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MINISTRY OF EDUCATION

LONG BAY PRIMARY SCHOOL PROJECT
LONG BAY NORTH SHORE

CONSTRUCTION METHODOLOGY GUIDELINE

FOR DESIGNATION
MINISTRY OF EDUCATION

LONG BAY PRIMARY SCHOOL PROJECT
LONG BAY NORTH SHORE

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1 INTRODUCTION

The proposed works are located within the Long Bay Primary school grounds at 35 Ashley Avenue and 27 Ralph Eagles Place Long Bay.

This guideline describes the construction methodology of the site and construction activities related to the cutting, transportation and placement of fill to form a platform for a future sports field for Long Bay Primary School.

The fill to form the platform within Long Bay Primary school is to be sourced from the proposed Glenvar Ridge Road project being undertaken by Auckland Transport.

The Long Bay Primary School project and the Glenvar Ridge Road project are intended to be undertaken at the same time by the same contractor.

A separate Construction Methodology Guideline has been prepared specifically for the proposed Glenvar Ridge Road construction activities.

Figure 1: Site Location Plan
2 DESIGNED AREA

It is proposed to make an amendment to the extent of the existing Ministry of Education designation to allow for the proposed works to be included completely within a Ministry of Education designation.

The existing and proposed designation is shown on figure 2 below and on drawing GE-011 in the appendix.

Figure 2
3 PROJECT CONSTRUCTION MILESTONES

Construction works are planned to be undertaken in two construction seasons with preliminary enabling work taking place before the first construction season.

1 Tree felling enabling works will be performed between June and September 2015.
   Significant selected works achieved in this period will be;
   1. Trees and large shrubs will be felled with stumps left in situ.

2 The first Construction Season (No.1) - will start on 1 October 2015 and finish at the end of May 2016.
   Significant selected works achieved in this period will be;
   2. Installation of erosion and sediment control devices sufficient for extent of site clearing to be undertaken.
   3. The buildings and other structures which are redundant will be demolished and removed with security fencing in place.
   4. Tree stump and shrub removal.
   5. Preliminary works such as subsoil drainage, and stormwater to facilitate filling of gulley.

3 The second Construction Season (No.2) - will run from October 2016 and finish at the end of May 2017.
   Significant selected works achieved in this period will be.
   6. Installation of erosion and sediment control devices for bulk earthworks
   7. Haul road operational.
   8. Bulk earthworks.
   9. Completion of stormwater and sanitary sewer systems
   10. Topsoiling, grassing, landscaping and permanent fencing.

A Construction Management Plan is appended. Refer to Drawing 10352-02-GE-030
4 PRELIMINARY AND ENABLING WORKS

4.1 Ashley Avenue Upgrade / Stormwater Upgrade
The upgrading of Ashley Avenue in the vicinity of Long Bay Primary School is being undertaken as part of a separate project by Long Bay Communities Ltd. As part of the road upgrade works new stormwater infrastructure is being installed that will allow the decommissioning of an existing stormwater pond located within the property at 35 Ashley Ave.

With reference to the Woods report prepared for the MOE “Relocation of Long Bay College Carpark Treatment Stormwater Assessment Report”, the process of redirecting this water complies with the network discharge permit.

The decommissioning of the existing pond and associated stormwater pipe work is required prior to commencing the filling operation on 35 Ashley Ave.

4.2 Sanitary Sewer Line
Waste water disposal from Long Bay Primary School is via an existing private waste water pump station located with the school grounds. Waste water gravitates to the pump station and is pumped to an existing public sewer.

As part of the works it is proposed to remove the existing pump station and provide a gravity sewer line to a new sewer, yet to be constructed, within the adjacent Long Bay subdivision development.

The proposed new sewer line from the Long Bay Subdivision will be required before the existing school pump station can be decommissioned and removed.

Long Bay Communities Ltd has advised that the downstream infrastructure required for this sewer line will be installed prior to the proposed primary school works.

4.3 Site Entrances
A stabilised construction entrance will be formed directly off Ashley Avenue to enable access for preliminary site clearing.

Entrance to the site at Ashley Avenue will be controlled by lockable gates.

The site access off Ashley Avenue is shown as an information plan in the appendix.

As part of the Glenvar Ridge road project there will also be an entrance into that project which will be utilised by the contractor undertaking the bulk earthworks at the Long Bay School project site.

4.4 Fencing
Prior to works commencing the perimeter of the site will be fenced to prevent entrance from general public and school children. Fencing will be checked and maintained daily to ensure the site is secure.
4.5 Sediment control

The preliminary operations including building removal, tree clearing and general site clearance will be undertaken prior to stripping topsoil and exposing bare earth. Erosion and sediment controls measures will be installed prior to earthworks commencing and are detailed on drawing 10352-2-EW 220 in the appendix.

4.6 Building Removal

There are a number of old sheds and unused buildings located on the site that are proposed to be demolished and removed. The demolition will take place prior to exposing bare ground and all demolition material will be taken off site to an approved tip site. Prior to commencing any demolition works the site will be secured to prevent entrance by the public and school children. Any asbestos contained within the Buildings will be disposed of in accordance with Health and Safety requirements.

4.7 Tree Removal and Tree Protection

There are a number of trees within the site that are required to be removed to facilitate the works. There are also a number of trees that are to be kept and protected for the duration of the works.

The trees that are to be removed, will be felled and removed from site as a preliminary enabling operation in the winter of 2015 with tree stumps left in place until the start of the construction season in October.

An arborist’s report has been prepared that has identified and categorised the trees for removal or protection. The arborist has also made recommendations for tree protection including protective fencing, root protection and pruning. All recommendations will be included within a contract specification for the works and the works will be monitored by the arborist.
5  GENERAL OPERATIONS

5.1  Contractors Access and Site Establishment

The works to create the fill platform will be undertaken in conjunction with, and at the same time as, Auckland Transport’s Glenvar Ridge Road project. The contractor’s site offices and establishment yard where materials and machinery will be stored will be common to both projects and will be located within the Glenvar Ridge Road project area as shown in figure 3 below.
Access to the site offices and establishment yard will be via a new formed and metalled stabilised access road from the end of Ralph Eagles Place and through 27 Ralph Eagles Place.

The location of the access road has been selected to provide a 5m buffer distance between the edge of the road and the primary school grounds fence. This is sufficient distance to install erosion and sediment control measures and additional security fencing to ensure a safe separation between the vehicle access road and the primary school is maintained.

The site, including the access road, will be security fenced and access to the site will be via lockable gates at the end of Ralph Eagles Place. Visitors to the construction site and site offices will be required to comply with the requirements of the site specific Health and Safety Plan upon entry.

Access to Long Bay Primary School will not be interrupted by the works.

5.2 Hours of Work

It is proposed that the hours of work for site operations be in daylight from sunrise to sunset within the hours of 7am to 6:30 pm Monday to Friday and 8am to 5pm on Saturdays. These hours will facilitate undertaking operations outside of school hours and also assist in minimising traffic disruption.

Bulk earthworks operations transporting fill material along the haul road to the north of the school will be preferentially undertaken outside of school hours on weekdays and at weekends.

It is recommended that trucks are discouraged from using the site access at the end of Ralph Eagles Place between the hours of 8:30am to 9am and 2:45pm to 3:15pm on school days to minimise peak traffic impacts.
6 EARTHWORKS

6.1 Description and Timing of the Works

The site currently slopes from an approximate level of RL of 43m at the eastern end of Ashley Avenue to a level of RL12m at the base of the existing gully. Approximately 94,000m³ of fill is to be placed on 27 Ashley Ave and 35 Ashley Ave. 16,500m³ of this volume will be cut from 35 Ashley Ave and the balance of approximately 77,500m³ will be transported from the Glenvar Ridge Road Project Area via a construction haul road.

Initial works will include gulley filling to provide a connection from the haul road into the platform area and the mucking out of the existing stormwater pond at 35 Ashley Ave.

The bulk of the works in the immediate vicinity of the primary school are planned to be undertaken preferentially in the school holidays between December 2016 and January 2017. To complete the bulk cutting and filling operation between these months it may be necessary to complete the site clearance and enabling works plus the haul road construction prior to school holidays commencing. It is recommended that as far as practicable all works are carried out outside of school hours but it is likely that some preliminary and enabling works will be required to be done during school hours.

The detailed day to day sequencing of the earthworks operation will be programmed by the earthworks contractor.

The earthworks cut and fill areas are shown on figure 4 below and drawing 10352-02-GE-102 in the appendix.

6.1 Haul Road

In conjunction with the Glenvar Ridge Road project a haul road is proposed to be constructed for the transportation of fill between the Glenvar Ridge Road construction site and the Ministry of Education construction site.

The location of the haul road has been selected to provide a route that is outside of the existing school playing grounds to minimise impact on the school operations and outside of existing vegetation to minimise any vegetation removal.
The haul road will be constructed from compacted fill material and will be subject to the same erosion and sediment controls as the wider construction site. On completion of the works the haul road will be removed and the route will be stabilised with topsoil and grass. The location of the haul road is shown in red in Figure 4 below.

Figure 4

6.2 Geotechnical Considerations

A geotechnical investigation report (GIR) for the site has been prepared by Coffey Geotechnics and subsequently peer reviewed.

The GIR supports the earthworks design and confirms that the site is suitable for this development. The GIR describes the site as being underlain by clay, silts silty-clays and clayey-silts over interbedded sandstone/siltstone.
7 STORMWATER AND SEDIMENT CONTROL

7.1 Sediment and Erosion Control Strategy

A separate erosion and sediment control report has been prepared for the works. The following is a summary of the strategy and provides a guide to the construction methodology. All sediment and erosion control measures are generally in accordance with the Auckland Regional Council - Technical Publication No. 90: Erosion and Sediment Control (ARC TP 90).

The site is intended to be opened up in stages with grass and topsoil cover maintained as long as possible. It is intended that the bulk earthworks be completed in a single progressive earthworks operation.

It is envisaged that the earthworks will commence with gully filling to allow construction of the haul road into the Ashley Avenue fill area followed by fill material being brought in on the haul road and placed to form the new platform. Open earthworks areas shall be stabilised with topsoil and seeded with grass progressively as the earthworks operation is completed.

Refer to the erosion and sediment control drawings 10352-02-220 and 221 in the appendix.

7.1.1 Methodology

The following describes the earthworks and sediment control methodology for the proposed works:

1. **Top soil stripping**
   Top soil shall be stripped from the extent of works in an incremental fashion to form earth bunds around the perimeter.

2. **Clean water diversions**
   Drains formed to prevent clean water runoff from entering the earthworks site will be formed and retained as long as practicable to convey clean water. Where top soil earth bunds isolate clean water catchments, 150mm diameter non-perforated nova-coil drains shall be used to convey clean water to the nearest downstream clean water drain.

3. **Decanting earth bunds**
   Decanting earth bunds (DEB) shall be formed as per the sediment and erosion control plan (provided in the Sediment and Erosion Control Report) which have approximate catchments of 3000m².
4. **Dirty water cut-off drains**
   Cut-off or contour drains shall be formed as shown on the sediment control plans to manage/convey runoff within the earthworks extents to the DEB’s. These shall be reinstated at end of each working day or if wet weather is expected should they modified during the earthworks operation in any given sub-catchment.

5. **Cut to Fill**
   With the above sediment and erosion control measures constructed, the cut to fill operation shall be undertaken in an incremental manner over the work area.

6. **Sediment Retention Ponds**
   It is envisaged that there will be a pond located as shown in figure 5 below and on drawing 10352-02-221 in the appendix. The pond will include a fore bay and decanting outlets. Self-dosing flocculant devices will also be employed.

7. **Stabilisation**
   Prior to the removal of any sediment control device, earthworks within that catchment shall be stabilised. Earthworks areas shall be stabilised by re-spreading top soil and grass seeding. If required straw mulch and hydro seeding may also be used.

7.1.2 **Sediment Loss Assessment**
   The estimated soil loss in the pre-construction, construction and post construction phases has been calculated using the Universal Soil Loss Equation (USLE).

7.2 **Sediment and Erosion Control Methodology**

Further detailed information regarding the erosion and sediment control methodology is presented in a separate report titled Earthworks & Sediment Control Methodology.
8 DUST, NOISE AND VIBRATION CONTROL

8.1 Dust Control

Alongside the haul road beside the school a 2m high fence with shade cloth and ply will be erected to minimise dust blowing on to the school grounds. Similarly dust control fences can be erected in other locations as required.

In addition where vehicles have the potential to raise dust these routes will be sprayed with a water truck.
8.2 Noise Control

The effects of operating heavy machinery will be primarily mitigated by having work adjacent to the school programmed to be preferentially undertaken outside school hours and during the school holiday breaks. Similarly engine starting will be restricted to the hours of work.

The limits on noise generated from construction activity measured at any adjacent residence will not exceed the limits set out in NZS 6803.

8.3 Vibration Control

A construction vibration assessment has been provided by Styles Group Acoustics & Vibration Consultants who have concluded that the effects of vibration during construction are expected to have less than minor effects on any surrounding receiver and will be reasonable in terms of s16 of the Resource Management Act.

The vibration level from common construction activities, including vibratory compaction has been assessed as relatively low and given the separation distance between buildings and the closest part of the works, all activities should comply with the recommended vibration limits by a considerable margin.

Notwithstanding the assessment conclusions above, the following mitigation measures are planned in relation to vibration inducing plant being operated in proximity to buildings;

1. Residents and the school will be advised prior to construction activities being undertaken in close proximity to their buildings.
2. The lightest practicable model of vibration inducing plant shall be used within 30m of dwellings.
3. Compaction shall be performed using the lightest practical compaction equipment operating with the highest practicable vibration frequency to achieve specified compaction.
4. Excavator operators shall avoid banging buckets on the ground and workers will be advised how to minimise vibration.

The filling operation adjacent to the school hall will be managed to minimise any vibration effects on the building. The degree of compaction required in this part of the site is not expected to require the use of vibration inducing plant.

Other buildings which are further away from compaction operations are considered to experience less effect.

The school administration and residents' perceived potential concerns of vibration effects should be minimised by prior communication and the restricted hours of work.

9 STORMWATER

9.1 Stormwater Drainage Upgrade.
As described in section 3, preliminary and enabling works, new stormwater infrastructure is being installed as part of an upgrade to Ashley Avenue that will allow the decommissioning of an existing stormwater pond located within the property at 35 Ashley Ave. The existing pond will be mucked out and the redundant drainage piping dug out and disposed of.

An existing stormwater line located in the base of the gully to be filled currently conveys stormwater from Ralph Eagles Place, Long Bay Primary School and a residential catchment immediately to the south of Ralph Eagles Place. This pipeline will be inspected when exposed as part of the works and those sections if found to be in sub-standard condition will be replaced. If replacement is required the existing stormwater flows will be temporarily conveyed through the new subsoil drainage pipelines that will be required as part of the filling works.

The upgrade will use the existing lines and leads where appropriate and have new construction where the existing line is not suitable.

An existing stormwater drainage plan is included in the appendix as an information plan.

9.2 Stormwater Management during construction

Clean water diversion drains will be installed to prevent stormwater runoff from entering the area of works. This upstream clean water will be diverted to an alternative entry point to the existing stormwater system.

Runoff from the area of works will be subject to measures and controls described and detailed in the erosion and sediment control report.

The various components of the permanent stormwater system where not required will be protected and unused until commissioned.

Counterfort drains and lines draining shear keys will be monitored and any significant flow appropriately directed.

10 SANITARY SEWER

10.1 Sanitary sewer connection

A new sanitary sewer line will have been microdrilled as described in the preliminary works from Stage 11 of the Long Bay subdivision, during the 2015/2016 construction season, to a manhole connection point to serve the primary school. Connection from the school will be made to this new line, following live connection approval by Watercare, prior to removal of the existing school pump station.
10.2  Sanitary sewer pump station removal

The existing pump station will be decommissioned, cleaned out using an authorised septic tank cleaning contractor and then removed off site.

11 APPENDIX

Construction Management Plan Drawings
10352-02 GE-030 Construction Management Plan

Design Drawings

10352 -02 GE-010 Extent of Works/Designation Plan
10352 -02 GE-011 Cadastral Boundaries and Extent of Works
10352 -02 GE-015 Cut and Fill Contours
10352 -02 GE-040 Tree Location Plan

10352 -02-DR-500 Sanitary Sewer Layout Plan
10352 -02-DR-501 Sanitary Sewer Layout Plan

10352 -02-EW-220 Erosion and Sediment Control Catchment Plan Primary Earthworks
10352 -02-EW-221 Erosion and Sediment Control Layout Plan Primary Earthworks

10352 -02-UT 400 Existing Services Plan