



URBAN AND LANDSCAPE DESIGN

SECTOR PLAN: PŪHOI CONSTRUCTION YARD

Ara Tūhono
**Pūhoi to
Warkworth**
A NZ Transport Agency PPP Project

NX2 NORTHERN
EXPRESS
GROUP

FLETCHER//ACCIONA



Plan Preparation

Discipline	Name
Urban Designer (review and verification)	Stuart Bowden
Landscape Architect	Jeremy Cooke
Iwi Advisor for Hōkai Nuku	Gena Moses Te-Kani
Ecologist	Liza Kabrle
Stormwater Engineer	Ben Chester

Revision Document History

Revision	Description	Date
A.02	Consultation Draft	07/05/2018
A.03	Final	02/07/2018

This document should be printed at A3

Images in this document: Unless otherwise noted, drawings, illustrations, photos and other images have been provided directly by NX2. In all other instances, best efforts have been made to reference the image to its original source

Pūhoi Construction Yard

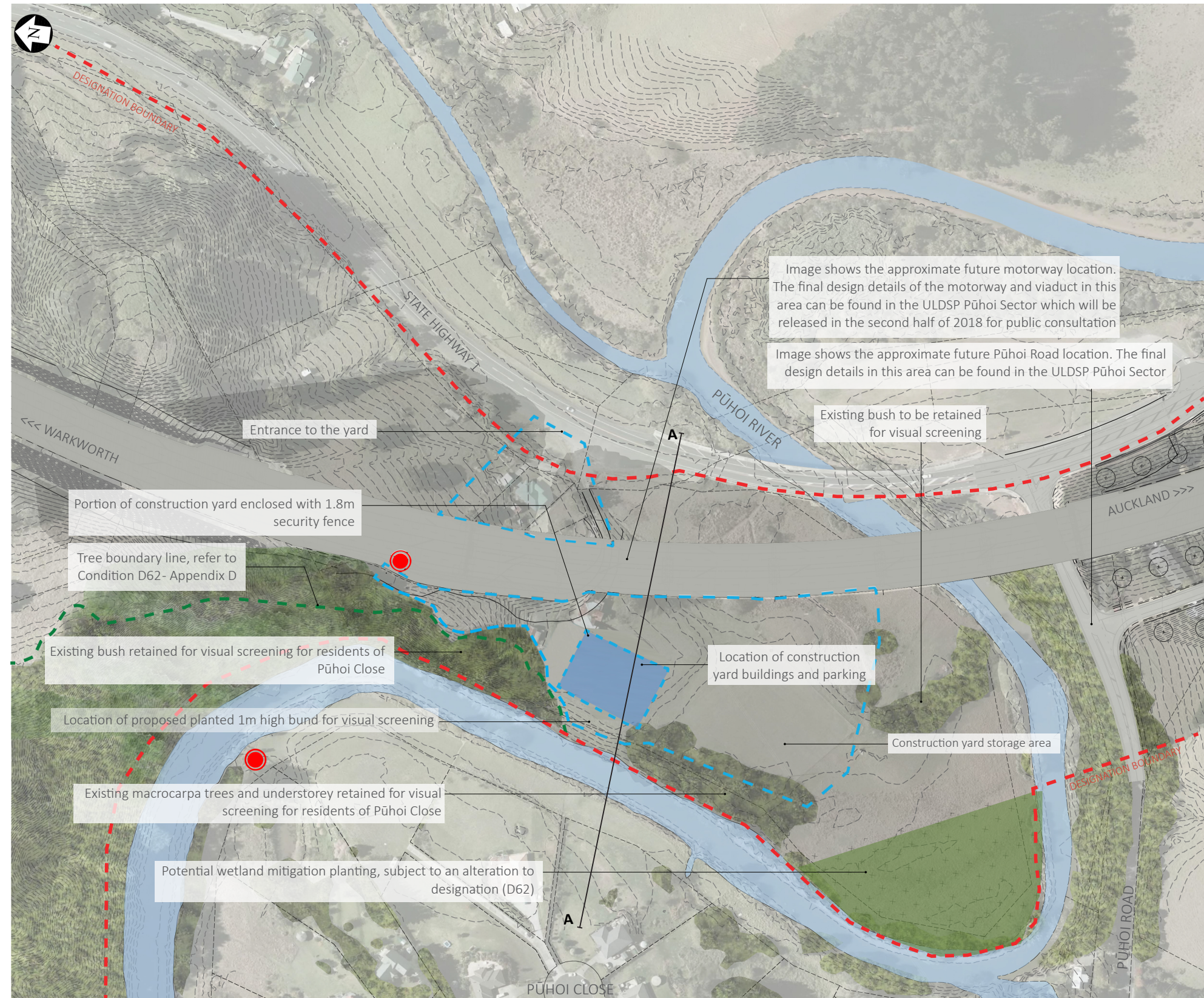
The Northern Express Group (NX2) has been awarded the contract to deliver the design, construction and maintenance of the Pūhoi to Warkworth Motorway Project.

NX2 is creating a number of temporary construction yards and one of these, the Pūhoi construction yard, is located near you.

NX2 is required by the Board of Inquiry (BOI) Designation Condition D38AA(a) to draft a ‘Specific Construction Phase’ Urban and Landscape Design Sector Plan (ULDSP) with a focus on establishing visual screening of the Project and construction yard for nearby residents as soon as practicable. The required outcome set out in section 5.10 of the ULDF is to demonstrate effective screening by way of early establishment, fast growth, and sufficient density and depth of vegetation.

These outcomes will be achieved as follows:

- Planting will be carried out at the time the yard is constructed and before it is operative
- The bund shall be formed from subsoil and topsoil, fertilised, mulched and irrigated to promote good growing conditions for planting. The monitoring/ maintenance programme will provide confidence that optimum growing conditions will be maintained
- The species used are fast-growing and are conservatively anticipated to grow to 2.5m– 3m tall over three years
- A double row of tall species will be planted on top of the bund to provide a dense screen and promote vertical growth. Smaller, bushy plants lower on the bund will contribute to dense screening
- Sightlines demonstrating the screening from representative properties are illustrated on Figure 4
- Views will be partly screened by existing vegetation, the role of the planted bund will be to provide screening to fill gaps in views between existing vegetation
- The nearer houses in Pūhoi Close are at lower elevations, where the sight angle will accentuate the effectiveness of screening. While there are houses at a higher elevation at Pūhoi Close, the distance from the construction yard will offset any visual effects Screening will be provided by a planted bund on the west side of the construction yard, at the time of planting this will provide an approximate screen of 2.5m height



LEGEND

- MIDDEN
- CONSTRUCTION YARD EXTENT
- TREE BOUNDARY LINE
- DESIGNATION BOUNDARY

Figure 1. Context Map showing construction yard layout with motorway and Pūhoi Road changes (refer to page 5 for cross section A-A)

Context Photos of the Construction Yard Area

In accordance with Condition D38B, the draft ULDSP was provided to the following stakeholders, requesting comment.

- Stakeholders within 200m of any construction yard (Condition D38(c))
- Stakeholders with views from a dwelling onto the area (these are noted by specific address or company name, and include any other occupied dwellings within 500m of the designation boundary) (D30(a))
- Properties of Slowater Lane, Pūhoi (D30(a))
- Properties of Pūhoi Close (D30(a))
- 60 Pūhoi Road, Pūhoi (D30(a))
- 46 Saleyards Road, Pūhoi (D30(a))
- 815 SH 1, Pūhoi (D30(a))
- Manager Built Environment Auckland Council (D30(b))
- Pūhoi Landcare Group Incorporated (D30(c))
- Mahurangi Action Incorporated (D30(d))

The Urban and Landscape Design Framework (ULDF) sets out the overall urban design vision for the Project to integrate with land use and developments in surrounding areas. It sets the “high level” principles to which Urban and Landscape Design Sector Plans need to give effect.

NX2 has circulated the drafted ‘Specific’ Urban and Landscape Design Sector Plan (ULDSP) detailing the Pūhoi construction yard design to these stakeholders.

As required by condition D38D, this finalised ULDSP is now being provided to the stakeholders and the Manager (Major Infrastructure Projects, Auckland Council) for final certification.



Figure 3: Context Map showing location of photos of construction yard and surrounding vegetation



Photo 1: View from Pūhoi River edge, accessed from Pūhoi Close, looking east toward the construction yard



Photo 2: View from Pūhoi Close cul-de-sac walkway, looking east towards construction yard



Photo 3: View from construction yard, looking south towards Pūhoi Road. Existing macrocarpa trees to be retained



Photo 4: View of existing bund to be extended, looking north toward the construction yard



Photo 5: View of driveway to be extended, looking east

Construction Yard

Location

The Pūhoi construction yard is to be located north of the Pūhoi River, at 517 State Highway 1, Pūhoi. The yard is to be established in the north western area to avoid the low lying flood prone area to the south and the area needed for construction of the future motorway. Positioning the yard at this location makes use of the existing trees and foliage to provide immediate screening from the neighbouring properties across the river.

The location and layout of the yard are shown in Figures 1 and 2. This area was previously used for car parking (refer to photo 3).

Design Detail

The yard will accommodate construction staff by providing office space and toilets. Space will be provided to store goods and construction equipment and a small unsealed car park. The construction yard will contain machinery and materials stored on the ground, and temporary and portable buildings and containers up to approximately 3.6m high. It will be surrounded by a 1.8m high security fence. A 3.5m high lean-to will be installed over the storage containers to provide shelter for construction workers and works. The area immediately to the east will be used for construction storage (e.g. construction beams, cranes etc) and a temporary sediment pond to treat stormwater from the site.

A concrete precast facility will operate in this area. This activity involves trucks bringing in pre-mixed concrete to be cast into the required form. The precast activity will include a levelled working pad with moulds to cast the various barriers/precast panels. We will install perimeter fencing and have a portable covered awning for protection from the weather. This awning will be lower than the height of the lean-to structure over the containers.

A sealed driveway will provide access to the construction yard from State Highway 1, as per resource consent condition RC43(c).

The construction sediment pond is not part of the construction yard, and will treat runoff from the adjacent construction works.

Additional landscape planting of native vegetation is proposed along the western side of the construction yard to screen the view of the yard from nearby dwellings. An earth bund will be provided to this edge and will be planted to include different sized native species with fast growing traits. This will connect the area of existing vegetation immediately to the north and the existing large macrocarpa trees to the south.

Rehabilitation

The construction yard will be used until construction is completed and will be rehabilitated once no longer required. The rehabilitation will include removal of all temporary buildings, unsealed car parking areas and planting of additional landscaping to merge with the adjacent land in keeping with the final design of the Project. Consideration of the final form of the area will be incorporated into the 'permanent' ULDSP for the Pūhoi Sector, which you will be requested to provide comment on at a later date.

Long-term, planting around and across the wetland, floodplain, lowland area of the Pūhoi River is intended to enhance, protect and naturalise the area (subject to authorisation). The new planting will create a green foreground to the motorway for the residents of this area, without disturbing existing vegetation close to the riverbank.

It is intended that the landscape planting to screen the construction yard will be permanent and remain after the construction yard is removed. It will likely then be merged with the existing and further new planted areas to stitch together natural habitats and visual outcomes. The planting mix will reflect the environment and adjacent existing vegetation to create a naturalised appearance and ecological habitat [D26-D42] [D62].

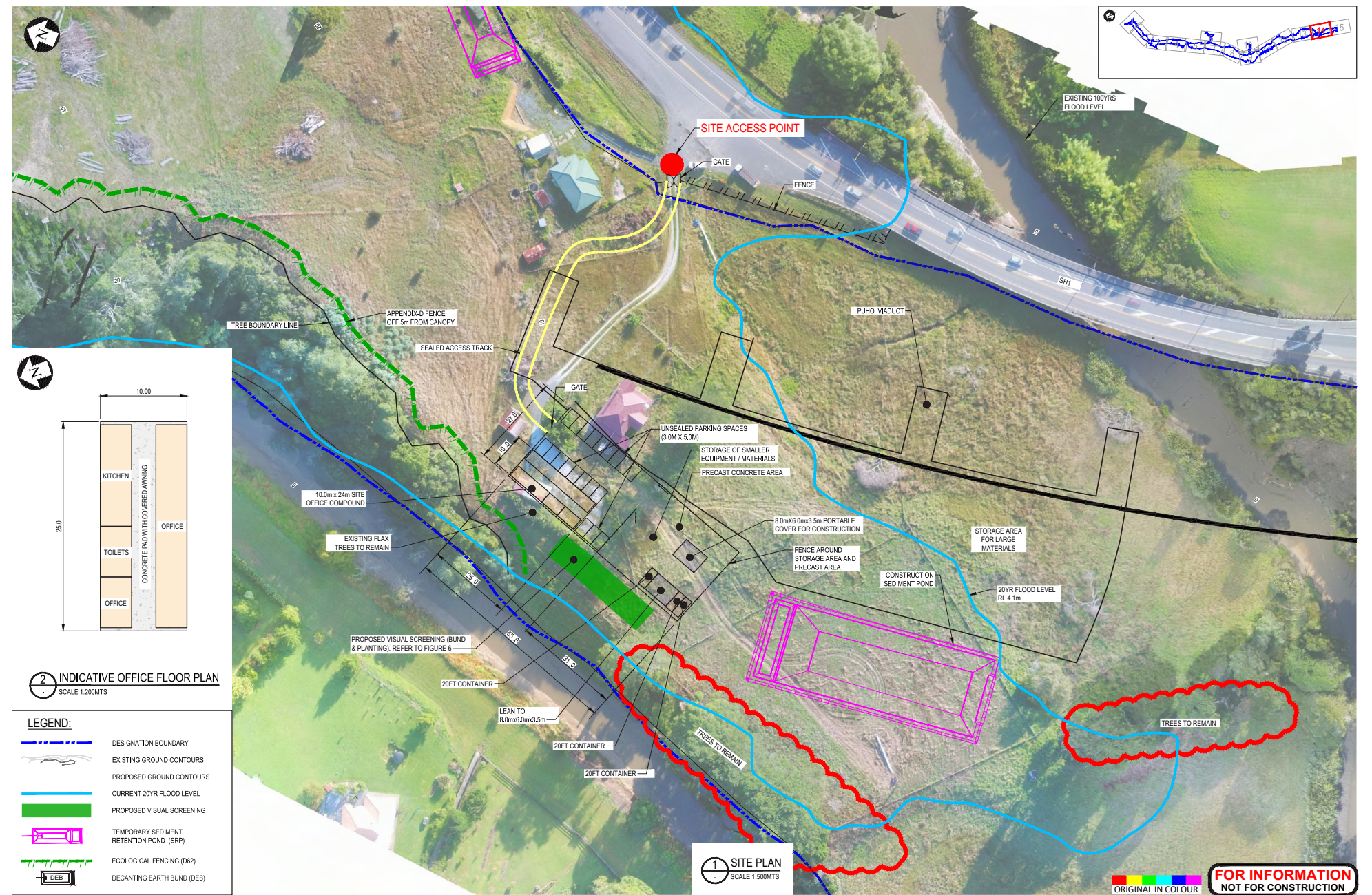


Figure 2. Construction yard detailed layout plan

Screen Planting Design

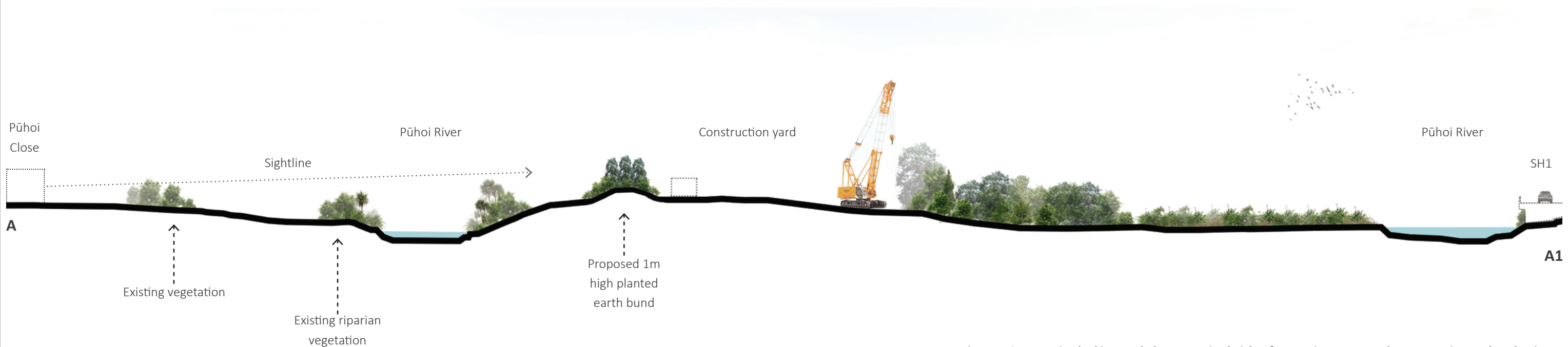


Figure 4. Cross section looking north demonstrating height of vegetation to screen the construction yard at planting (refer to page 1 for corresponding site plan) Scale 1:500 @ A3

The area to the east of the Pūhoi River, identified as 517 State Highway 1, was recognised by the Board of Inquiry as an area of importance to Pūhoi residents. This ULDSP focuses on this area and the visual screening of the construction yard for nearby residents along Slowater Lane, Pūhoi Close and to a lesser extent, Saleyards Lane, as soon as practicable. The planted visual screening is to soften views the construction yard, and in a wider context, will maintain and enhance the intimate character of Pūhoi and create new ecologically valuable areas.

The key outcome sought is effective screening of the construction yard as it is viewed from nearby residential properties. Screening will be provided by a planted 1m high bund on the west side of the construction yard, at the time of planting this will provide an approximate screen of 2.5m height (i.e. higher than the perimeter security fence, and approximately two thirds the height of the temporary buildings). The species used are fast-growing and are conservatively anticipated to grow to 2.5m– 3m tall over three years.

A double row of tall species will be planted at 1m spacing on top of the bund to provide a dense screen and promote vertical growth. The taller plants will be flanked by bushy plants lower on the bund (to an overall 8m width of planting) to contribute to dense screening.

In addition to the planted bund, views will be partly screened by existing vegetation, including the macrocarpa trees and bush along the river bank. The role of the planted bund will be to provide screening to fill gaps in views between existing vegetation and a dense backdrop adjacent to the construction yard.

The new landscaping on the extended earth bund will organically connect the existing vegetation along Pūhoi River, including the group of macrocarpa trees, and trees along Pūhoi Road, to retain the local character and soften visual changes of the construction yard for residents. Early establishment of fast growing vegetation which is of sufficient density and depth will limit resident views of the construction yard [D38AA(a)]. Planting will be carried out at the time the yard is constructed and before it is operative. This will occur subsequent to the site clearance and grading, where material will be generated for bunding, and topsoil is placed on top. The planting will provide immediate screening of the ground area and partial screening of structures and stored machinery/materials.

Ground elevation of the construction yard is approximately RL7.5m. The nearer houses in Pūhoi Close are at slightly lower elevations of approximately RL6 – 8m and distances of approximately (100m-190m) from the construction yard. Houses on the higher side of Pūhoi Close are elevated at approximately RL12m-28m at distances of approximately 230m to 280m. The effectiveness of screening will be reduced to some extent from the more elevated houses but this will be offset by greater distance. Conversely, the sight angle will accentuate the effectiveness of screening for the nearer houses at lower elevation.

The screen planting will consist of a range of nursery grown native species including harakeke (*Phormium tenax*), kānuka (*Kuuzea ericodies*) and kohuhu (*Pittosporum tenuifolium*)- refer to the planting schedule for further detail. These species are robust, and sufficiently dense and tall for screening purposes. The planting will comprise 2 litre

(Pb5) grade or 17 litre (Pb28) grade. Ultimately the planting will reach an approximate height of 3m three years after planting, forming a dense hedge.

The 1m earth bund will add immediate height to the new planting (a combined height of the tree and bund 3-4m high) whilst providing a good growing environment for the planting. Appropriate fertiliser and mulching will be used in accordance with the NZTA P39 Landscape Specification to achieve fast growth and sufficient density. The selected species have relatively low water needs and in combination with mulching and the timing of the planting should achieve anticipated growth rates.

Enabling works such as removing the existing house, constructing the earth bund, relocating utility services, removing trees and stock piling material will be undertaken. The creation of the earth bund will occur ahead of the screen plants being planted.

The maintenance and monitoring of the screen planting for the duration of the construction period will be the responsibility of the yard site engineer in conjunction with the NX2 Environmental Manager. This will include such things as weeding, spraying, topping up mulch and replacement of failed planting as outlined by the NZTA P39 Landscape Specification. This will maintain the health of the existing vegetation and help the new planting on the earth bund to quickly establish.

Typical Visual Screen Planting Plan

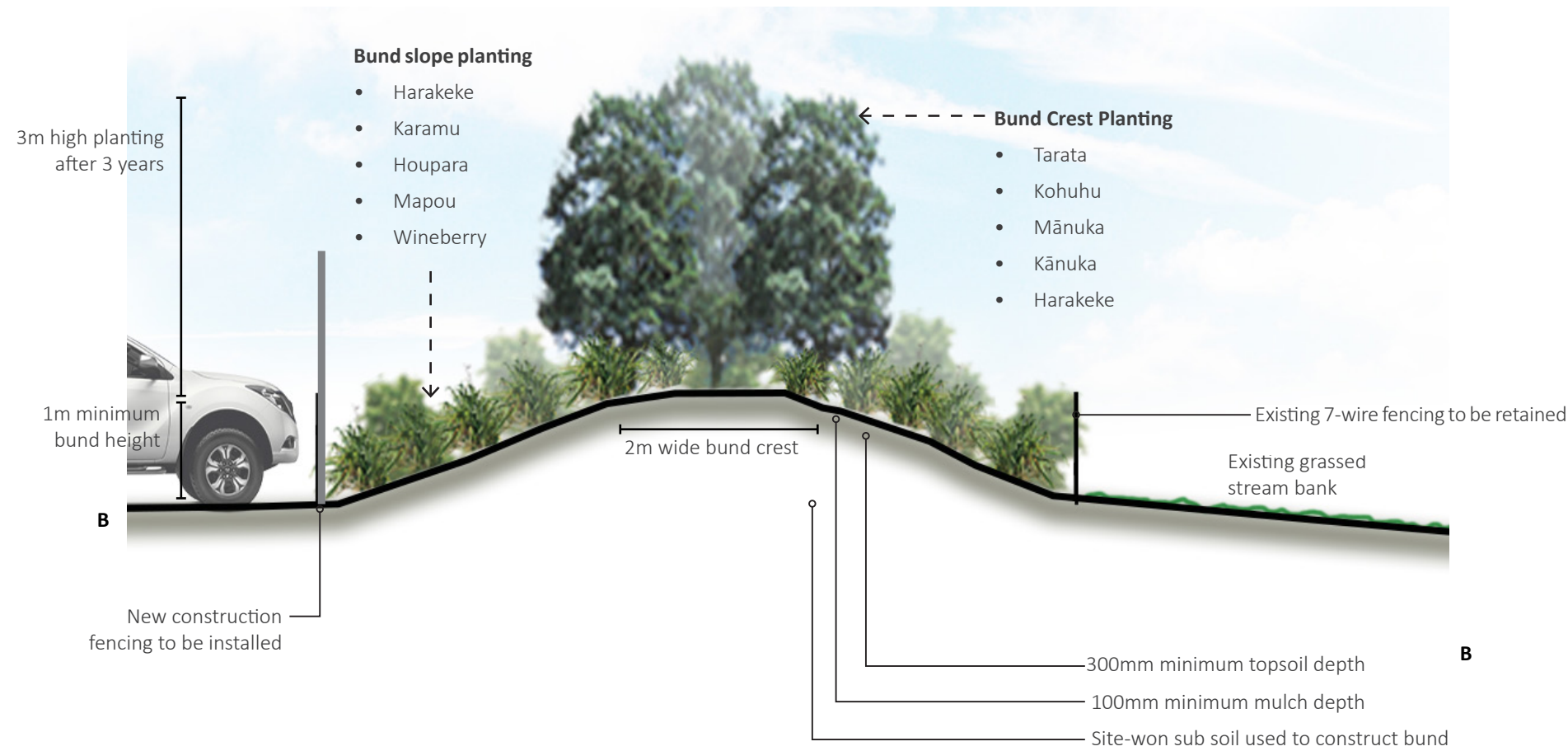


Figure 5. Planted bund visual screening cross section

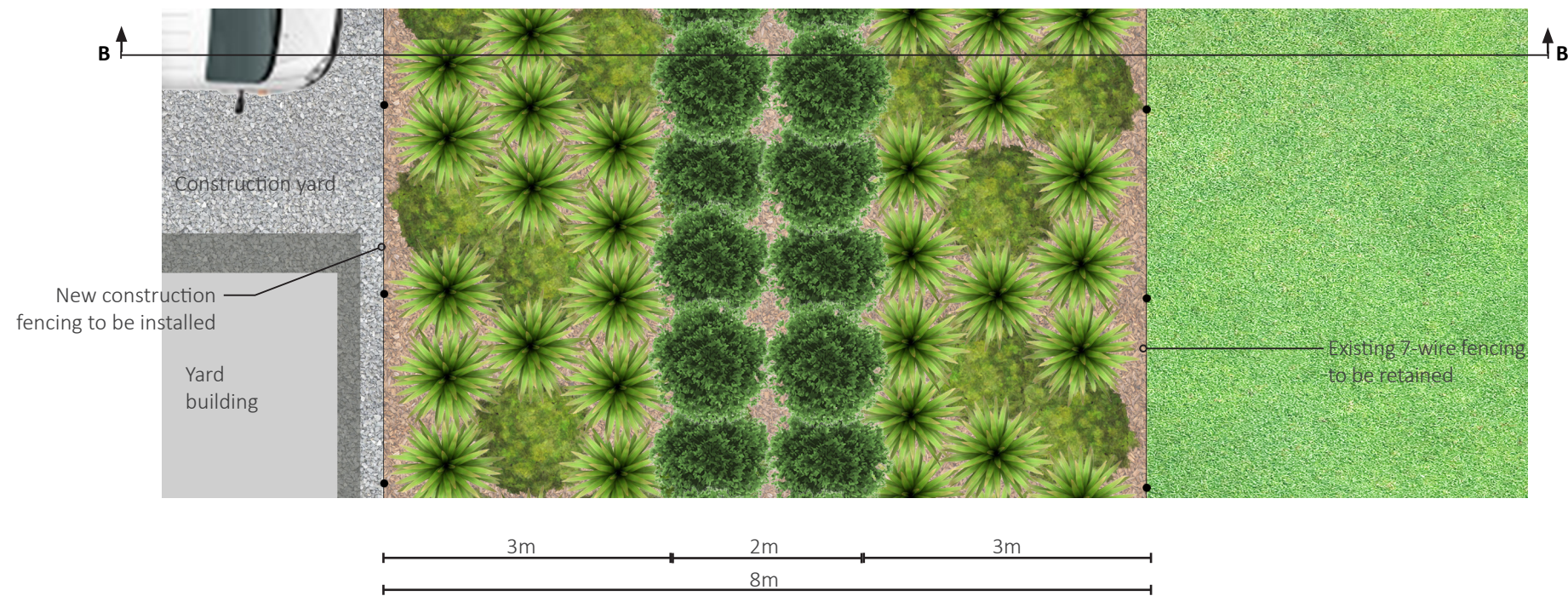


Figure 6. Typical planted bund visual screening plan

Ground preparation to include:

- Scarify the surface of the subsoil used to create the bund. This will help to key the topsoil into the subsoil and create conditions for better root growth
- 300mm deep layer of topsoil to be placed over the bund after scarifying and before planting
- Mulch the bund after planting to a depth of 100mm. Top up mulch to this depth every 6 months
- Place 50g (small handful) of 'granular' slow release fertiliser such as Nitrophoska Blue in the base of each plant hole while planting and backfill with topsoil. While topping up mulch every 6 months, first push 1 x fertiliser 'tab' into the soil at the base of each plant

Irrigation to include:

- A single water line, pinned down along the centre of the bund with 300mm high risers at 1m centres, fitted with circular spraying nozzles
- Watering duration to be 90 minutes at 10pm every other night
- Watering to take place from the start of October to the end of March

Monitoring Programme:

- When mulching and fertilizing every 6 months, a report is to be prepared, stating any plant losses/replacements and photos illustrating growth over the year.
- This report shall be provided to Auckland Council
- Losses of bund-crest screen trees may need to be replaced with a larger grade than the grade used for initial planting to maintain the screen
- The maintenance and monitoring programme will cease at the point the yard is disestablished

Planting Schedule

Botanical Name	Common Name	Photo	Habit	Planting Instructions	Approx. Height x Spread at planting (m)	Approx. Height x Spread at 3 years (m)	Spacing (m)	Grade at planting
<i>Pittosporum eugenoides</i>	Tarata	1	Small tree Fast growing, dense foliage, hardy native species of tree	To be planted on crest of bund	1.5 x 0.6	(2.5- 3) x (3.5- 4)	1	17ltr (PB28)
<i>Pittosporum tenuifolium</i>	Kohuhu	2	Small tree Fast growing, dense foliage, hardy native species of tree	To be planted on crest of bund	1.5 x 0.6	(2.5- 3) x (3- 4)	1	17ltr (PB28)
<i>Leptospermum scoparium</i>	Mānuka	4	Small tree Fast growing, dense foliage, hardy native species of tree	To be planted on crest of bund	1.5 x 0.6	(2.5- 3) x (3.5- 4)	1	17ltr (PB28)
<i>Kunzea ericoides</i>	Kānuka	5	Small tree Fast growing, dense foliage, hardy native species of tree	To be planted on crest of bund	1.5 x 0.6	(2.5- 3) x (3.5- 4)	1	17ltr (PB28)
<i>Coprosma robusta</i>	Karamu	6	Large shrub Fast growing, dense foliage, hardy native species of tree	To be planted on bund slopes among flaxes	0.3 x 0.3	(2.5- 3) x (2.5- 3)	1	2ltr (PB5)
<i>Pseudopanax lessonii</i>	Houpara	3	Large shrub Fast growing, dense foliage, hardy native species of tree	To be planted on bund slopes among flaxes	0.3 x 0.3	(2.5- 3) x (1.5- 2)	1	2ltr (PB5)
<i>Myrsine australis</i>	Mapou	8	Small tree Fast growing, dense foliage, hardy native species of tree	To be planted on bund slopes among flaxes	0.3 x 0.5	(2.5- 3) x (2.5- 3)	1	2ltr (PB5)
<i>Aristotelia serrata</i>	Wineberry	9	Small tree Fast growing, dense foliage, hardy native species of tree	To be planted on bund slopes among flaxes	0.3 x 0.5	(2.5- 3) x (2.5- 3)	1	2ltr (PB5)
<i>Phormium tenax</i>	Harakeke	7	Flax Fast growing, dense foliage, hardy native species of shrub	To be planted right across bund (slopes and crest)	0.5 x 0.5	(1.5- 2) x (1- 1.5)	1	2ltr (PB5)



① Tarata (*Pittosporum eugenoides*)



③ Houpara (*Pseudopanax lessonii*)



⑤ Kānuka (*Kunzea ericoides*)



⑦ Harakeke (*Phormium tenax*)



⑨ Wineberry (*Aristotelia serrata*)



② Kohuhu (*Pittosporum tenuifolium*)



④ Mānuka (*Leptospermum scoparium*)



⑥ Karamu (*Coprosma robusta*)



⑧ Mapou (*Myrsine australis*)