calculation of road traffic noise
CSMP	Contaminated soils management plan
CVO	Costed viaduct option
dB	Decibels
DHB	District health board
DM	Do minimum
DOC	Department of Conservation
DPTS	(Draft) Porirua Transportation Strategy
EEM	Economic evaluation manual [NZTA]
EMME/2	Equilibre multimodal/multimodal equilibrium Version 2
EMG	Environmental monitoring guidelines
EMI	Electromagnetic induction
EPA	Environmental Protection Authority
ESCP	Erosion and sediment control plan
FFR	Freshwater Fisheries Regulations 1983
GATS	Greater Wellington Area Transportation Strategic review
GDP	Gross domestic product
GIS	Geographic information system
GNS	Institute of Geological and Nuclear Sciences

Abbreviation	Meaning
GOPI	Guardians of the Pauatahanui Inlet
GPS	Government Policy Statement on Land Transport Funding 2009/10 – 2018/19
GPR	Ground penetrating radar
GWPNP	Greater Wellington Parks Network Plan 2010
GWRC	Greater Wellington Regional Council
HAIL	Hazardous activities and industries list
HCC	Hutt City Council
HCM	Highway capacity manual [NZTA]
HFC	Hydrofluorocarbons
HNZC	Housing New Zealand Corporation
HPA	Historic Places Act 1993
HCV	Heavy commercial vehicle
HDPE	High density polyethylene
HOV	High occupancy vehicle
HSNO	Hazardous Substances and New Organisms Act 2001
HV	Heavy vehicles
Hz	Hertz
KCDC	Kapiti Coast District Council
KCDP	Kapiti Coast District Plan 1999
km	Kilometre
km/h	Kilometres per hour
km ²	Square kilometres
kV	Kilovolt
LAR	Limited access road
LCA	Life cycle analysis
LCDBII	NZ Land Cover database II
LENZ	Land Environments of New Zealand
LGA	Local Government Act 2002 / 1974
LINZ	Land Information New Zealand
LPA	Landscape protection area
LTCCP	Long-term council community plan
LTMA	Land Transport Management Act 2003
LVIA	Landscape and visual impact assessment
mg/m ³	Milligrams per cubic metre
MHWS	Mean high water springs
MfE	Ministry for the Environment
m ³	Cubic metres
MM #	Modified Mercalli scale
mm	Millimetre
mm/s	Millimetres per second
MoE	Ministry of Education
MOTSAM	Manual of traffic signs and markings
MoU	Memorandum of understanding
MSE Walls	Mechanically stabilised earth walls
MSQA	Management, surveillance and quality assurance
MSS	Mechanically stabilised slopes
NAASRA	National Association of Australian State Road Authorities

Abbreviation	Meaning
NATO	North Atlantic Treaty Organisation
NES	National environmental standard
NES AQ	Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004
NES CS	Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil
NES ET	Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009
NES SHDW	Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007
NIMT	North Island Main Trunk (Railway Line)
NIP	National Infrastructure Plan 2011
NPS	National policy statement
NPS ET	National Policy Statement on Electricity Transmission 2008
NPS FM	National Policy Statement on Freshwater Management 2011
NLTP	National Land Transport Programme 2009 - 2012
NO	Nitric oxide
N ₂ O	Nitrous oxide
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
NoR	Notice of requirement for designation
NS	Norwegian Standard
NTU	Nephelometric turbidity units
NZCPS	New Zealand Coastal Policy Statement 2010
NZGD	New Zealand Geodetic Datum
NZHPT	New Zealand Historic Places Trust
NZLRI	New Zealand Land Use Resource Inventory
NZS	New Zealand Standard
NZTM	New Zealand Transverse Mercator
NZTA	NZ Transport Agency
NZTABM	NZ Transport Agency Bridge Manual 2003 [NZTA]
NZTS	New Zealand Transport Strategy 2008
NZTTG	New Zealand Health and Environmental Guidelines for Selected Timber Treatment Chemicals
NZUDP	New Zealand Urban Design Protocol 2005
OGPA	Open graded porous asphalt
OLS	Old landslide scars
ORC	Organochlorine
ORP	Organophosphate
ORN	Organonitrogen
OSH	Occupational safety and health
OSNZ	Ornithological Society of New Zealand
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
PCC	Porirua City Council
PCDP	Porirua City District Plan 1999
PCE	Parliamentary Commissioner for the Environment
PCP	Pentachlorophenol

Abbreviation	Meaning
PDF	Porirua Development Framework
PFA	Potential failure areas
PFC	Perfluorocarbons
PHCCT	Porirua Harbour and Catchment Community Trust
PHIAG	Porirua Harbour Inter-Agency Group.
PHO	Primary health organisation
PIAP	Pauatahanui Inlet Action Plan
PNA	Protected natural area
PPF	Protected premises and facilities
PPFM	Planning, programming and funding manual 2008 [NZTA]
PPM	Planning policy manual 2010 [NZTA]
PPV	Peak particle velocity
PRPS	Proposed Wellington Regional Policy Statement
PTMA	Public Transport Management Act 2008
PWA	Public Works Act 1981
QA / QC	Quality assurance / Quality control
RATAG	Regulatory Authorities Technical Advisory Group
RAQMP	Regional Air Quality Management Plan for the Wellington Region 2000
RCA	Road controlling authority
RCP	Regional Coastal Plan for the Wellington Region 2000
RFP	Regional Freshwater Plan for the Wellington Region 1999
RoNS	Road of national significance
RPD	Relative percent difference
RPDL	Regional Plan for Discharges to Land for the Wellington Region 1999
RMA	Resource Management Act 1991
RPS	(Operative) Wellington Regional Policy Statement 1995
RSE	Reinforced soil embankments
RSP	Regional Soil Plan for the Wellington Region 2000
RSS	Risk screening system
SAR	Scheme assessment report
SATURN	Simulation and assignment of traffic to urban road networks
SCATS	Sydney co-ordinated adaptive traffic system
SCPA	Sediment control protection area
SCV	Soil contaminant value
SES	Social and environmental screen [NZTA]
SEV	Stream ecological valuation
SIA	Social impact assessment
SH1	State Highway 1
SH2	State Highway 2
SH58	State Highway 58
SIDRA	Signalised and un-signalised intersection design and research aid
SIMI	Statement of identified Maori interests
SLUR	Selected Land Use Register
SNA	Significant natural area
SSD	Sight stopping distance
SSWI	Sites of special wildlife interest
SV	Station value

Abbreviation	Meaning
TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
TDM	Travel demand management
TEF	Toxicity equivalence factor
TEQ	Toxicity equivalence
TIA	Traffic impact assessment
TPH	Total petroleum hydrocarbons
TRRL	Transport and Road Research Laboratory
TSP	Total suspended particulates
TSS	Total suspended solids
TDM	Travel demand management
TMP	Traffic management plan
µg/m ³	Micrograms per cubic metre
UHCC	Upper Hutt City Council
UHCDP	Upper Hutt City District Plan 2004
ULDF	Urban and landscape design framework
USEPA	United States Environmental Protection Agency
UST	Underground storage tank
UXO	Unexploded ordnance
VEPM	Vehicle emissions prediction model
VKT	Vehicle kilometres travelled
VMS	Variable message sign
WCC	Wellington City Council
WCDP	Wellington City District Plan 2000
WCMS	Wellington Conservation Management Strategy 1996
WCP	Western Corridor Plan 2006
WHO	World Health Organisation
WRFP	Wellington Regional Freight Plan 2007
WRLTS	Wellington Regional Land Transport Strategy 2010 - 2040
WRS	Wellington Regional Strategy 2007
WTSM	Wellington Transport Strategy Model
VNZ	Vodafone New Zealand
Vpd	Vehicles per day
Vph	Vehicles per hour

Attachment 3: Glossary of terms

Term	Meaning
Abutment	An end support of a bridge or similar structure.
Access way	The driveway, walkway or other means of access to and/or from any part of a road by which vehicles and/or pedestrians enter and or leave property.
Alignment	The horizontal or vertical geometric form of the centre line of the carriageway.
Alluvial deposits	Unconsolidated sedimentary deposits laid down by a stream or river.
Alluvial fan deposits	Sedimentary deposits that accumulate at the mouth of a stream, generally fan shaped in plan, resulting from a diminution, or cessation, of sediment transport by the stream.
Amenity values	Defined in section 2 of the RMA as: <i>“those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.”</i>
Archaeological site	Defined in section 2 of the HPA as: <i>“means any place in New Zealand that –</i> <i>(a) Either –</i> <i>(i) Was associated with human activity that occurred before 1900; or</i> <i>(ii) Is the site of the wreck of any vessel where that wreck occurred before 1900; and</i> <i>(b) Is or may be able through investigation by archaeological methods to provide evidence relating to the history of New Zealand.”</i>
At-grade crossing	Crossing at the same level, such as a railway crossing which is at the same level as a road, or a normal road intersection.
AUSROADS	A line source Gaussian plume dispersion model for predicting the near road impact of vehicle emissions.
Austrroads	The association of Australian and New Zealand road transport and traffic authorities.
Auxiliary lane	A portion of the carriageway adjoining through traffic lanes, used for speed change or for other purposes supplementary to through traffic movement.
Average annual daily traffic	The total volume of traffic passing a roadside observation point over the period of a calendar year, divided by the number of days in that year (365 or 366 days). Measured in vehicles per day.
Backfill	Fill placed in an excavation.
Basecourse	The layer of material constituting the uppermost structural element of a pavement, immediately beneath the wearing course; or the graded aggregate that can be used in such a layer.
Bed	Defined in section 2 of the RMA as: <i>“(a) in relation to any river –</i> <i>(i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the river cover at its annual fullest flow without overtopping its banks:</i> <i>(ii) in all other cases, the space of land which the waters of the river cover at its fullest flow without overtopping its banks; and</i> <i>(b) in relation to any lake, except a lake controlled by artificial means, –</i> <i>(i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the lake cover at its annual highest level without exceeding its margin:</i> <i>(ii) in all other cases, the space of land which the waters of the lake cover at its highest level without exceeding its margin; and</i> <i>(c) in relation to any lake controlled by artificial means, the space of land which the waters of the lake cover at its maximum permitted operating</i>

Term	Meaning
	<i>level; and (d) in relation to the sea, the submarine areas covered by the internal waters and the territorial sea."</i>
Bench	A ledge cut or formed in the batter of a cutting or bank to provide greater security against slips.
Benefit-cost ratio	The ratio that compares the benefits accruing to land transport users and the wider community from implementing a project or providing a service, with that project's or service's costs.
Berm	The edge of a road reserve between the kerb or surface water channel and property boundary, exclusive of footpath.
Best practicable option	Defined in section 2 of the RMA as: <i>"in relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to - (a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and (b) the financial implications, and the effects on the environment, of that option when compared with other options; and (c) the current state of technical knowledge and the likelihood that the option can be successfully applied."</i>
Betterment	The increased value of land arising from improved access.
Box cut	Describes a situation where the road alignment is cut down into the natural ground surface to the extent that there are cut faces on both sides of the road.
Bridge	A structure designed to carry a road or path over an obstacle by spanning it. This includes culverts with a cross-sectional area greater than or equal to 3.4 square metres.
Bulking	The increase in volume of a material resulting from disturbance or from changes in its condition, in particular from an increase in moisture content.
Camber	A transverse slope given to the surface of a carriageway or footway to provide surface drainage.
Capacity	The maximum number of vehicles that can reasonably be expected to pass a given point on a lane or carriageway in a specified time, usually one hour. It varies with the prevailing traffic and carriageway conditions.
Carriageway	That portion of the road devoted particularly to the use of travelling vehicles, including shoulders.
Centre line	Pavement marking on a road, which delineates opposing traffic flows.
Centreline	The basic line, at or near the centre or axis of a road or other work, from which measurements for setting out or constructing the work can conveniently be made.
Channel	The drain which accepts water directly from the pavement.
Chip seal	A wearing course consisting of a layer or layers of chips originally spread onto the pavement over a film of freshly sprayed binder and subsequently rolled into place.
Clear zone	An area adjacent to a road carriageway that is clear of fixed objects and other hazards, providing a recovery zone for vehicles that have left the carriageway.
Coastal marine area	Defined in section 2 of the RMA as: <i>"the foreshore, seabed, and coastal water, and the air space above the water: a) Of which the seaward boundary is the outer limits of the territorial sea b) Of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of: (i) 1 kilometre upstream from the mouth of the river; or (ii) The point upstream that is calculated by multiplying the width of the</i>

Term	Meaning
	<i>river mouth by 5."</i>
Collector road	A sub-arterial road which collects and distributes traffic in an area, as well as serving abutting property.
Colluvium	Loose deposits of rock debris accumulated through the action of gravity found at the base of slopes.
Condition	A condition placed on a resource consent (pursuant to section 108 of the RMA) or conditions of a designation (pursuant to subsection 171(2)(c) of the RMA).
Construction environmental management plan	A plan to ensure that appropriate environmental management practices are followed during the construction of a project, and which can be handed over to the operator of the project following construction.
Contaminant	Defined in section 2 of the RMA as: <i>"any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat -</i> <i>(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or</i> <i>(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged."</i>
Contaminated land	Defined in section 2 of the RMA as: <i>"land that has a hazardous substance in or on it that -</i> <i>(a) has significant adverse effects on the environment; or</i> <i>(b) is reasonably likely to have significant adverse effects on the environment."</i>
Crib wall	A retaining wall made of interlocking concrete or timber sections with earth or gravel fill between.
Crossfall	The slope, at right-angles to the alignment, of the surface of any part of the carriageway.
Cross-section	A vertical section, generally at right-angles to the centreline showing the ground. On drawings it commonly shows the road to be constructed, or as constructed.
Culvert	One or more adjacent pipes or enclosed channels running across and below road formation level having a cross-sectional area less than 3.4 square metres.
Cutting	That portion of the road where the finished road surface is below the natural surface.
Cycle lane	That portion of the carriageway devoted to the use of cycles only and marked accordingly (but which may occasionally be crossed by motor vehicles, turning at intersections or driveways or manoeuvring into parking spaces).
Cycle path	A separately formed path designed specifically for the use of cycles, to which motor vehicles do not have access.
Deceleration lane	A speed-change lane provided to allow vehicles to decrease speed.
Designation	Defined in section 166 of the RMA as: <i>"a provision made in a district plan to give effect to a requirement made by a requiring authority under section 168 or section 168A or clause 4 of schedule 1."</i>
Design life	The period during which the performance of a pavement, e.g. riding quality, is expected to remain acceptable.
Design period	A period considered appropriate to the function of the road. It is used to determine the total traffic for which the pavement is designed.
Design speed	A speed fixed for the design of minimum geometric features of a road.
Design year	The predicted year in which the design traffic volume would be reached.
District plan	Defined in section 43AA of the RMA as: <i>"(a) means an operative plan approved by a territorial authority under</i>

Term	Meaning
	<i>Schedule 1; and (b) includes all operative changes to the plan (whether arising from a review or otherwise)."</i>
Divided highway	A road with physically separated carriageways for traffic travelling in opposite directions.
Edge line	A line painted on a road to indicate the outer edge of the traffic lane.
Effect	Defined in section 3 of the RMA as including: <i>"(a) Any positive or adverse effect; (b) Any temporary or permanent effect; (c) Any past, present, or future effect; (d) Any cumulative effect which arises over time or in combination with other effects - Regardless of the scale, intensity, duration, or frequency of the effect and also includes - (e) Any potential effect of high probability; and (f) Any potential effect of low probability, which has a high potential impact."</i>
Embankment	A construction work (usually of earth or stone) that raises the ground (or formation) level above the natural surface.
Environment	Defined in section 2 of the RMA as including: <i>"(a) Ecosystems and their constituent parts, including people and communities; (b) All natural and physical resources; (c) Amenity values; and (d) The social, economic, aesthetic and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters."</i>
Environmental monitoring guidelines	Site or project specific guidelines setting out the monitoring responsibilities for the project.
Environmental risk assessment	An evaluation of possible risk from a receptor contacting a source through a completed pathway. Risk may manifest in the form of acute (immediate) or chronic (long-term) adverse effects. Environmental risk is typically evaluated for human health and ecological receptors.
Estuarine deposits	Unconsolidated sedimentary deposits laid down in an estuary.
Exposure pathway	A route by which contaminants can contact a receptor. Receptors can include people, flora and fauna, groundwater, surface water, or air. Examples of pathways for human receptors include routes such as ingestion, inhalation, dermal absorption, or injection. Environmental pathway examples include percolation of rainwater carrying contaminants to groundwater, stormwater runoff into surface water bodies, and uptake of contaminants through plant root systems.
Expressway	A road mainly for through traffic, usually dual carriageway, with full or partial control of access. Intersections are generally grade separated.
Footpath	That portion of the road reserve set aside for the use of pedestrians only.
Formation	The surface of the finished earthworks, excluding cut or fill batters.
Free-field	Description of a location which is at least 3.5 metres from any significant sound reflecting surface other than the ground.
Furniture	A general term to describe features placed on or near the road to improve safety and assist drivers. Furniture includes barriers, guard rails, lighting, parking meters, poles, posts, signs, lights, etc.
Gabion	A rectangular wire-mesh cage filled with boulders, used to retain embankments and riverbanks.
Grade separation	The separations of road, rail or other traffic so that crossing movements which would otherwise conflict are at different elevations.

Term	Meaning
Guard rail	A rail erected to restrain vehicles from physically leaving the road, including wire-rope barriers.
Grassed swale	An open vegetated drainage channel or shallow trough-like depression running alongside a road and explicitly designed to carry, detain, partly treat and promote the filtration of stormwater run-off.
Guideline values	Risk-based values for individual contaminants that are based on various studies. Guideline values are used to evaluate laboratory analytical data from soil and water samples to determine whether additional action is required. Guideline values are typically media-specific and provided for protection of human health and ecological receptors.
Hazardous activities and industries list	A list of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal.
Haul	The distance through which material is transported between points of loading and unloading.
Historic heritage	Defined in section 2 of the RMA as: <i>"(a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:</i> <i>(i) Archaeological</i> <i>(ii) Architectural</i> <i>(iii) Cultural</i> <i>(iv) Historic</i> <i>(v) Scientific</i> <i>(vi) Technological; and</i> <i>(b) Includes:</i> <i>(i) Historic sites, structures, places and areas;</i> <i>(ii) Archaeological sites;</i> <i>(iii) Sites of significance to Maori, including waahi tapu; and</i> <i>(iv) Surroundings associated with the natural and physical resources."</i>
Hertz	Unit of frequency, used for sound and vibration.
Horizontal curve	A curve in the carriageway alignment in the horizontal plane.
Interchange ramp	A carriageway within an interchange providing for travel between two arms (legs) of the intersecting roads.
Interchange	A grade separation of two or more roads with one or more interconnecting carriageways.
Intersection	A place at which two or more roads cross at grade or with grade separation.
Judgmental sampling strategy	A sampling strategy that involves sample collection at areas that, in the judgement of the environmental professional, may be contaminated. The goal of this strategy is to provide a "worst case" sampling result.
Kenepuru Link Road	A proposed State highway from the Kenepuru Interchange to Kenepuru Drive. This road will provide vehicular access to the Main Alignment across the NIMT and existing SH1 for traffic from western Porirua.
KiwiRail	KiwiRail is the trading name of the NZ Railways Corporation. There are a number of divisions within KiwiRail, with KiwiRail Network being responsible for railway infrastructure such as tracks, bridges and tunnels. The NZ Railways Corporation is the requiring authority for all railways designations.
L _{Aeq} (24h)	Time-average sound level over a twenty-four hour period, measured in dB.
L _{Aeq} (1h)	Time-average sound level over a one hour period, measured in dB.
L _A F _{max}	Maximum sound level, measured in dB.
Lane line	A line, usually painted, other than the centre line which divides adjacent traffic lanes.
Limited access road	Limited access roads are declared by NZTA under section 88 the Government Rounding Powers Act 1989 as a means of controlling access between state

Term	Meaning
	highways and adjoining properties. Territorial authorities may also declare limited access roads under section 346A of the Local Government Act 1974.
Local road	A road (other than a State highway) in the district, and under the control, of a territorial authority, as defined in Section 5 of the Land Transport Management Act 2003.
Loess	Fine grained silt or clay formed by glaciation and transported by wind.
Long-term council community plan	A long-term council community plan adopted under section 93 of the LGA.
Mean high water springs	The average of the levels of each pair of successive high waters during that period of about 24 hours in each semi lutation (approximately every 14 days) when the range of tides is greatest.
Median barrier	A device used on multi-lane roads to keep opposing traffic within their prescribed carriageways.
Modified Mercalli scale	A scale designed to describe the effects of an earthquake.
MX	Software programme used in road design.
National environmental standard	A standard prescribed by regulations made under section 43 of the RMA. There are currently four NESs relating to: air quality; sources of human drinking water, telecommunications facilities; and, electricity transmission.
National policy statement	A statement issued under section 52 of the RMA. Currently the only NPSs are on Electricity Transmission, Freshwater Management and Renewable Electricity Generation.
Noise	Noise may be considered as sound that serves little or no purpose for the exposed persons and is commonly described as 'unwanted sound'.
Notice of requirement for designation	A notice given to a territorial authority (under section 168 of the RMA) or by a territorial authority (under section 168A of the RMA) of a requirement for land, water, subsoil or airspace to be designated.
NZTA Project	The construction, operation and maintenance of the Main Alignment and the Kenepuru Link Road
Outline plan	A plan of the public work, project, or work to be constructed on designated land provided to a territorial authority, pursuant to section 176A of the RMA, prior to the work being undertaken.
Overpass	A grade separation where the traffic from an intersecting road or railway passes over the road of interest, for this Project over Transmission Gully.
Pavement	The road structure that is constructed on the subgrade and supports the traffic loading.
Pavement markings	Any markings on the road to control traffic movement or parking.
PCC Project	The construction, operation and maintenance of the Porirua Link Roads.
Pier	Vertical support structure for a bridge, located between two spans.
Porirua Link Roads	Refers collectively to the Whitby Link Road and the Waitangirua Link Road.
PM10	Fine particulate matter with an equivalent diameter of less than 10 micrometres.
Proposed plan	Defined in section 43AAC of the RMA as: <i>“(a) means a proposed plan, a variation to a proposed plan or change, or a change to a plan proposed by a local authority that has been notified under clause 5 of Schedule 1 but has not become operative in terms of clause 20 of Schedule 1; and (b) includes a proposed plan or a change to a plan proposed by a person under Part 2 of Schedule 1 that has been adopted by the local authority under clause 25(2)(a) of Schedule 1.”</i>
Proposed policy statement	Defined in section 43AA of the RMA as: <i>“a proposed policy statement that has been notified under clause 5 of Schedule 1 but has not become operative in terms of clause 20 of Schedule 1.”</i>

Term	Meaning
Protected premises and facilities	Has the meaning set out in NZS 6806:2010 and includes: <ul style="list-style-type: none"> • buildings used for residential activities; • marae; • spaces within buildings used for overnight patient medical care; and • teaching areas and sleeping rooms in buildings used as educational facilities.
Ramp	Carriageway within an interchange providing for travel between two arms (legs) of the intersecting roads.
Recreational cycling	The riding of cycles for enjoyment or fitness (i.e. the main purpose of the trip is the ride itself).
Regional plan	Defined in section 43AA of the RMA as: <i>“(a) means an operative plan approved by a regional council under Schedule 1 (including all operative changes to the plan (whether arising from a review or otherwise)); and (b) includes a regional coastal plan.”</i>
Regional policy statement	Defined in section 43AA of the RMA as: <i>“(a) means an operative regional policy statement approved by a regional council under Schedule 1; and (b) includes all operative changes to the policy statement (whether arising from a review or otherwise).”</i>
Relative percent difference	The relative difference between concentrations of contaminants in duplicate samples. This is used as a measure of sampling and analytical precision.
Requiring authority	Defined in section 166 of the RMA as: <i>“(a) Minister of the Crown; or (b) a local authority; or (c) a network utility operator approved as a requiring authority under section 167”</i> The NZ Transport Agency was approved under section 167 as a requiring authority by Resource Management (Approval of New Zealand Transport Agency as Requiring Authority) Notice 1994, notified in the <i>Gazette</i> on 3 March 1994. There are two requiring authorities for the Transmission Gully Project. The NZ Transport Agency is the requiring authority for the Main Alignment and the Kenepuru Link Road. Porirua City Council is the requiring authority for the Porirua Link Roads.
Retaining wall	A wall constructed to resist lateral pressure from the adjoining ground or to maintain in position a mass of earth.
Reverse sensitivity	The vulnerability of an established (or planned) activity to objection from a new sensitive land use.
Road	An area formed for vehicular traffic to travel on. The term ‘road’ describes the area between kerbs or surface water channels and includes medians, shoulders and parking areas.
Road controlling authority	Defined in section 5 of the LTMA as: <i>“in relation to a road, means the Minister, department of State, Crown entity, State enterprise, or territorial authority that controls the road.”</i>
Road reserve	A legally described area within which facilities such as roads, footpaths and associated features may be constructed and maintained for public travel.
Roundabout	An intersection where all traffic travels in one direction around a central island.

Term	Meaning
Simulation and Assignment of Traffic to Urban Road Network (SATURN)	A transportation network analysis program that combines traffic simulation and assignment for the analysis of road-investment schemes ranging from major infrastructure improvements to individual intersection treatments.
Section 1 (MacKays Crossing)	That part of the Main Alignment between station values 00000 and 03500, referred to generally as MacKays Crossing.
Section 2 (Wainui Saddle)	That part of the Main Alignment between station values 03500 and 06500, referred to generally as Wainui Saddle.
Section 3 (Horokiri Stream)	That part of the Main Alignment between station values 06500 and 09500, referred to generally as Horokiri Stream.
Section 4 (Battle Hill)	That part of the Main Alignment between station values 09500 and 12500, referred to generally as Battle Hill.
Section 5 (Golf Course)	That part of the Main Alignment between station values 12500 and 15500, referred to generally as the Golf Course.
Section 6 (State Highway 58)	That part of the Main Alignment between station values 15500 and 18500, referred to generally as State Highway 58.
Section 7 (James Cook)	That part of the Main Alignment between station values 18500 and 21500, referred to generally as James Cook.
Section 8 (Cannons Creek)	That part of the Main Alignment between station values 21500 and 24900, referred to generally as Cannons Creek.
Section 9 (Linden)	That part of the Main Alignment between station values 24900 and 27700, referred to generally as Linden.
Shoulder	That portion of the carriageway outside the traffic lanes.
Signalised and un-signalised intersection design and research aid (SIDRA)	Software package used as an aid for the design and evaluation of signalised intersections, single point interchanges, roundabouts, and stop and give-way sign controlled intersections.
Sight distance	The distance measured along the carriageway over which objects of defined height are visible to a driver.
Site specific environmental management plan	Site specific environmental management plans have been developed for key focus areas along the route. These plans demonstrate the level of detail that will be provided in the final SSEMPs that will be produced by the appointed contractor. It is intended that there will be a level of flexibility able to be retained by the contractor so that they can use their chosen construction methods whilst still being required to meet performance standards set out by conditions of consent.
Sound	Sound (pressure) levels are an objective measure of changes in pressure levels that may be heard by humans. Unwanted sound can be considered as noise.
Station value	Distance along the Main Alignment from an arbitrarily set location measured in metres. The northern most point at MacKays Crossing is 00000m. The Main Alignment starts approximately 300m south of this point.
Statement of Identified Maori Interest	A mechanism developed under NZTA's Guidelines for Managing Stakeholder Relationships and Consultation with Maori (part 2 of Public Engagement Manual) which sets out NZTA's expectations and methods for consulting and recording consultation outcomes.
Stormwater detention ponds	Basins constructed to temporarily store water run-off in order to reduce peak flows and to allow some contaminants to settle out. They are often dry between rain events.
Subway	A structure constructed to permit the passage of pedestrians and/or cycles beneath a road.
Substructure	The piers and abutments (including wing walls) of a bridge, which support the superstructure.

Term	Meaning
Superstructure	That part of a bridge structure that is supported by the piers and abutments.
Surface water channel	An open drain or ditch along the side of the road that collects water running off the road's surface.
Systematic sampling strategy	A sampling strategy that involves laying out a grid over an area and collecting samples from each grid location. This sampling pattern is used where there is no "point source" of contamination, but instead there is potential for widespread contamination, such as from pesticide application.
Tangata whenua	Defined in section 2 of the RMA as: <i>"in relation to a particular area, means the iwi, or hapu, that holds mana whenua over that area."</i>
Territorial authority	Defined in section 5 the LGA as a city or district council listed in Part 2 of Schedule 2 of that Act. The Transmission Gully Project involves land under the administrative jurisdiction of four territorial authorities: Wellington City Council; Porirua City Council; Upper Hutt City Council; and Kapiti Coast District Council.
Traffic flow	The number of vehicles passing a given point during a specified period of time.
Traffic lane	A portion of the carriageway allotted for the use of a single line of vehicles.
Traffic volume	The number of vehicles flowing in both directions past a particular point in a given time (e.g. vehicles per hour, vehicles per day).
Transition curve	A curve of varying radius used for the purpose of easing a change of direction.
Transmission Gully Main Alignment ('the Main Alignment')	A proposed 27km expressway between Linden (Wellington City) and MacKays Crossing (Kapiti Coast).
Transmission Gully Project ('the Project')	Refers collectively to the construction, operation and maintenance of the Transmission Gully Main Alignment, the Kenepuru Link Road and the Porirua Link Roads.
Underpass	A grade separation where stock or traffic passes under an intersecting highway or railway. For other non-traffic uses, refer subway.
Unexploded ordnance survey	A geophysical survey using electromagnetic or ground penetrating radar techniques to identify underground anomalies that may be indicative of the presence of unexploded ordnance.
$V_{w,95}$	Statistical maximum weighted velocity, used in the assessment of road-traffic vibration.
Vehicle crossing	A formed area where vehicles can cross over channel and footpath.
Vehicles per day	The number of vehicles observed passing a point on a road in both directions for 24 hours.
Vertical curve	A curve in the carriageway alignment in the vertical plane.
Wahi tapu (also referred to as Waahi tapu)	Defined in section 2 of the HPA as: <i>"a place sacred to Maori in the traditional, spiritual, religious, ritual or mythological sense."</i>
Waitangirua Link Road	A proposed local road from the James Cook Interchange to the intersection of Warspite Avenue and Niagara Street in Waitangirua. This road will have a proposed speed limit of 50 km/h.
Water channel	A channel for the purpose of conveying water, whether lined or unlined.
Water body	Defined in section 2 of the RMA as: <i>"fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area."</i>
Water table	The level at which ground water will finally stand in an unpumped bore hole, well or other depression.
Wetland	Defined in section 2 of the RMA as including: <i>"permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions."</i>

Term	Meaning
Wellington Transport Strategic Model	The transportation model developed for the Wellington region using EMME/2 software.
Whitby Link Road	A proposed local road from the Waitangirua Link Road to the intersection of James Cook Drive and Navigation Drive in Whitby. This road will have a proposed speed limit of 50 km/h.