

Technical Specialist Memo - Regulatory Engineering

To:

Warwick Pascoe – Premium Project Lead
Celia Wong – Senior Planner, Resource Consents
Louise Barclay & Jo Hart – Senior Planner, Notices of Requirement

From:

Greg Hall – Senior Development Engineer

Qualifications
& Relevant
Experience:

I hold the qualification(s) of: **Bachelor of Engineering** and have **25 years of experience in land development including 17 years in Regulatory Engineering at Auckland Council and Waitakere City Council.**

In this role I have provided input into Notices of Requirement, Resource Consents and Engineering Approvals for the following relevant projects:

- SH16 / SH18 Western Ring Route (Westgate to Brigham Creek Road and Hobsonville).
- NOR's & Resource Consents for Watercare's North Harbour No. 2 water supply pipeline and Northern Interceptor (wastewater trunk sewer).
- Te Tupu Ngātahi Supporting Growth – Trig Road Resource Consent.
- Westgate CDP's, Resource Consents and Engineering Approvals, including the local bus station currently under construction.
- Spedding Industrial Estate.

I am a full member of **Engineering New Zealand**. I have prepared expert evidence and technical assessments for resource consent applications, plan changes and notices of requirement for designation, and have appeared as an expert witness before consent authorities and the Environment Court on multiple occasions.

Preparation in
Accordance
with the Code
of Conduct:

I confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses ([Code](#)), and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing, directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified.

Date:

2 June 2026

1.0 APPLICATION DESCRIPTION

Application and property details

Fast-Track project name:

North West Rapid Transit

Fast-Track application number:

FTAA-2511-1146

Council Resource Consent References:

BUN60461580

LUC60461581

DIS60461582 (contamination)

CST60461583 (structures)

CST60461584 (disturbance of seabed (other))

CST60461585 (veg removal)

WAT60461586 (groundwater)

LUS60461587 (structure)

LUS60461588 (works)

Notice(s) of Requirement

NOR number	Description
NoR 1	Busway between Brigham Creek Rarawaru station and north of Westgate Te Waiarohia station (including stations, Park and Ride and all local road connections)
NoR 2	Busway between north of Westgate Te Waiarohia station and north of Royal Road Mānutewhau station (including stations, Park and Ride and all local road connections)
NoR 3	Busway between Royal Road Mānutewhau Station and Te Whau River (including all stations and local road connections)
NoR 4	Brigham Creek Rarawaru station including Park and Ride
NoR 5	Westgate Te Waiarohia station
NoR 6	Royal Road Mānutewhau station
NoR 7	Lincoln Road Wai o Pareira station
NoR 8	Te Atatū Ōrangihina station
NoR 9	Busway between Waterview interchange and west of Ivanhoe Road (including all stations and local road connections)
NoR 10	Busway between Ivanhoe Road and Ian McKinnon Drive (including all stations and local road connections)
NoR 11	Point Chevalier station
NoR 12	Western Springs station

Site address:

Generally alongside State Highway 16 between Brigham Creek and Auckland City Centre

- NWRT_Part 6_5_Property Schedule_Land within designation boundary and

- NWRT_Part 6_6_Property Schedule_Land adjacent to the designation boundary)

2.0 Executive Summary / Principal Issues

[This may not be required for all memos, however if you have prepared a detailed memo (i.e. more than two pages) please provide an executive summary.]

3.0 Documents Reviewed

- Part 4 - RMA 1991 Approvals – Updated
- Part 4 - Appendix A - Proposed Designation Conditions
- Attachment 6.1 Indicative Design West
- Attachment 6.2 Indicative Design East
- Attachment 6.3 Indicative Cross Section
- Attachment 6.14 Assessment of Construction Stormwater Effects

4.0 Specialist Assessment (Notices of Requirement)

General

- 4.1 I understand that NZTA's general approach is to provide indicative design at this stage to support the Notices of Requirement and proposed Designations. Detailed design and construction are expected to occur in stages over a significant timeframe (estimated 20 years). Due to this NZTA are seeking to avoid detailed conditions to allow for flexibility in design and construction. It is my experience of stormwater management approaches, and to a degree, erosion and sediment control practices change and advance reasonably regularly such that by the final stages of the project standard practice is likely to differ from what we currently expect. To avoid overly prescriptive requirements at this stage which may unnecessarily affect or limit detailed design, provisions to allow for submission of further information to advise of how effects will be managed with respect to the current standards and methodologies at the time are inevitable.
- 4.2 I support the application overall, provided appropriate conditions are added to ensure all potential effects are properly managed. Given the likely extended timeframe of delivery and in or to allow for detailed design flexibility I also support the approach of formulating conditions which permit this to be achieved. However, I believe for this to be the case, that provision of reports, management plans or similar are likely to be required at the detailed design & construction phase of each project stage.

E12 Land Disturbance – District

E36 Natural Hazards (Land Instability and PC120 Landslides)

- 4.3 Attachment 6.14 Assessment of Construction Stormwater Effects provides a overarching discussion of potential erosion and sediment effects predicted by the proposal. Section 6.1 of the report recommends that an Erosion and Sediment Control Plan (ESCP) be prepared for each section of the project works in accordance with GD05 or later updates. This has been encapsulated in Condition

5 of the proposed Regional Resource Consent under E11 (Land Disturbance Regional). However, I believe the requirement to provide an ESCP in accordance with GD05 should also be referenced within the Designation conditions. I have provided a recommendation for a condition in Section 7 below.

- 4.4 Further to the above, E12 and E36 require consideration of the effects of earthworks and steep slopes on other property and infrastructure at or beyond the site boundary. Where groundwater drawdown occurred due to the works, such as when a large retaining wall is constructed, related settlement effects are considered under E7 as outlined in Attachment 6.16 Assessment of Groundwater and Settlement Effects. However, other effects can also occur outside the bounds of an E7 assessment. For example, if the toe of a steep slope is removed this could result in land movement above the works which may affect dwellings, buildings, roads or services.
- 4.5 A review of the route on Council's GIS system using PC120 Landslides layers and contours indicates multiple, isolated potential landslide locations. In most locations these may be related to existing motorway embankments or around stream gullies. A general example is seen in Figure 1 below where steeper gradients seen in contour information reflect a motorway cutting with a retaining wall and batter slope.



Figure 1: General example of contours reflecting motorway cutting works. Note, this example is on the opposite side of the motorway than the busway alignment.

- 4.6 However, in some locations such as at the Waterview interchange and in the vicinity of the Arch Hill Scenic Reserve (see Figure 2 below) there are areas of steep land above the motorway alignment which may require detailed geotechnical investigation and design to ensure potential effects on both the project and on other land and property outside the project area are suitably managed. While I expect that NZTA will ensure the effects on their works are robustly managed, I believe it is also important to explicitly require that effects on neighboring land, infrastructure and buildings be managed to avoid damage to adjacent property.



Figure 2: Streetview of Arch Hill slope with residential building at crest.

- 4.7 Therefore, I recommend the Designation conditions include a requirement for a Geotechnical Investigation Report from a suitably qualified and experienced geo-professional to be provided at each stage to discuss potential effects of the temporary and permanent works on adjacent land, infrastructure and buildings, and to provide recommendations on how to avoid these effects. I have provided a recommendation for the condition in Section 7 below.

5.0 Section 67 Information Gap

I have identified that there are no section 67 information gaps.

6.0 Recommendation

Based on the available information I support the proposal with respect to the Notice of Requirement land Disturbance and Geotechnical Hazards considerations, provided that the additional conditions below are included in the final Designation Conditions.

7.0 Proposed Conditions (Notices of Requirement)

Erosion and Sediment Control Plan (ESCP)

- (a) *Prior to the start of construction, the Requiring Agency shall engage a SQP to prepare an ESCP. The purpose of the ESCP is to set out measures to be implemented during construction to minimise erosion and the discharge of sediment from within the boundaries of the Site.*
- (b) *The ESCP(s) shall be prepared in accordance with Auckland Council's Guidance Document 005 – Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GD05) or updated version except as otherwise provided for in these conditions.*
- (c) *The ESCP shall include the following information:*
 - (i) *Location of the work.*
 - (ii) *Contour information.*
 - (iii) *Details of construction methods.*
 - (iv) *ESC measures for the works being undertaken within a particular construction area.*
 - (v) *Catchment boundaries of works and devices installed.*
 - (vi) *Design criteria, typical and site-specific details of ESC.*
 - (vii) *The identification of staff who will monitor compliance with the ESCP.*
 - (viii) *Design details for managing the treatment, disposal and/or discharge of contaminants (e.g. concrete wash water).*
 - (ix) *Chemical (or organic) treatment design and details including batch dosing.*
 - (x) *Pumping procedures where dewatering is required.*
 - (xi) *Earthworks programme.*
 - (xii) *Methodology, timing, staging and sequencing of stream works including culvert extensions and replacements, and any erosion sediment control measures to be employed to mitigate the effects on waterbodies.*

Geotechnical Management Plan (GMP)

- (a) *Prior to the start of construction, the Requiring Agency shall engage a Suitably Qualified Geotechnical Professional (SQGP) to prepare a GMP. The purpose of the GMP is to review the geotechnical conditions along the alignment with respect to the detailed design proposal in order to confirm that there will be no adverse effects to land, buildings or infrastructure beyond the designation boundary.*
- (b) *The GMP shall consider effects of both temporary and permanent works.*
- (c) *Where the works are located in areas of geotechnical hazard, such as steep slopes, poor soils, or landslide susceptibility the SQGP shall undertake geotechnical investigations to ensure the hazard is well understood, and to demonstrate the proposed design mitigates any potential effects on land, buildings or infrastructure beyond the designation boundary.*

8.0 Designation Review Matrix – Specialist Review				
NOR number	Location Description	Information Adequacy (High / Moderate / Low)	Key Issues Identified	Comments / Recommendations
NoR 1	Busway between Brigham Creek Rarawaru station and north of Westgate Te Waiarohia station (including stations, Park and Ride and all local road connections) (0.3km length)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	The information provided is suitable at this stage. More detail would not be expected in the application but would be required once detailed design is completed.	Reasonably flat route. Crossing of Totara Creek. Existing motorway stormwater ponds and culverts. Conditions recommended as above.
NoR 2	Busway between north of Westgate Te Waiarohia station and north of Royal Road Mānutewhau station (including stations, Park and Ride and all local road connections) (3.3km length)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Significant underpass at Northside Drive. Generally moderate gradient. Existing services and Designations. Culvert, stream and stormwater ponds just south of Northside Drive. Conditions recommended as above.
NoR 3	Busway between Royal Road Mānutewhau Station and Te Whau River (including all stations and local road connections) (5km length)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Significant underpasses at Royal Road, Lincoln and Te Atatu. Generally moderate gradient at Royal Road and Te Atatu with some culvert extensions. Some steeper localized areas. Generally flat through the middle section, with tidally affected streams. Conditions recommended as above.
NoR 4	Brigham Creek Rarawaru station including Park and Ride (within NoR 1)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Moderate to flat area with small streams and overland flowpaths. Conditions recommended as above.
NoR 5	Westgate Te Waiarohia station (within NoR 2)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Moderate slopes and existing stormwater pond. Area of significant prior earthworks for SH16/18 motorway interchange and Westgate development. Earthworks for integrated local bus station already largely complete. Conditions recommended as above.
NoR 6	Royal Road Mānutewhau station (within NoR 3)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Works on the ridgeline with some moderate to steep surrounding gullies to the south and for the works on the east side of the motorway. Conditions recommended as above.
NoR 7	Lincoln Road Wai o Pareira station (within NoR 3)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Reasonably flat site with excavation for grade separation. Close to tidal section of Huruuru Creek. Conditions recommended as above.
NoR 8	Te Atatū Ōrangihina station (within NoR 3)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Station site is one or near the ridgeline, approaches have moderate gradient. Conditions recommended as above.
NoR 9	Busway between Waterview interchange and west of Ivanhoe Road (including all stations and local road connections) (2.7km length)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Some steeper slopes adjacent above the route at Waterview. Point Chevalier works at motorway level, below surrounding land. Bridged sections from Meola Creek through to Ivanhoe Road. Fill batters formed at Ivanhoe Road. Conditions recommended as above.
NoR 10	Busway between Ivanhoe Road and Ian McKinnon Drive (including all stations and local road connections) (2.7km length)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Ivanhoe Road fill batters, then cut batters approaching Arch Hill Scenic Reserve. Steep slopes above route near Arch Hill Scenic Reserve and through to Kirk Street. Bridged and underpasses through to Ian McKinnon Drive. Conditions recommended as above.
NoR 11	Point Chevalier station (within NoR 9)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Generally flat area with structures expected to connect upper local station to lower busway. Conditions recommended as above.
NoR 12	Western Springs station (within NoR 10)	<input type="checkbox"/> High <input checked="" type="checkbox"/> Mod <input type="checkbox"/> Low	As above.	Reasonably flat area, notably flood prone. Batters required to achieve grade separation. Conditions recommended as above.