


Report Name: Engineering & Servicing Report
Project: Local Development Plan for Belmont Park Racecourse
Redevelopment - Precinct A


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Prepared For: Golden Sedayu Pty Ltd

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1. Introduction

Peritas Group Pty Ltd has been engaged by Golden Sedayu Pty Ltd to provide an assessment of site conditions and availability of services for the proposed residential and mixed use development of Lot 102 (**Precinct A**) in support of the updated Local Development Plan application for the Burswood Peninsula Redevelopment (“**BPR**”) Precinct A area within the development.

The site is described as Precinct A of the Belmont Park Racecourse Redevelopment Structure Plan. Precinct A is located in the northernmost portion of the Burswood Peninsula and covers an area of approximately 20.19 hectares, with a large proportion comprising the Swan River foreshore reserve (Refer to **Figures 1 & 2** Below) The subject site is located approximately 4 km east of the Perth central Business District on the northern end of the Burswood Peninsula, within the Town of Victoria Park. It is surrounded by the Swan River on its western northern and eastern boundaries and the Graham Farmer Freeway to the south.

This report identifies the civil engineering aspects of residential related land uses and covers the engineering infrastructure requirements to service the proposed development. In particular we have considered earthworks, roads, stormwater drainage and wastewater, potable water and utility services with a particular emphasis on outlining how all major services will be available to support urban development.

The investigations and preparation of the report are largely based on preliminary advice from the various service authorities. The information is current as of 7 July 2022 and is subject to change as development proceeds resulting in the extension of service infrastructure and the creation of new capacity. The opportunities, constraints, existing and required site services for the proposed development are detailed in **Section 2** and **Section 3** of this report.

Refer to **Figure 1** below for location of the Precinct A development site (outlined by red boundary).

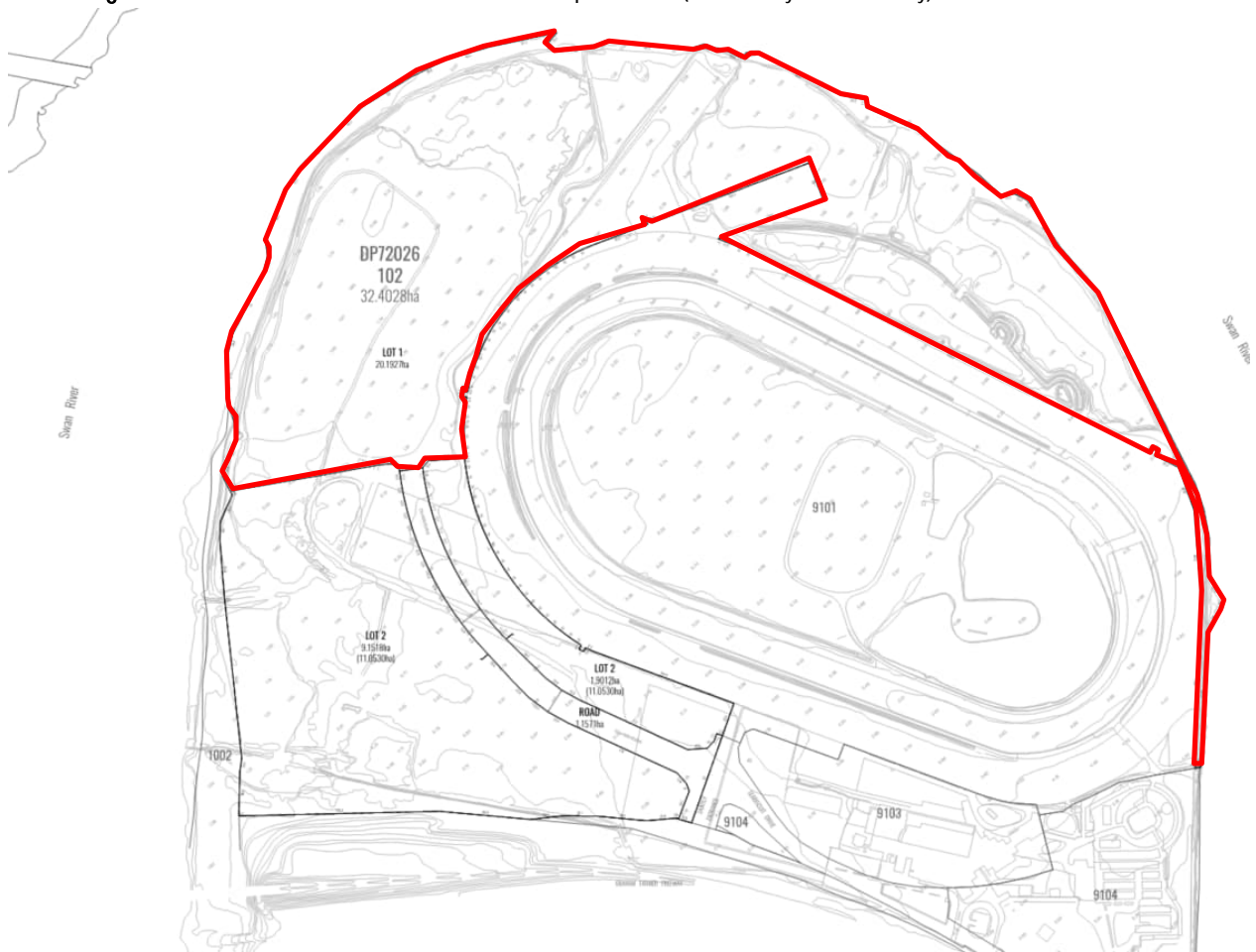


Figure 1 Precinct A – Belmont Racecourse Redevelopment

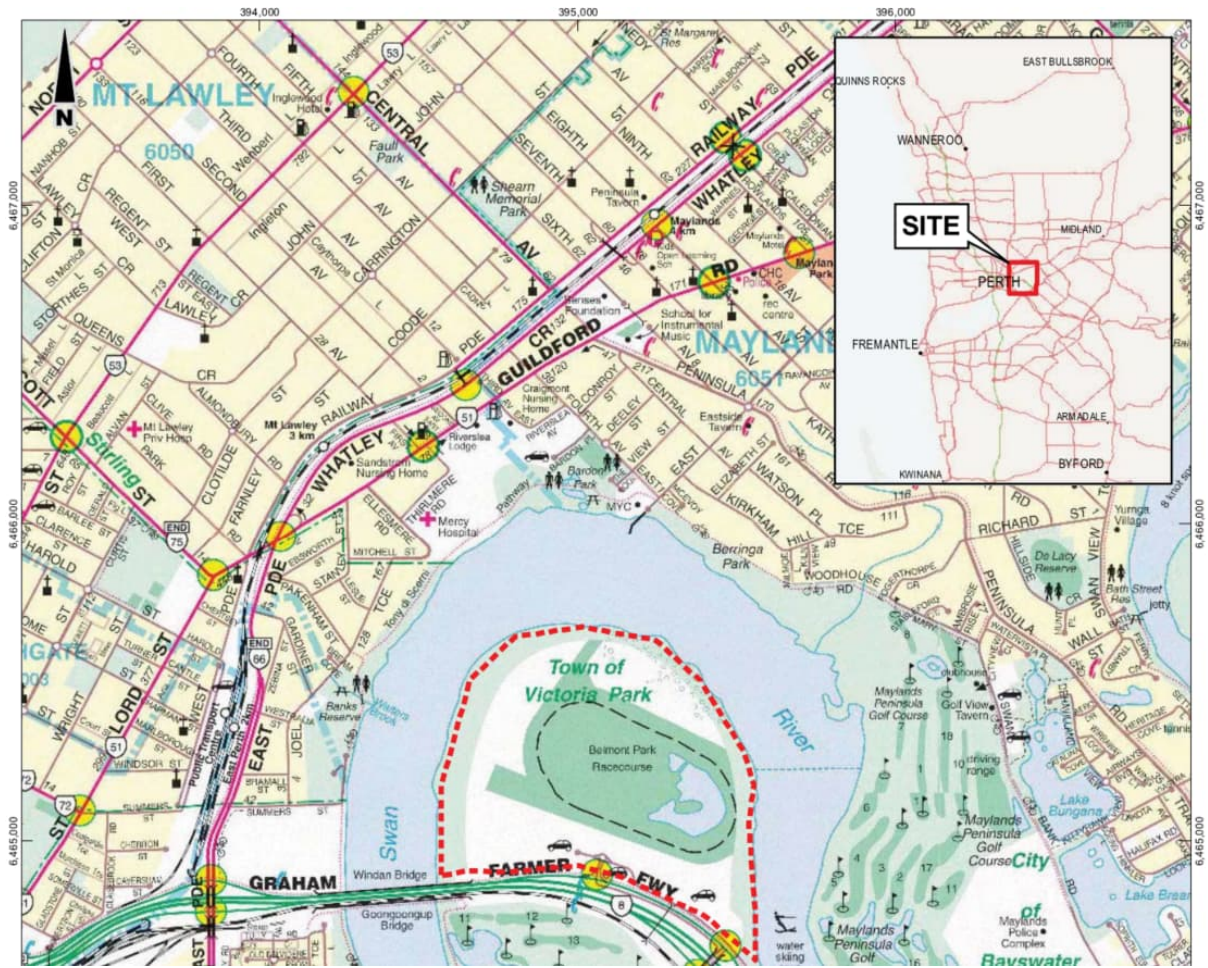


Figure 2 Belmont Racecourse Redevelopment - Overall Site Locality Plan

2. Proposed Development

The previously approved Local Structure Plan has undergone a reassessment within the Precinct A area to update the planning and land product to reflect current market requirements.

The proposed amendments will form the basis for the land uses in the Town of Victoria Park's local planning scheme and for the ongoing subdivision planning and development of the land.

The proposed redevelopment of Precinct A will comprise a mixture of townhouse lots (205) and luxury apartment sites (900 apartments approx.).

Refer **Figure 3** below and **Appendix B** for the proposed development assessed in this report, consisting of an indicative residential subdivision layout of Lot 102 Precinct A.



Figure 3 Proposed Local Structure Plan- Precinct A Masterplan.

3. Existing Site and Constraints

3.1 General

Within this section, a summary of the existing services and constraints information has been compiled and summarised for the subject site. The basis of the data presented includes previous reports by various expert consultants, Dial Before You Dig (DBYD) information, Landgate, DPLH Database, Water Corporation records and correspondence and data obtained from service authorities.

3.2 Site Analysis

3.2.1 Topography

The overall Belmont Racecourse redevelopment site is gently sloping with the existing racetrack being at an approximate level of RL 3.5 and RL 1.0 adjacent to the Swan River. The site grades from the existing race track towards the Swan River in the majority of locations. The south east corner of the site is approximately RL 4.0 and contains all the existing WATC facilities and grandstand. Drainage channels have been cut across the site to drain water from the racecourse. The site has been built up and bunds constructed to reduce water flooding.

A full feature survey of the suite has been prepared by MNG Surveys and forms the basis for the landform redevelopment assessments by the LSP consultant team.

3.2.2 Site Geology & Ground Conditions

The Geological Survey of Western Australia 1:50,000 map indicates that the general sub-surface geology of the area is recent alluvium deposits. A sub-surface geological section is shown in **Figure 4** on the next page.

There have been several formal Geotechnical investigations over the site over a number of years. The most recent overall report prepared by Golder Associates in May 2012 provides an overall summary of the ground conditions and geology of the site including an understanding of the site redevelopment requirements in regards to ground preparation and site preloading requirements to render the site development ready. A more recent Technical Memorandum by CMW in June 2022 was prepared following additional CPT's and Test Pits which were targeted in North Park in the proposed locations of preloading and piling. This compliments the overall Report by Golders in May 2012.

The northern and western parts of the site comprises of deep alluvial silts or Swan River Alluvium and clays which will require significant ground pre-treatment prior to any development. The soils are comprised of sand, clayey sand or clayey gravel, low plasticity, grey orange or brown in colour.

Fragments of brick, concrete and wood were encountered within the top 2m of the surface which indicate uncontrolled filling. There are also signs of dredged fill being placed within the top 2m of the soil profile. This may have been where the excess material from the construction of the boating channel within the Swan River was placed.

The Swan River Alluvium is black to dark grey, soft to very soft with high plasticity and poor compressive strength. There are also areas of flyash deposits located within the western part of the site. These deposits are by products from the burning of coal and placed here when the East Perth power station was operational. The flyash also has poor compressive strength.

The north east and southern parts of the site comprise primarily of Guildford sands formations. These contain sand to sandy clayey materials that are fine to medium grained, low plasticity with medium to stiff density. The depth of the Guildford sands layer in these areas was encountered to the maximum depths tested. It is assumed this sand layer continues until the Kings Park formation is encountered which is rock. The depth to the rock layer varies between 23-30m.

Ground pre-treatment on the northern and western parts (Precinct A) of the site will require preloading with wick drains (vertical drains) to accelerate the consolidation of the soft alluvial silts and clays. This will be carried out in advance of any proposed civil works on the site due to the time required to allow for the existing surface to settle. In areas (to be identified) other options such as piled solutions may also be adopted in lieu of pre-loading. Refer to section 4.3 for further discussion.

A forward works development application has been lodged with the Town of Victoria Park for the purposes of site preparation for the Precinct A site area.

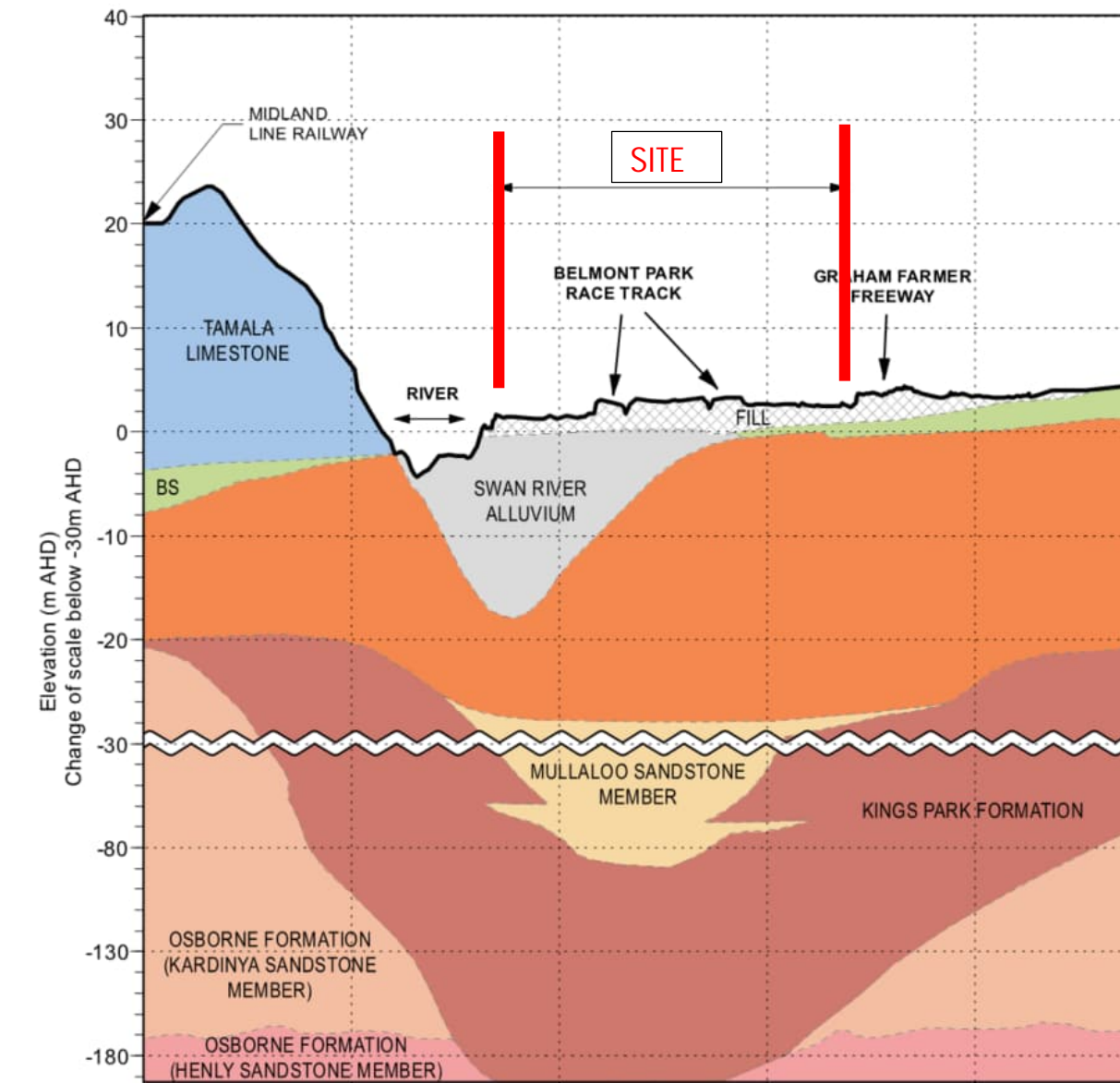


Figure 4 Sub-surface Geological Section

3.2.3 Groundwater

Golder Associates have undertaken a conceptual hydrogeological model for the study area. Groundwater levels across the site generally range from 2.5m below ground level in the south to 0m below ground level at the perimeter of the site. This corresponds to groundwater levels ranging from approximately RL 0.5m to 2.5m AHD across the site. The high ground water level within the vicinity of the track could be attributed to the large volumes of watering occurring to ensure the track is in good racing condition.

As the site will generally be filled to a minimum level of RL 3.7 AHD for flood control (1:100 yr flood levels) and for gravity sewer reticulation services cover requirements, the majority of the site will have finished levels well above normal groundwater clearance requirements.

3.3 Contamination

Refer to Environmental reports by Emerge for a full assessment and conclusions with regards to the presence of site contaminants and remedial requirements

4. Proposed Site Infrastructure and Servicing

4.1 Vehicular and Pedestrian Access

Currently, Lot 102 is accessed via Graham Farmer Freeway and Sainly Entrance a signalised intersection with Graham Farmer Freeway. A second access via Balbuk Way (off Graham Farmer Freeway) at the eastern end of the site is also a temporary access available until such time as the extension of Victoria Park Drive is completed including the extension of the road bridge that links Victoria Park Drive and Precinct D within the Belmont Park Racecourse Redevelopment precinct.

All existing pedestrian paths are expected to be retained in their current location and not affected by the proposed development.

4.2 Roads & Traffic

There is currently only one main access into the Belmont Racecourse which is via an entrance road from the off ramp of the Graham Farmer Freeway.

A full traffic assessment has been conducted previously by ARUP and assessed by MRWA resulting in the current strategies for road infrastructure adjustments to the external road networks and access to the site from Graham Farmer Freeway.

The internal roads will be designed to the approval of the Town of Victoria Park. The design vehicle for intersections and sweeps / corners is proposed to be a single rigid vehicle i.e.. Council rubbish truck or service vehicle.

The main distributor road within the development will vary in width from 2 lanes in both directions to a standard 6.0m wide pavement in an 18.2m wide road reserve. The final configuration of the roads will be determined on the number of vehicles per day utilising the different parts of the site.

The subdivision roads within the development area will need to be constructed in accordance with the IPWEA Subdivision Guidelines and read in conjunction with the Town of Victoria Park's subdivisional "Guidelines and Standards". All internal roads are owned and maintained by the Town of Victoria Park.

A Road network assessment and parking strategy has been undertaken by Stantec and provides details of the road hierarchy and reserve widths and capacity requirements. The Masterplan has referred to these documents and has incorporated the recommendations which includes waste collection allowances within the network layout and circulation assessments.

Further detailed traffic analysis will be completed during the next phase of the planning process.

4.3 Bulk Earthworks

The subject land contains minimal significant vegetation cover, with specific areas indemnified for retention with every effort to be made to maintain existing significant vegetation in prescribed areas by careful design within the planning constraints and controlling the preloading fill operations during the earthworks and site grading works.

Site grading will generally be determined by the servicing requirements and environmental and geotechnical constraints of the site, in order to ensure sustainable as well as economic development of the infrastructure.

Site grading and remodelling will be required to form roadworks, building pads for future development and associated works within the following parameters:

- Creation of residential building sites.
- Contouring of land to suit servicing requirements for development, sewerage and stormwater drainage requirements.
- Creation of sufficient variation in the grading to allow the natural landform to be followed and in conjunction with adjacent developments and interfaces with public open space areas.

The proposed finished earthworks levels for the site will need to take into account a number of factors, including;

- Finished floor levels are at least 0.5m above the 1 in 100 year Swan River flood levels.
- The possible rise in sea levels over the next 100 years will need to be considered. This has been estimated to be approximately 900mm above the current 1 in 100 year flood levels and
- Fill levels to provide minimum required clearance to groundwater (AAMGL and as prescribed by authority approvals). Generally 1.2m separation above the groundwater levels will be required.
- Geotechnical and soil parameters to ensure that the site achieves appropriate site classification for its purpose generally Class 'A' for residential purposes.

The existing surface within the site will require a topsoil stripping and proof rolled, prior to clean filling with sand. Areas which contain uncontrolled fill but are not subject to preloading requirements, will need to undergo either dynamic compaction or the material will need to be removed and replaced with compacted sand.

Other options being considered for site preparation include the provision of CMC piles (or equivalent systems). For the apartment sites adjacent to the track (larger green titled sites that will accommodate multi-storey development) conventional piling solutions will generally be utilised which will minimise the requirement to preload or treat unsuitable subgrade materials.

The [western portion](#) of the site will also need to be stripped of topsoil prior to sand filling for control of ongoing settlements within the alluvial silts formation.

The area will need to undergo preloading with fill for extended periods with vertical / wick drains prior to earthworking to final levels. Preloading of the site is required to ensure no roads, services or dwellings are subject to settlement of the alluvial silts.

It is proposed that the ongoing settlement creep of the site will be suitable to Australian Standards over the coming century. This is a maximum of 50mm over the next 100 years.

The flyash deposits encountered on site will need to be either removed and replaced with sand or, if approved, left in place and covered over during the preload phase to ensure the flyash material is at a safe depth below the existing surface to cause pollution to the environment. This is an approved environmental methodology to remediate this material. Details of the depth will need to be further investigated for its suitability for this site.

It is assumed that a majority of the larger buildings on site will require piled foundations to support their loads. The depth and number of piles required will be subject to further geotechnical investigations.

The [North Park Precinct](#) will have a combination of Controlled Modulus Columns (CMC) Piles and on the very eastern end High Impact Compaction.

Refer [Appendix C](#) – for Proposed Preloading and Forward Works Plan prepared previously and the subject of a current Forward Works Development application for a combination of CMC piles and high impact compaction with the balance of the Precinct A area subject to preloading site preparation options.

4.4 Potable Water Supply

Water Corporation has advised that the landholding is located inside the current scheme planning boundary. Current works within the Precinct D development of the Belmont Park Racecourse Redevelopment includes the provision of an upgraded water distribution network which includes a DN300 watermain from the east and a DN500 distribution main across the Graham Farmer Freeway from the Optus Stadium Site.

The Water Corporation has confirmed the preferred location of the crossing and that there will be adequate capacity to supply the proposed development.

Previous distribution network requirements include a ring main arrangement to ensure security of supply to the site. This will either be via a foreshore distribution line (not preferred by DPLH & DBCA) or via the sewer easement across the Belmont Racecourse site along the sewer gravity line to the Northern extremity of the Precinct A development zone.

Each green title lot will require access to its own potable water service and all internal plumbing must be contained within the each of the new lot boundaries created.

All internal potable water reticulation pipework will be designed and constructed to the standards and requirements of the Water Corporation of Western Australia. Standard Water Corporation water headwork charges will apply. The internal network may include DN300 – DN100 sized pipes. Additional pressures to service the medium to high rise development would need to be provided via on site storage tanks and pumps installed as part of each building.

Refer **Appendix D** –for Water Strategy Plan for this proposed option

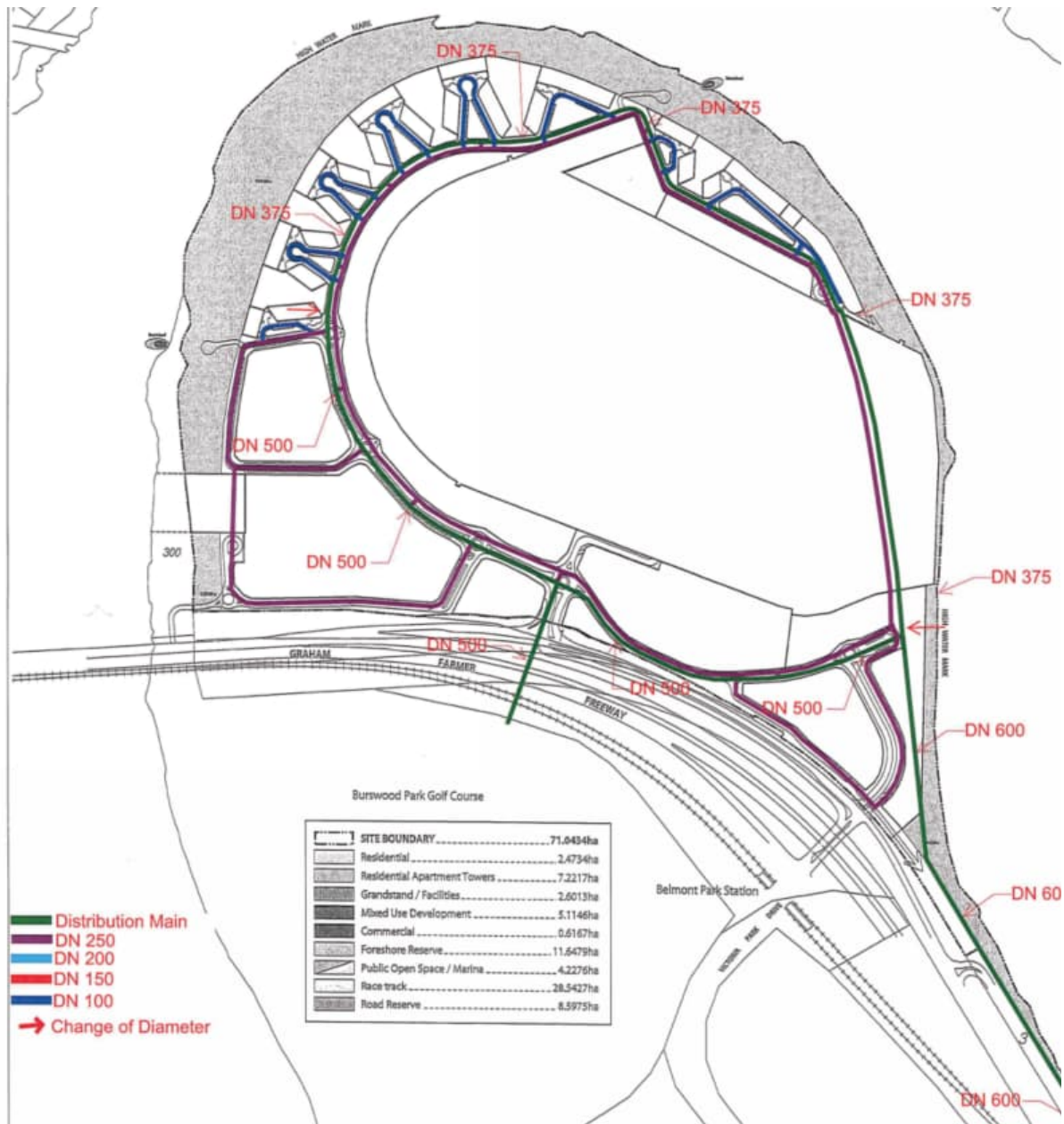


Figure 5 Proposed Water Supply Strategy to be adapted for new Precinct A Plan layout

4.5 Wastewater Disposal

The subject land is located inside the Water Corporation current scheme planning boundary and is currently assessing designs for the waste water pumping station that will serve the development.

Cossill & Webley Consulting Engineers are currently in the final stages of the ESR (Engineering Summary Report) for the provision of the Water Corporation prefunded wastewater pumping station to be located near the small POS area east of the Sainly Entrance intersection with Graham Farmer Freeway.

This pumping station has capacity and is to be constructed at an appropriate depth that will serve the whole of the BPR area and provide the disposal capacity from the area, discharging via a rising main to outfall to the existing gravity sewer network east of the freeway near Griffiths Street in Burswood.

The development will be serviced internally via gravity sewers which would be connected to the proposed wastewater pump station of sufficient size to cater for the development. Standard Water Coaptation Headwork charges will apply to the development. For the NE sector of Precinct A (known as North Park) the gravity sewer line will traverse the Belmont Park Racecourse site and will require an easement to be lodged over the proposed alignment for the sewer in favour of the Water Corporation. This is agreed and part of sales agreement and deed of arrangement between Golden Sedayu and the Perth Racing.

Refer to **Figure 6** below shows the Water Corporation sewerage network within the development precinct. Note that the overlay is on the currently approved LSP but the principles and sewer network alignments will not change in the new LDP planning layout.

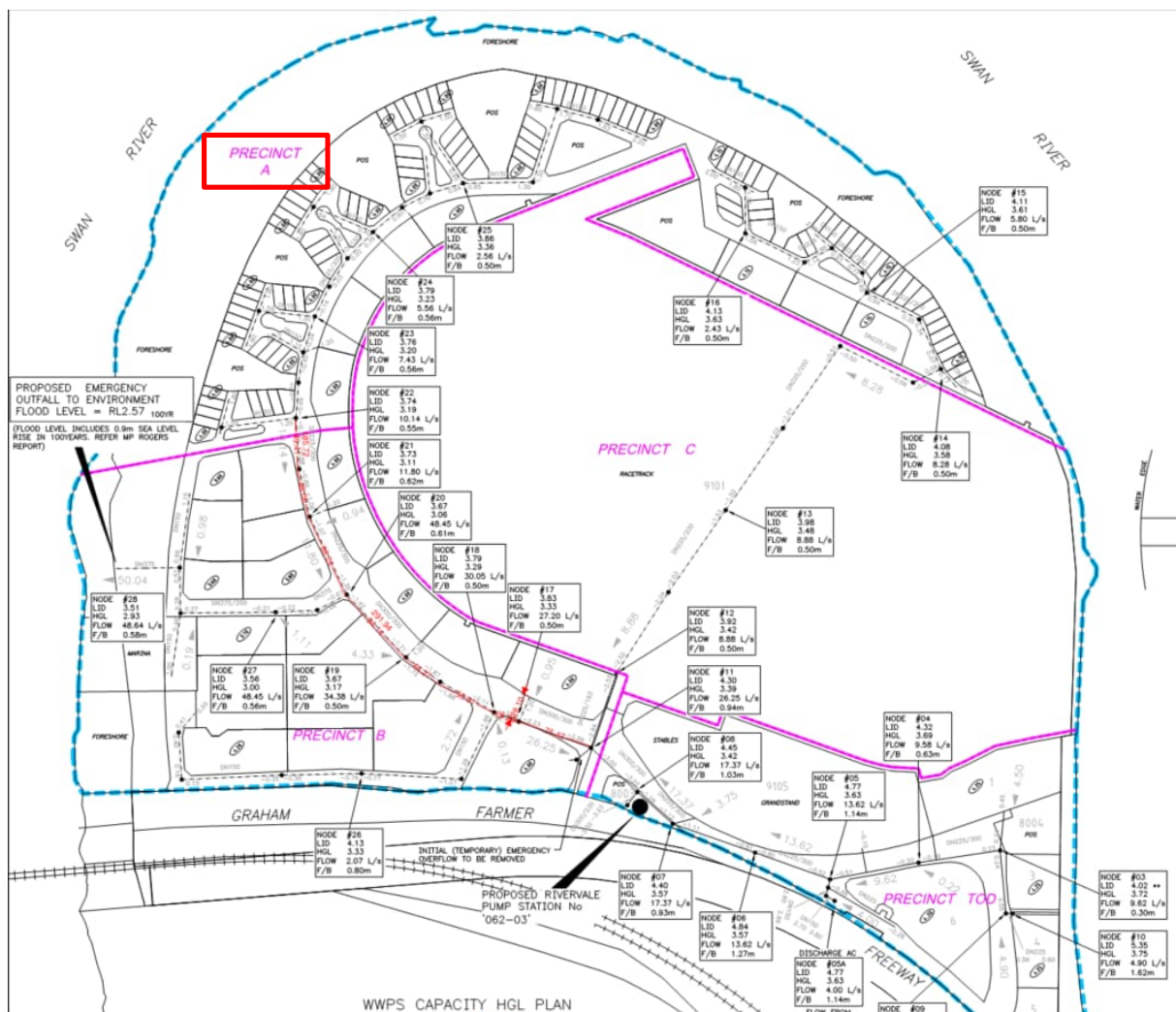


Figure 6 Wastewater Reticulation Concept Plan

4.6 Stormwater Drainage

4.6.1 Local Water Management Strategy

A Local Water Management Strategy prepared by Emerge Associates (EP11-023 November 2012) has been approved and forms the basis for the stormwater collection and disposal strategies cross the site.

The following general criteria for stormwater management is as follows:

- Retain the 1 year 1 hour ARI rainfall event at source as close as practical.
- Post development critical All catchment runoff up to and including the 1 in 100 year ARI peak flows leaving the BPR shall not exceed the pre-development environment.
- Roads and public open spaces will be designed to cater for the surface overflow for more severe storms with habitable floors at least 300 millimetres above the **1 in 100 year ARI** flood or storage level at any location. Low point infiltration areas will be sized to store and infiltrate the 100 year ARI flood event on site.
- Habitable floor levels must have a minimum of 500 mm clearance above the established 100 year flood levels within the Swan River (including allowance for future sea level rise).
- Provide adequate land area for the 100 year ARI rainfall event to be detained onsite (within the Racecourse WMA)
- The piped network to be designed to convey the 5 year ARI rainfall event.
- Infiltration testing should be carried out in conjunction with geotechnical investigations at a localised level to confirm areas that are suitable for the proposed infiltration methods and to identify appropriate infiltration rates to enable further refinement of modelling at subsequent stages of development.
- Runoff from all residential lots will be captured within rainwater tanks where possible, with the excess disposed of on site via the use of soakwells or other infiltration facilities. For high density lots where retention and infiltration within the boundary of the lot is not possible retention and infiltration areas will be located within local public open space areas as close to source as possible. The use of permeable paving will be maximised to provide opportunities for infiltration at source.

The maximisation of stormwater recharge to the shallow aquifer, through the adoption of 'Best Management Practices', which promotes the dispersion and infiltration of runoff, are an important part of stormwater management. These includes the use of swales, linear drainage soakage units to infiltrate runoff from building roofs and private open space areas and the disposal of road runoff into infiltration zones within the green finger and more formal POS areas.

4.6.2 Water Quality Management

The maximisation of the quality of recharge water through the adoption of 'Best Management Practices' which promote the disposal of runoff via water pollution control facilities (including vegetated swales and detention storages incorporating biofiltration zones) and the implementation of non-structural source controls (including urban design, street sweeping, community education, low fertiliser landscaping regimes, etc).

The Local Water Management Strategy (LWMS) prepared for the BPR outlines the district level UWM strategies and for the precinct. The LWMS provides the detail to support the LDP.

4.6.3 Stormwater Collection, Treatment and Disposal

The BPR precincts have varied ground conditions where some areas will have generally free draining soils with adequate separation to ground water and other areas where the underlying soils are potentially less permeable at the surface and infiltration of water may be more difficult.

Drainage from public roads will be collected via side entry pits, combination gullies or open swales depending on the nature of the adjacent land uses, the extent of traffic and pedestrian activity, etc. At source infiltration will be promoted for short recurrence interval events.

The Swan River traverses a large part of the proposed development boundary. Direct discharge of stormwater is not possible as it may potentially cause algae blooms and pollution of the Swan River.

The drainage collection and conveyance system will be designed to cater for the runoff from storms with up to a 1 in 5 year recurrence interval. Infiltration zones would be designed to store runoff from up to 1 in 10 year storms. This will be either using linear soakage units, swales or a combination of both. In all cases roads and POS would be designed to cater for the surface overflow for more severe storms with building pad levels set at least 300mm above the 1 in 100 year flood or storage level at any location.

Refer to typical details for the POS area swales and biofiltration below in **Figure 7** & **Figure 8** and **Appendix F** for overall Urban Water Management Plan showing integrated strategy for the Precinct A area.

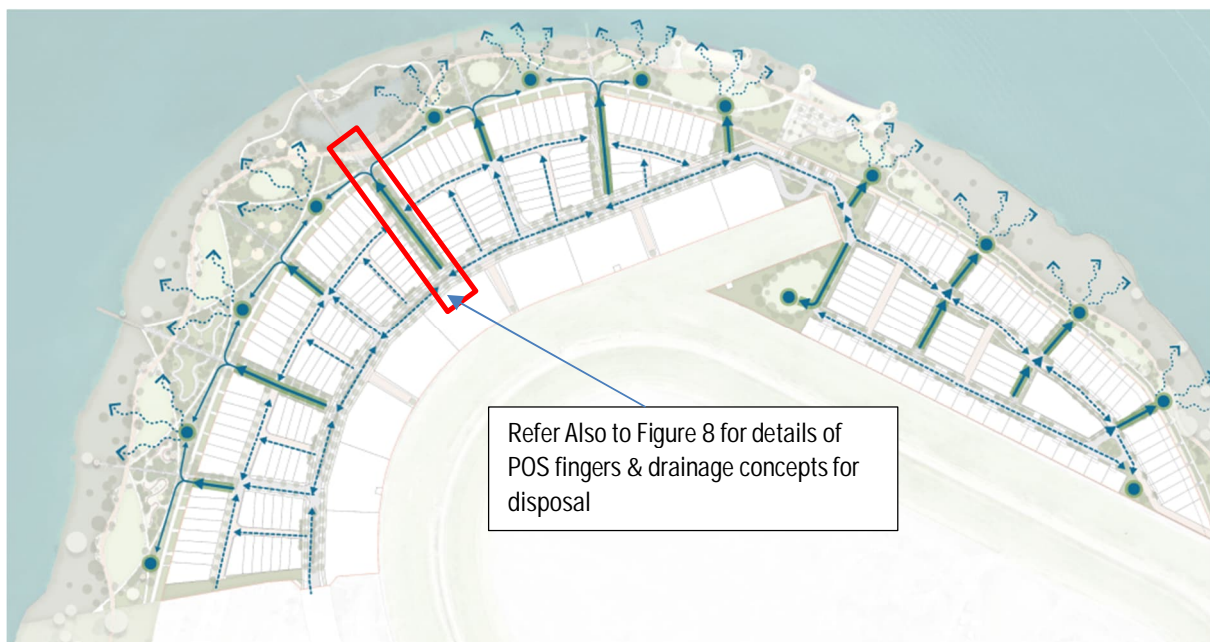
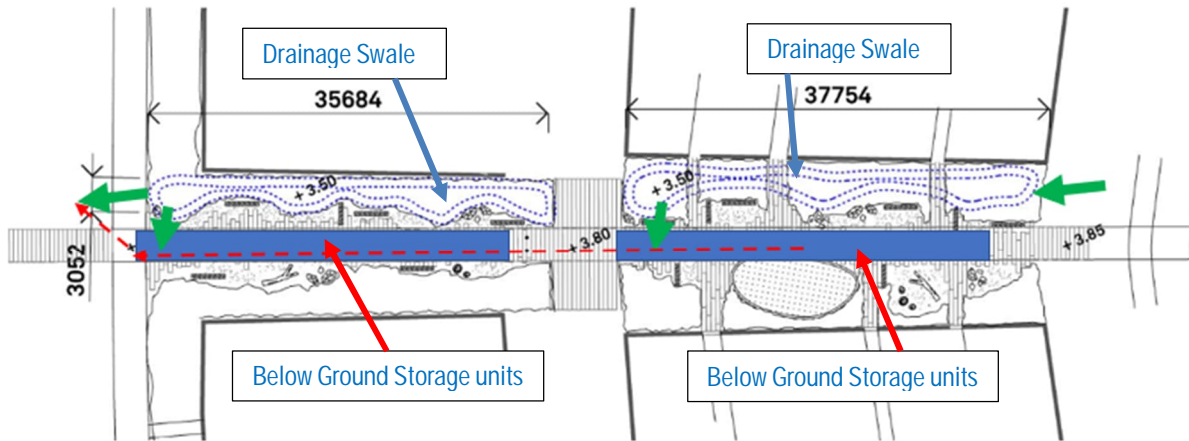


Figure 7 - Stormwater Drainage Concept Plan – Showing drainage flow paths (piped & swales) and disposal routes incorporating biofiltration and & Storage.



3. LANDSCAPE CONCEPT

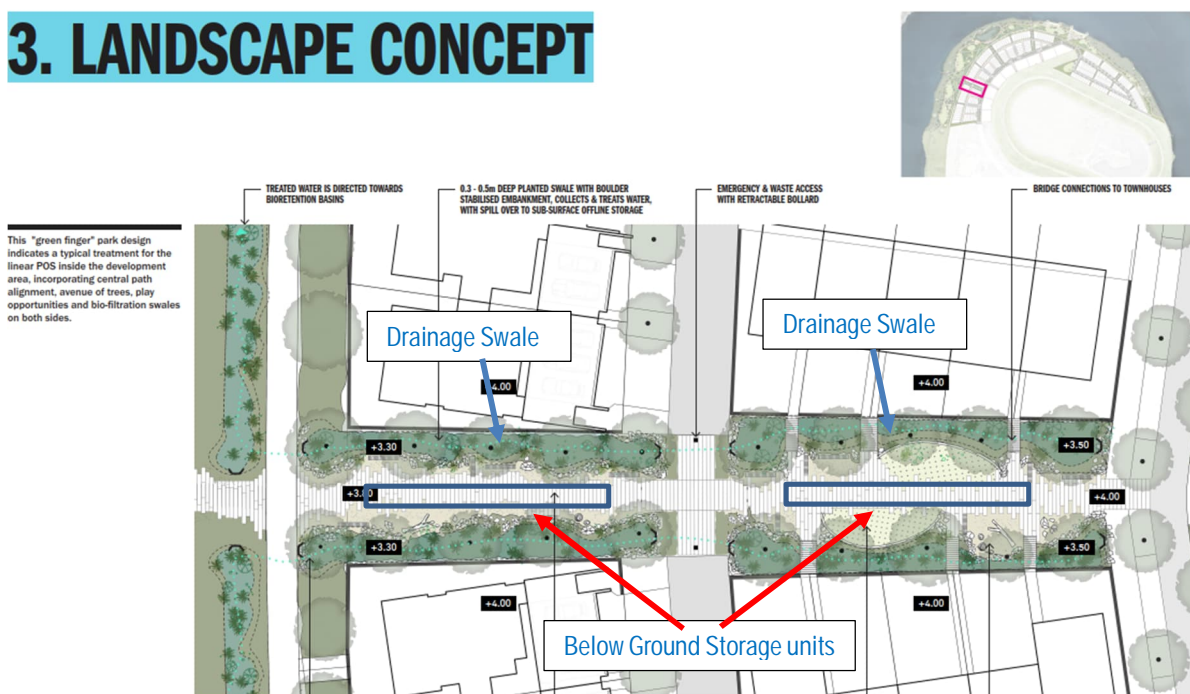


Figure 8 - Stormwater Drainage Swales and Biofiltration & Storage Zones (POS Green Fingers)

In areas where infiltration is not possible the attenuation of runoff in swales and shallow basins will minimise flooding and quantity issues in the final receival zones. The swales will also assist nutrient removal along with other measures such as suitable vegetation planting and the use of modified soils with high phosphorous retention capacity.

Preliminary flood modelling of the Swan River has been undertaken and has confirmed a minimum fill level of RL 3.0 m on the western side of the development and a minimum fill level of RL 3.7 m on the north eastern portion of the site. This includes the 500 mm min freeboard to habitable floor levels and a 900mm increase in sea levels over the coming century.

4.7 Electrical

The proposed development is situated in an area that is currently supplied by Belmont Zone Substation (located on Alexander Rd, 6.4km from the Belmont Racecourse Transformer) via the BEL 514 22kV HV feeder. This feeder extends to the development via 22kV underground cable. One 22kV circuit is 240sqmm Cu cable and the other is 185sqmm Al cable.

Note that while there are two separate cables running to the transformer on the development site, they are both connected to the same HV feeder line at the Belmont Zone Substation. This means that the cumulative capacity of both 22kV circuit lines is the same as the maximum capacity for a single high voltage feeder line (typically 10MVA).

Western Power have undertaken a full feasibility for the power supply to the Belmont Racecourse Redevelopment area and this has concluded with a clear understanding of the upgrade requirements based on staged development. Based on the results of the Western Power feasibility and study, the power supply requirements of the site can be met

Standard Western Power development conditions will apply and it is anticipated that the network has adequate capacity for the site power requirements which needs to be verified with Western Power once the ultimate development details are known. The cost of this work will need to be met in full by the developer.

Various padmount transformer sites will be required in selected locations within the development. However, due to the range of sizes of lots proposed within the development, it is envisaged that there will not be a problem in strategically locating the infrastructure to meet both Western Power design requirements and the requirements of the developer.

An application for a new connection will be required at the time of detailed design for each lot. The developer will fund any new connection, removal and/or relocation of any Western Power assets, as per Western Power's network connection policy.

4.8 Telecommunications

Information from TELSTRA/NBNCo indicates there is a service network within the area. It is anticipated that all lots within the proposed development will be served with Telecommunication services either by Telstra/NBNCo or by private services companies like OptiComm.

A fibre optic main owned by Telstra is located within the road reserve of Graham Farmer Freeway. It is assumed the connection to the development will be via the main located in the Graham Farmer Freeway.

There may be some requirements for headworks depending on the type of service installed within the estate. NBNCo will act as wholesale provider of last resort in new developments constructed within, or adjacent to, NBN Co's long term fibre footprint.

Developers and, on their own property, property owners will be required to cover the costs of trenching and ducting. NBNCo will cover the other costs of installing fibre infrastructure in the development, including backhaul.

Further investigation and liaison with Telstra's/NBNCo's Network Integrity group will be required for any required plant relocations.

The communication provider will design (developer to pay) and provide details for the installation of a pit and pipe network at the cost of the developer the new telecommunication network facilities to the proposed lots. Alternatively, where cable routes match Western Power underground power supply routes, the telecommunications provider will wherever possible use the Western Power trenches in lieu of the developer providing additional trenching.

Telstra or other communications providers will cable the development once residential development has commenced in the area and applications are made by individual owners for communications services to their lots. Headwork charges for services extensions are anticipated.

4.9 Gas

ATCO Gas has advised it has existing high pressure and medium pressure mains located within the road reserve of Great Eastern Highway at the intersection of Griffiths Street, which will be extended to service the Belmont Redevelopment Precinct.

The internal gas network for the subdivision will be installed within the common trench at no cost to the developer. The extension required to connect to the nearest high pressure gas main means the developer will be required to pay for the trenching to the gas main as a headworks cost

The gas connection strategy will be dependent on the ultimate design and layout of the subdivision. There are no obvious constraints for an extension of the existing gas main to be provided such that new property connections can be established to each lot if required.

5. CONCLUSIONS & RECOMMENDATIONS

Peritas Group does not envisage any major servicing constraints for the proposed development based on the proposed subdivision of the subject land.

The site is capable of being serviced with all essential services, has an identified strategy for the treatment and remediation of problematic soil conditions and with careful considered design would result in a high-quality development.

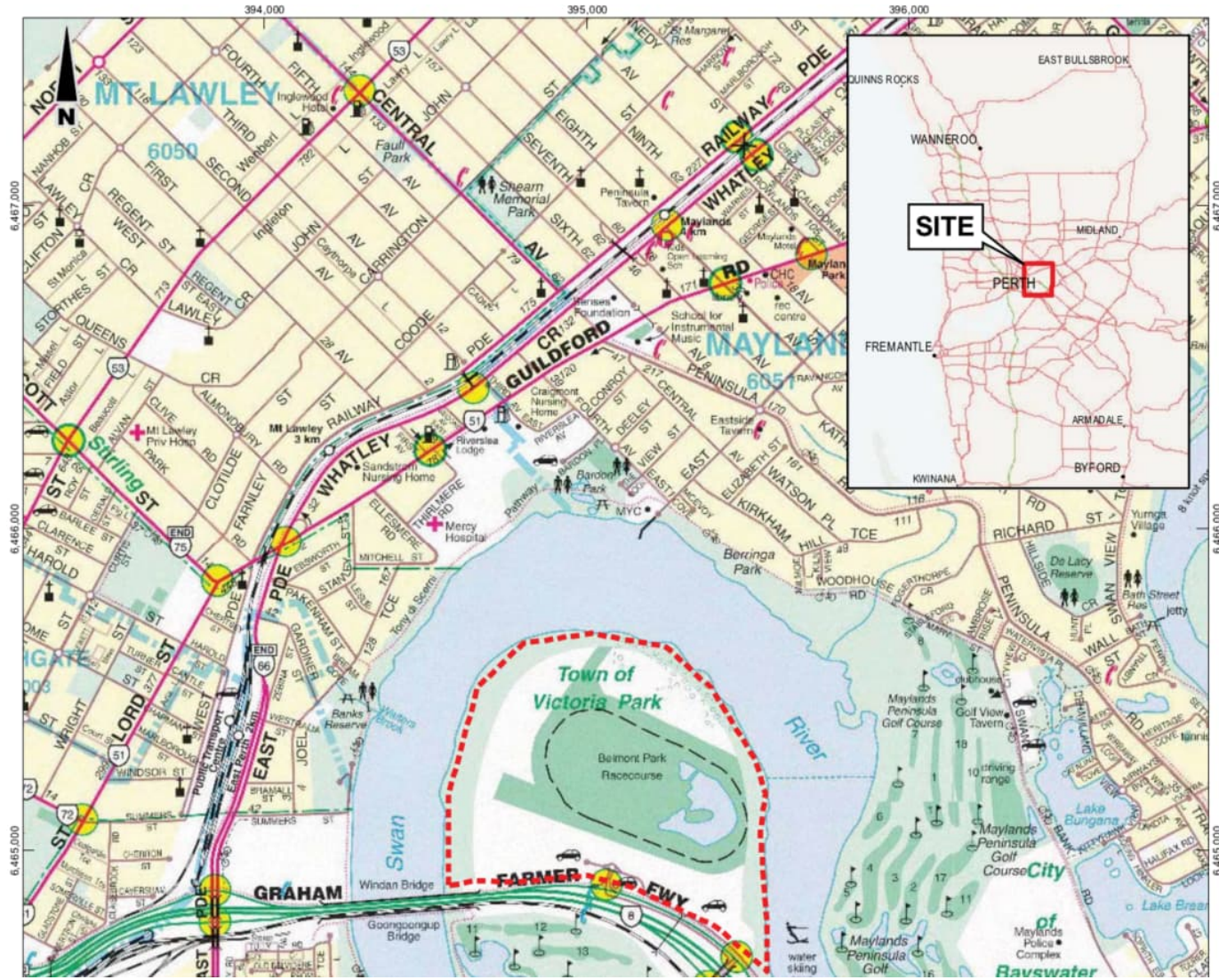
Additional detailed work is to be undertaken in conjunction with the regulatory authorities and service providers to determine the land requirements associated with the necessary infrastructure as envisaged by the Water Corporation, Western Power and other service authorities, and to ensure that major works are incorporated on Water Corporation capital works program that will assist in the timely delivery of the major infrastructure items detailed in this report.

Additionally, all major service authorities should again be approached to formally confirm further details of any upgrade requirements based on the staged development of the site so that the early planning for major infrastructure can be undertaken and forward work construction programmed.

Appendices

Appendix	Title
Appendix A	Locality Plan
Appendix B	Proposed Local Development Plan- Precinct A Masterplan
Appendix C	Proposed Preloading Plan and Forward Works Plan
Appendix D	Proposed Water Supply Strategy Plan
Appendix E	Proposed Wastewater Servicing Concept Plan
Appendix F	Proposed Stormwater Drainage Concept Plan

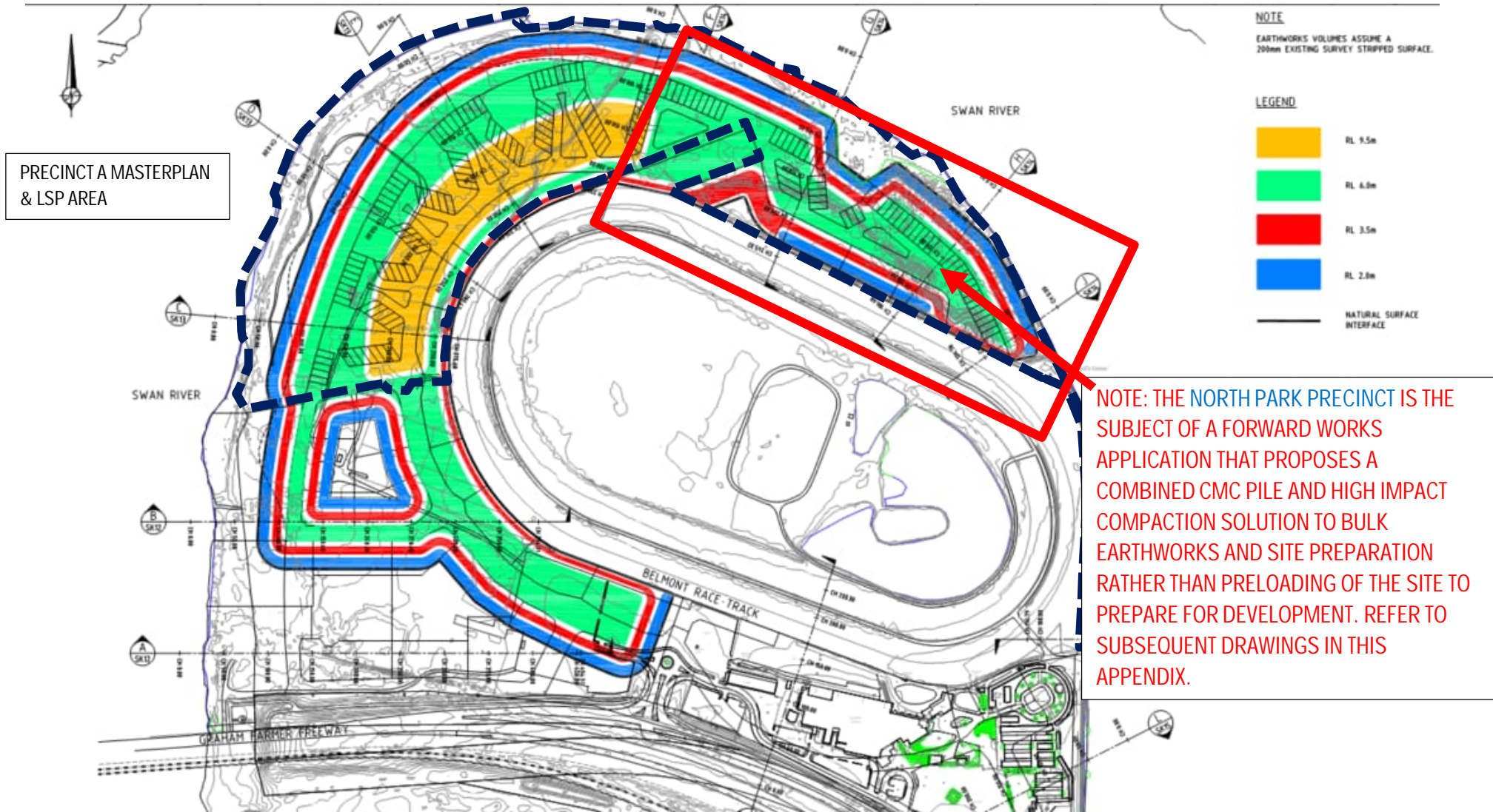
Appendix A – Locality Plan



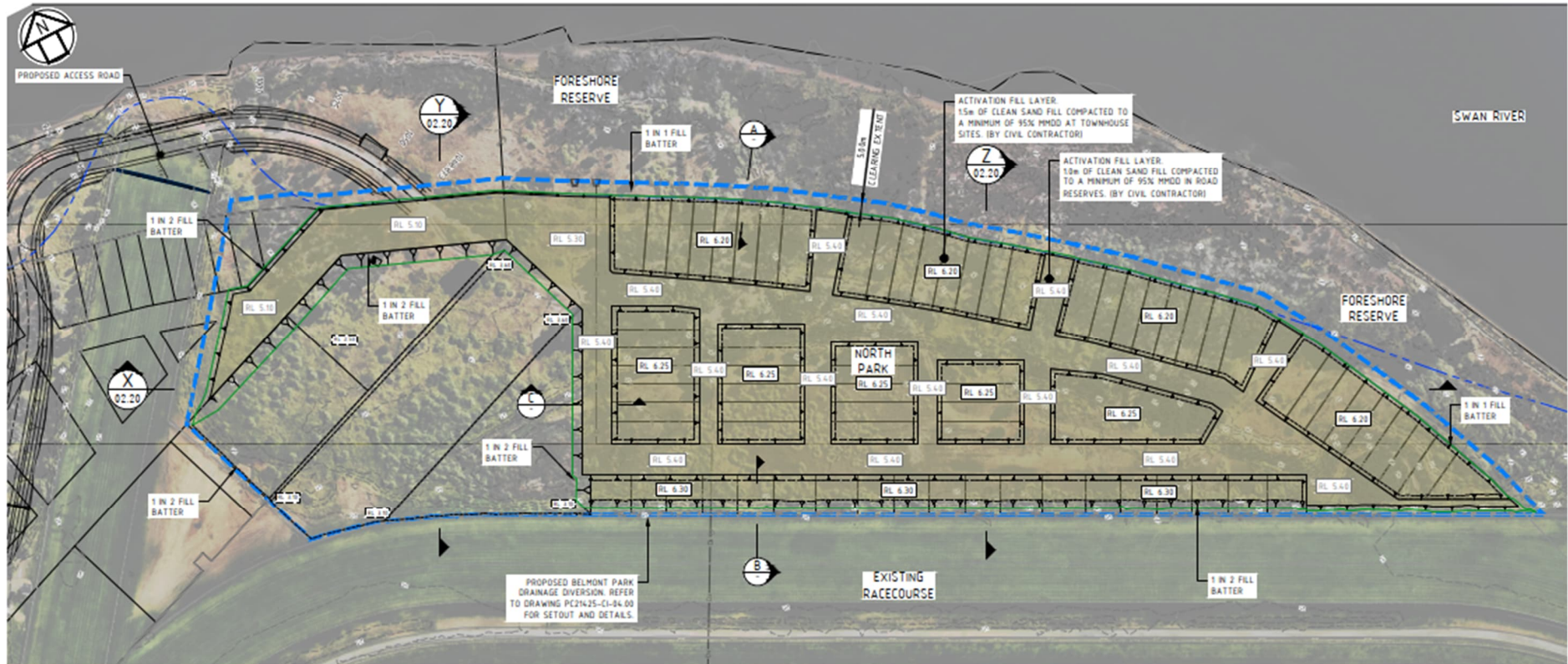
Appendix B – Proposed Local Development Plan- Precinct A Masterplan



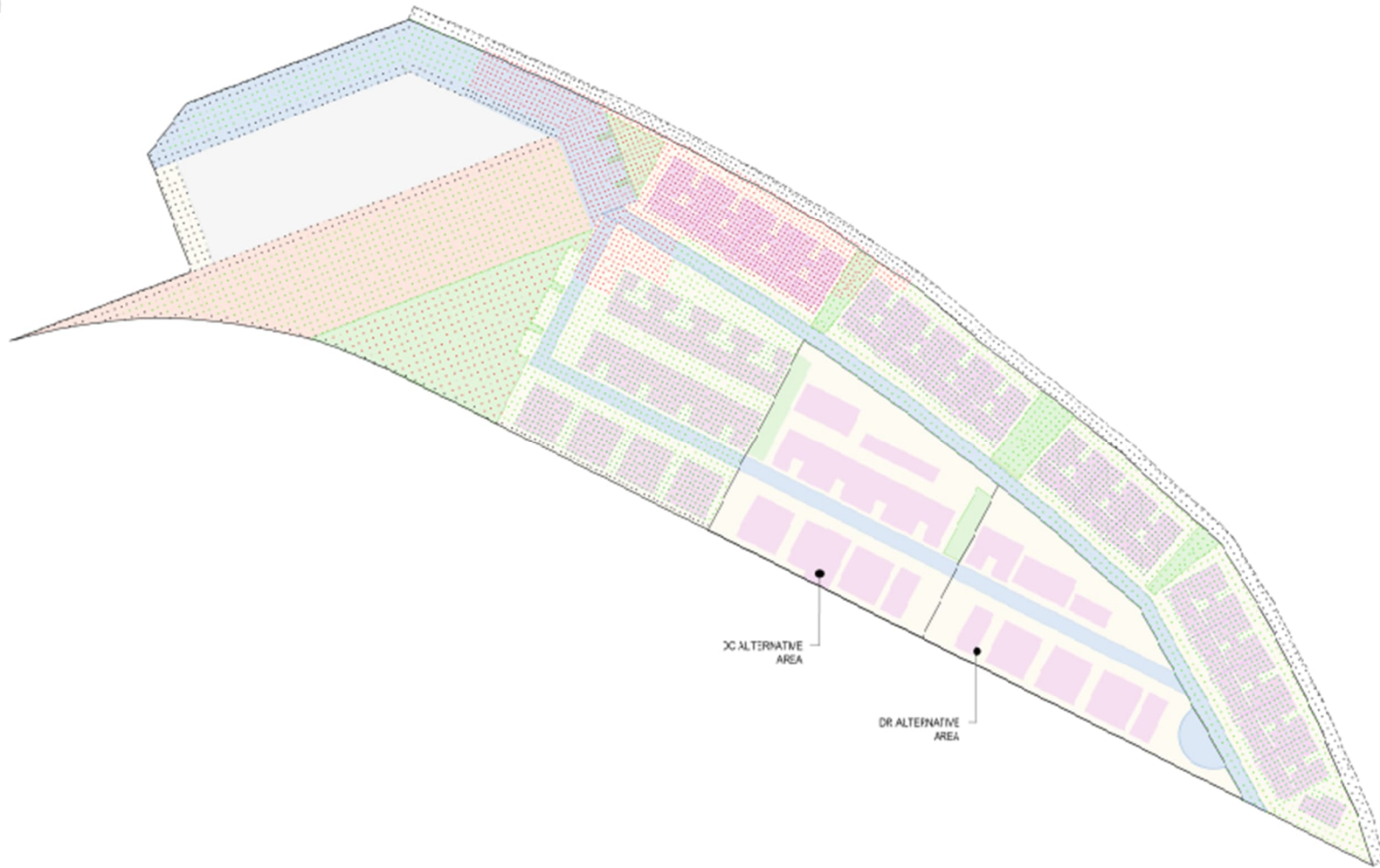
Appendix C – Proposed Preloading Plan and Forward Works Plan

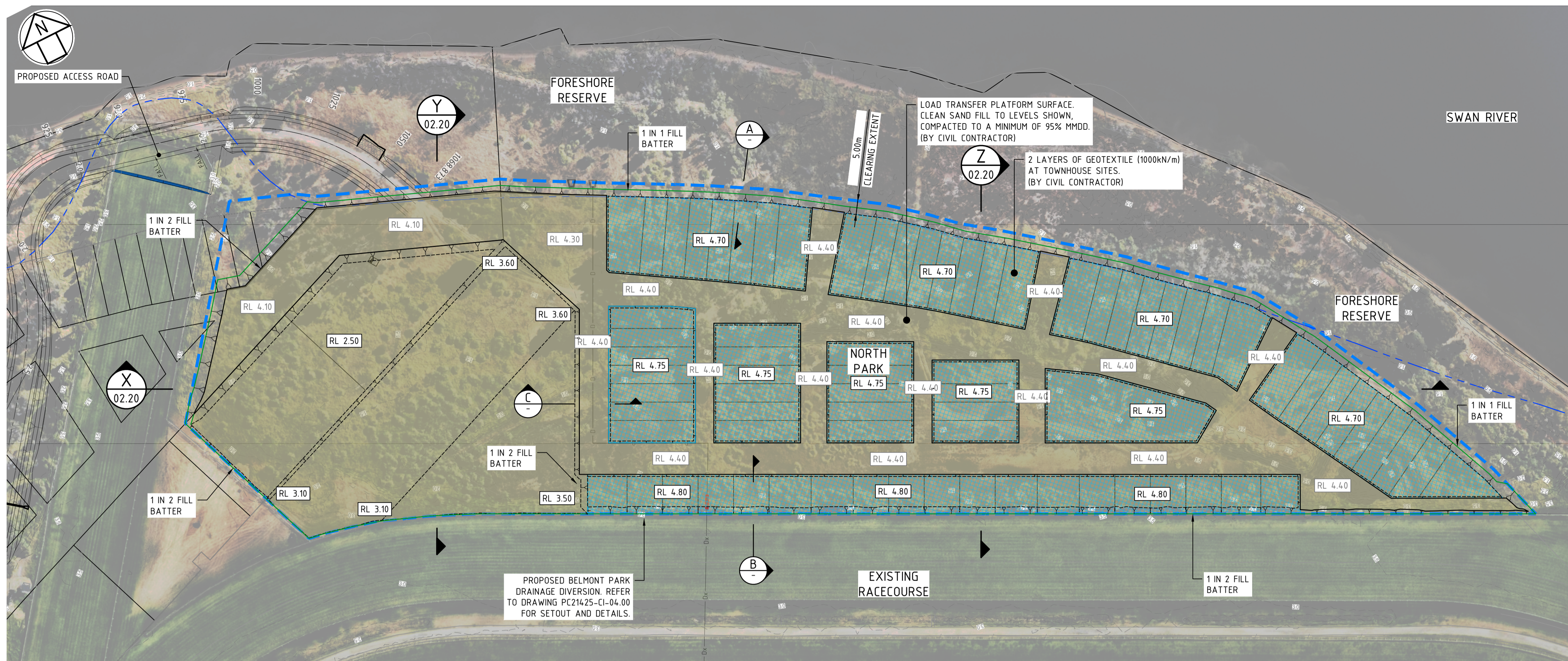


Appendix C (cont) – Proposed Preloading Plan

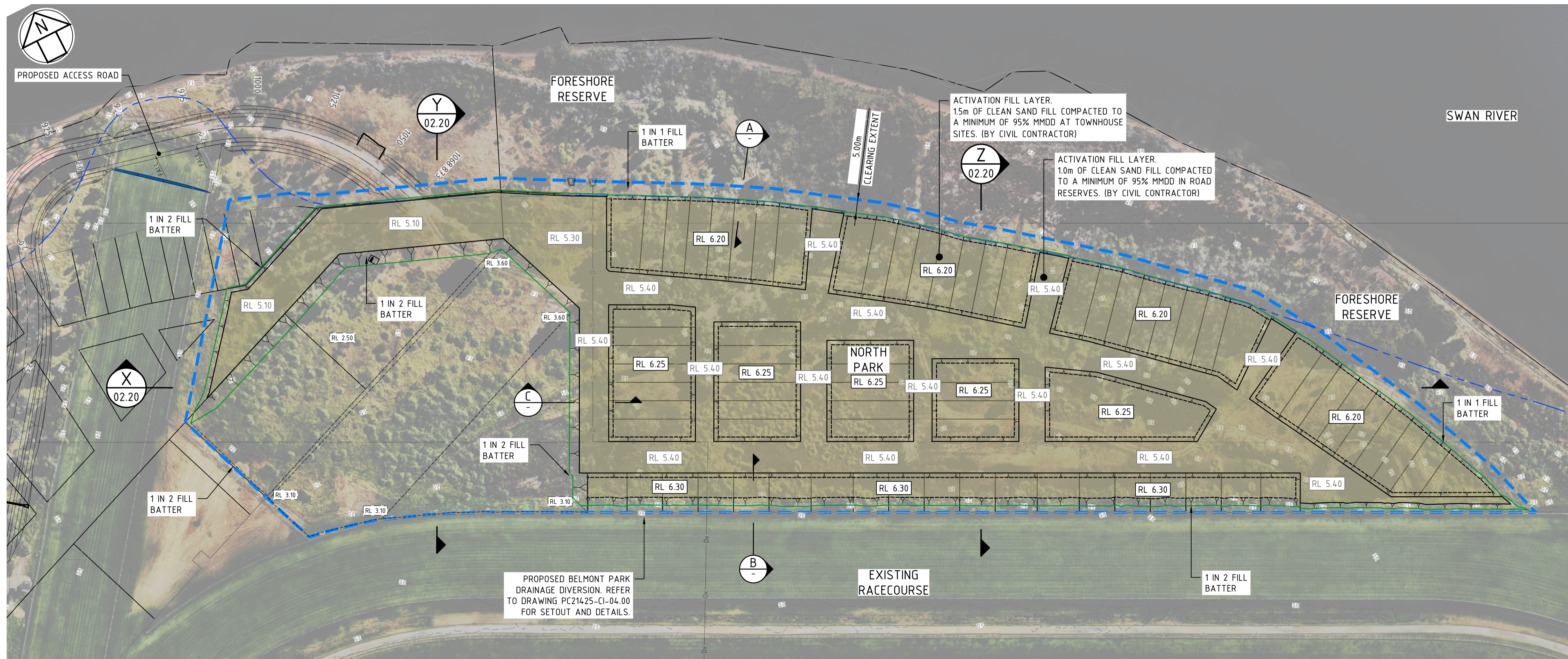
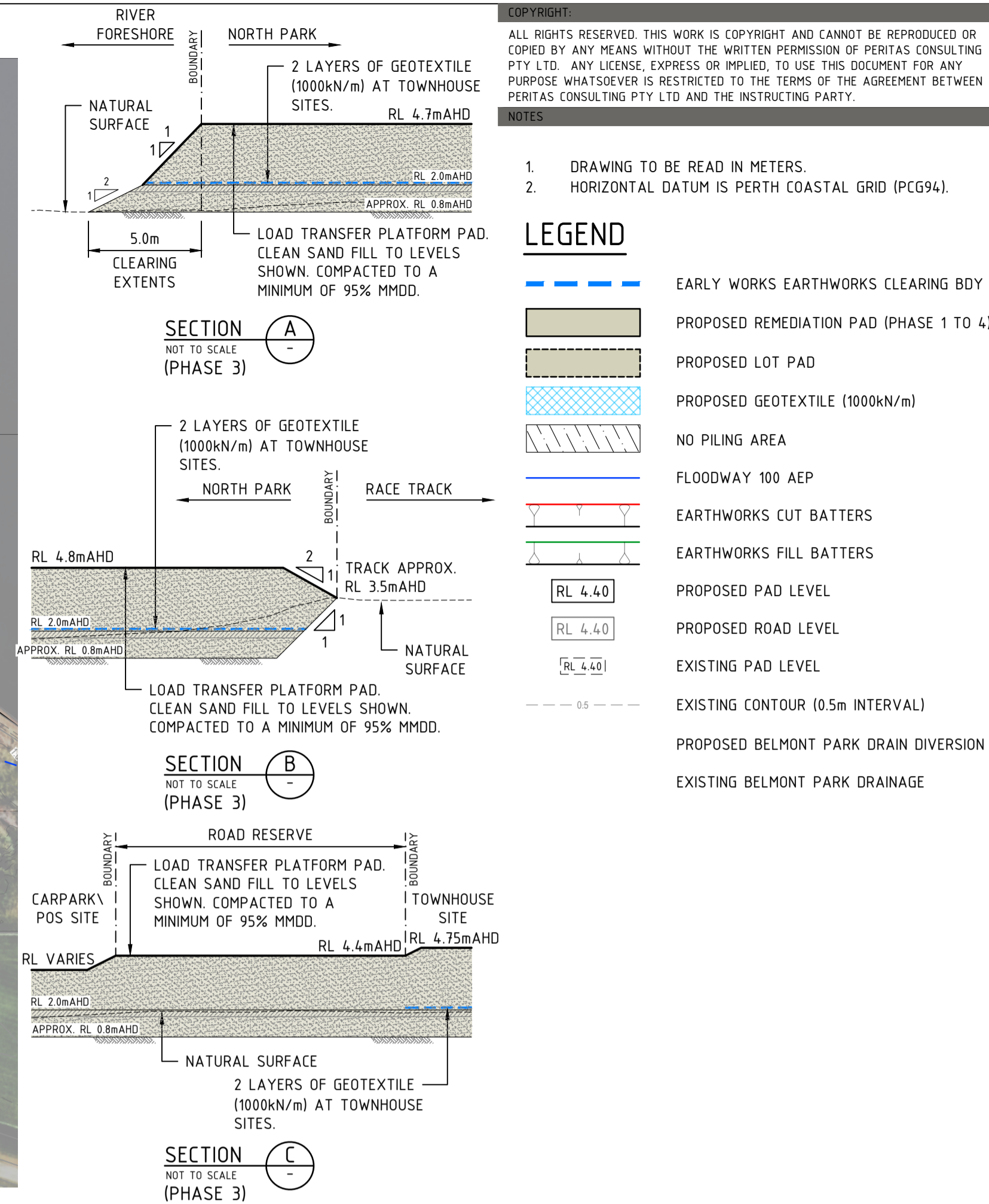


Appendix C (cont) – Proposed Piling Plan

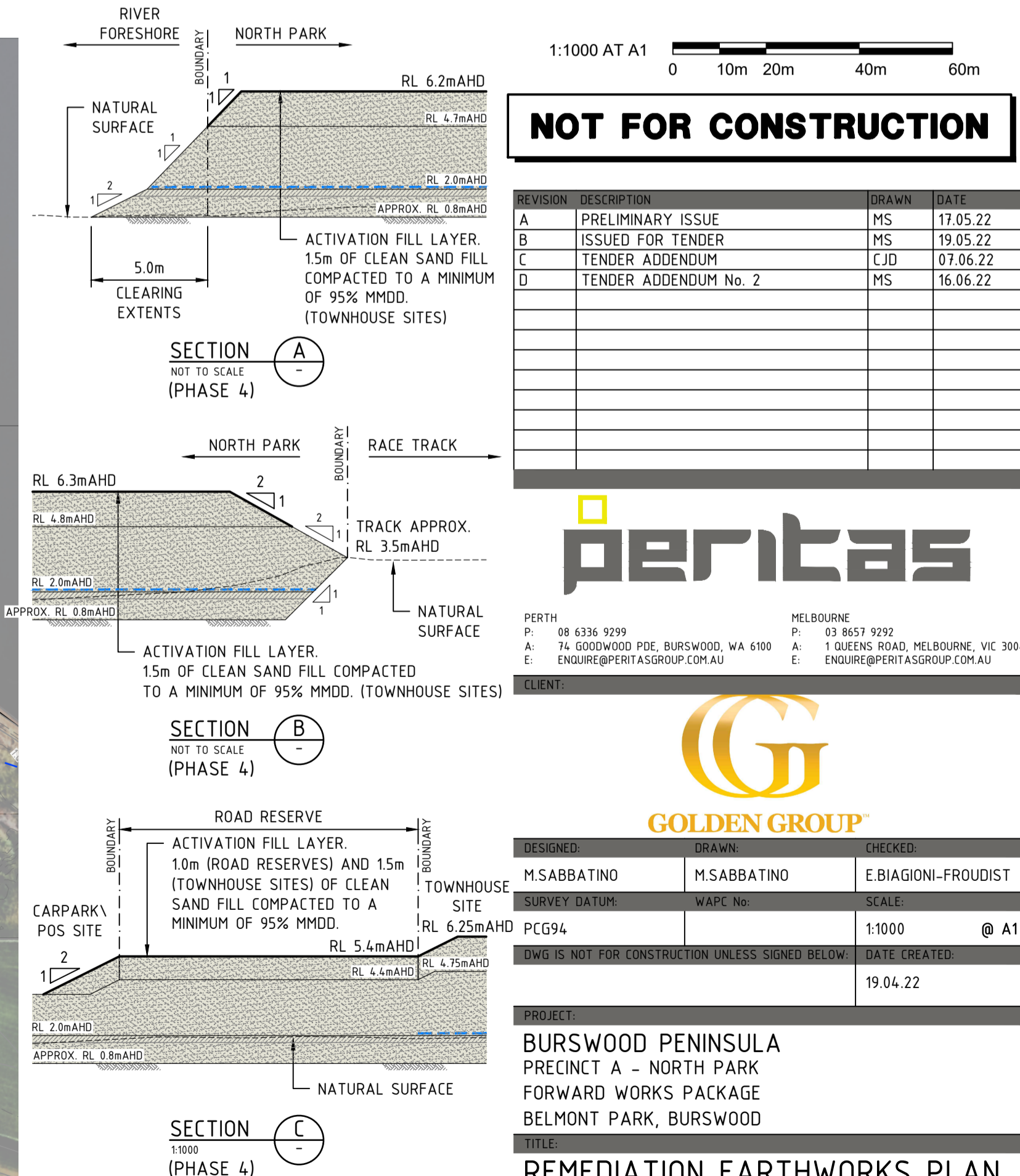




REMEDIAION EARTHWORKS - PHASE 3
 (LOAD TRANSFER PLATFORM TO REDUCED LEVELS AS SHOWN & GEOTEXTILE UNDER TOWNHOUSE SITES)
 SCALE: 1:1000



REMEDIAION EARTHWORKS - PHASE 4
 (ACTIVATION FILL LAYERS. 1.0m IN ROAD RESERVES & 1.5m AT TOWNHOUSE SITES)
 SCALE: 1:1000



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A	PRELIMINARY ISSUE	MS	17.05.22
B	ISSUED FOR TENDER	MS	19.05.22
C	TENDER ADDENDUM	CJD	07.06.22
D	TENDER ADDENDUM No. 2	MS	16.06.22



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 MELBOURNE: P: 03 8637 9292 A: 1 QUEENS ROAD, MELBOURNE, VIC 3004 E: ENQUIRE@PERITASGROUP.COM.AU

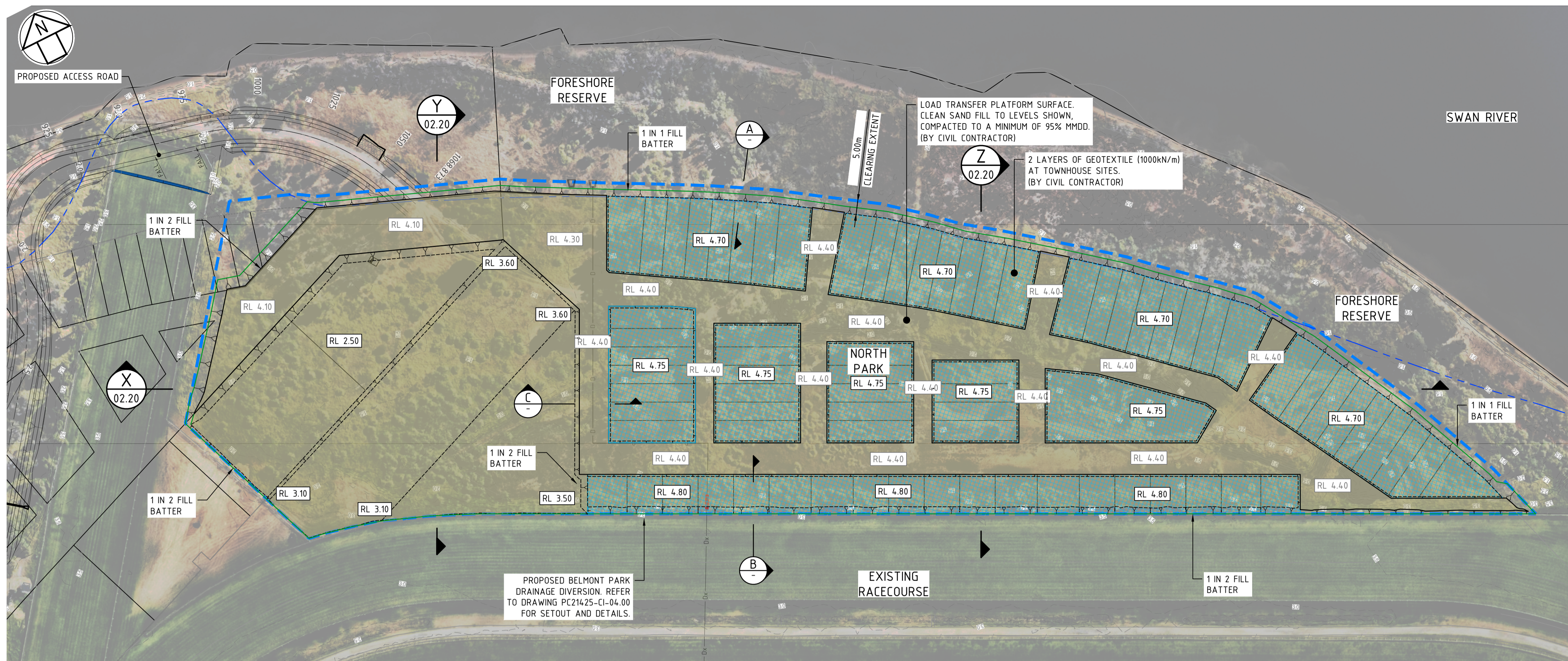


DESIGNED	DRAWN	CHECKED
M.SABBATINO	M.SABBATINO	E.BIAGIONI-FROUDIST
SURVEY DATUM	WAPC No.	SCALE
PCG94		1:1000 @ A1
DWG IS NOT FOR CONSTRUCTION UNLESS SIGNED BELOW		DATE CREATED
		19.04.22

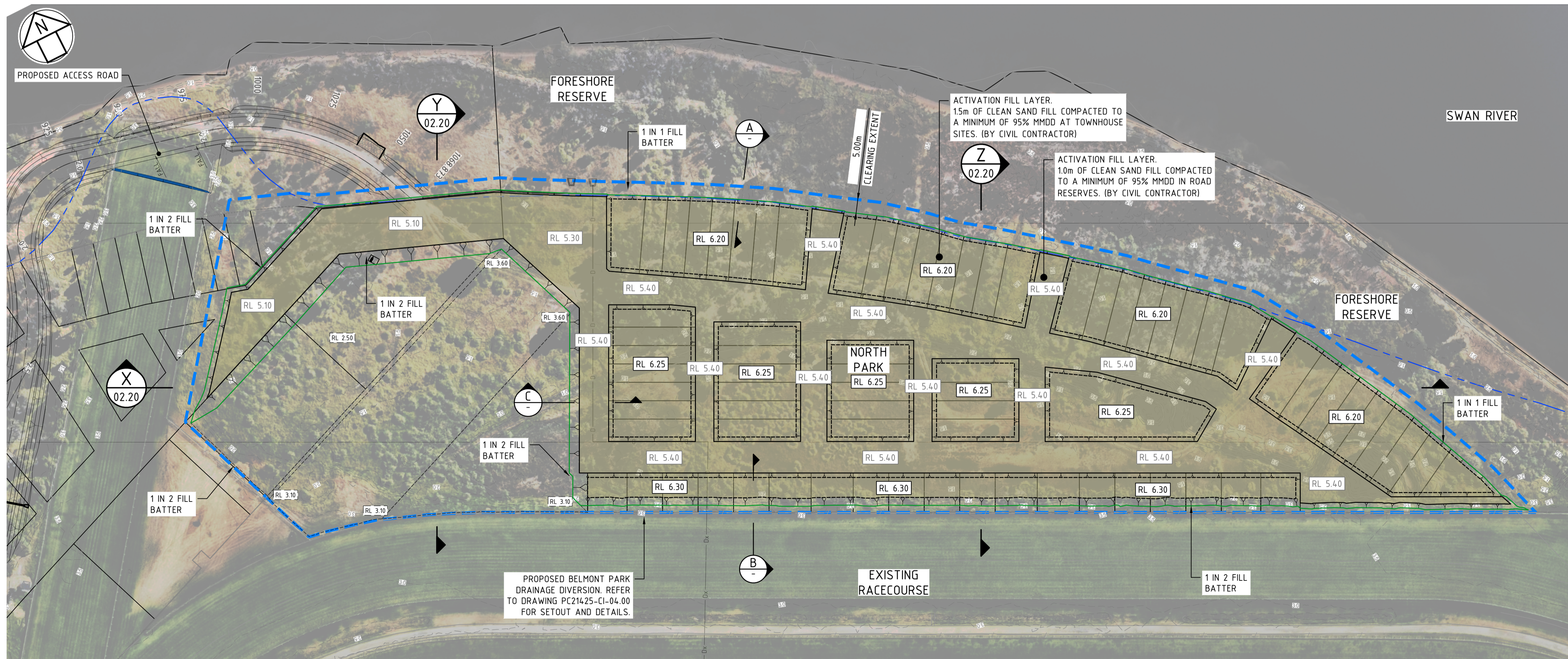
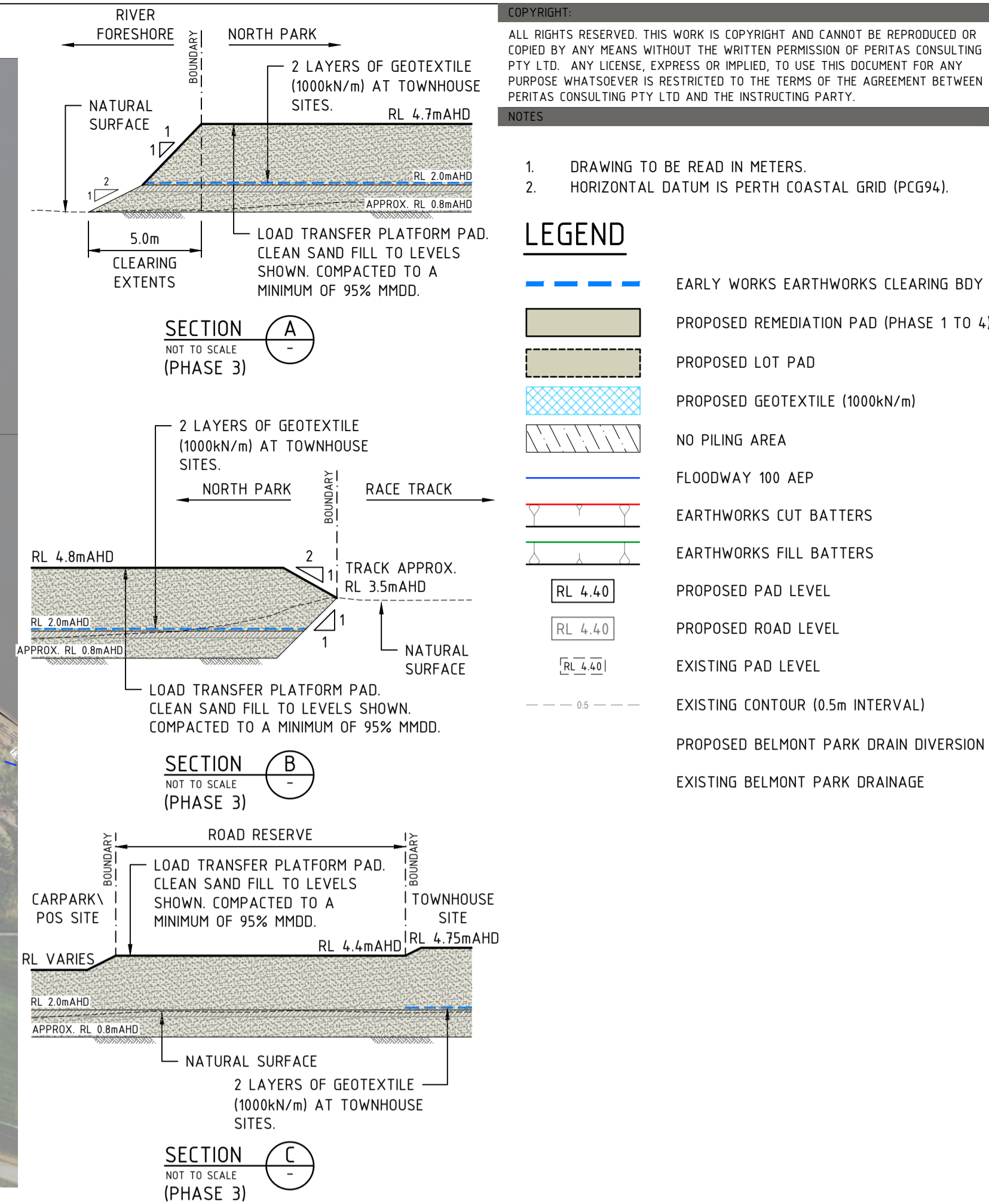
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 BURSWOOD PENINSULA
 PRECINCT A - NORTH PARK
 FORWARD WORKS PACKAGE
 BELMONT PARK, BURSWOOD

TITLE
 REMEDIAION EARTHWORKS PLAN
 SHEET 2 OF 2

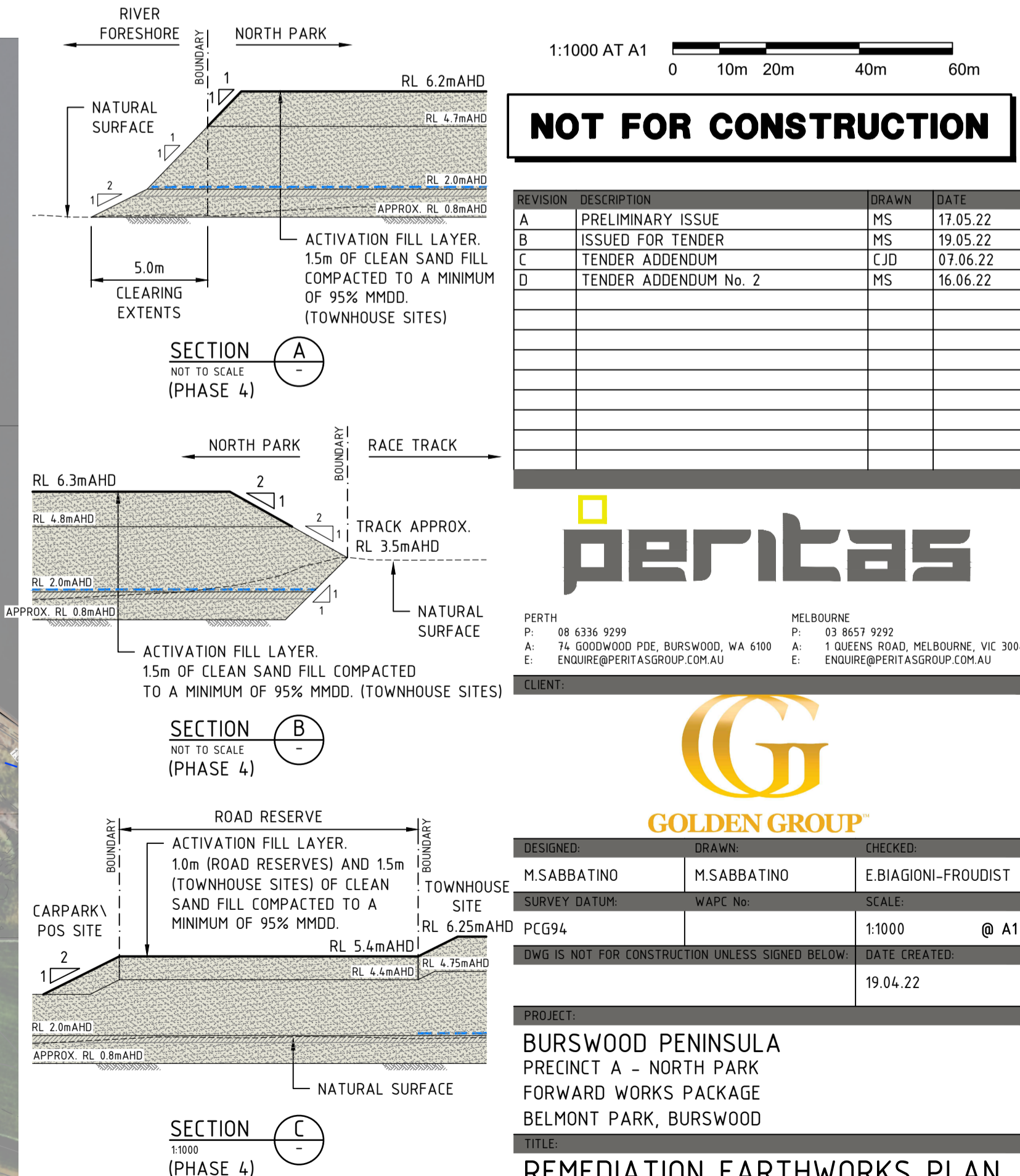
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PC21425	CI-02.01	D



REMEDIATION EARTHWORKS - PHASE 3
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 SCALE: 1:1000



REMEDIATION EARTHWORKS - PHASE 4
 (ACTIVATION FILL LAYERS. 1.0m IN ROAD RESERVES & 1.5m AT TOWNHOUSE SITES)
 SCALE: 1:1000



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REVISION	DESCRIPTION	DRAWN	DATE
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DESIGNED	DRAWN	CHECKED
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SURVEY DATUM	WAPC No.	SCALE
PCG94		1:1000 @ A1
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PROJECT
 BURSWOOD PENINSULA
 PRECINCT A - NORTH PARK
 FORWARD WORKS PACKAGE
 BELMONT PARK, BURSWOOD

TITLE
 REMEDIATION EARTHWORKS PLAN
 SHEET 2 OF 2

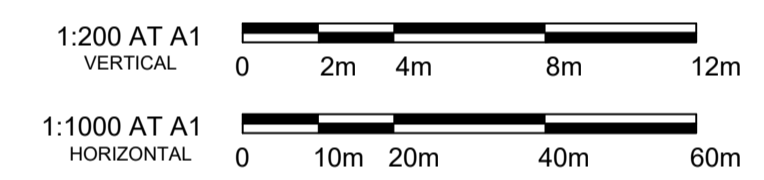
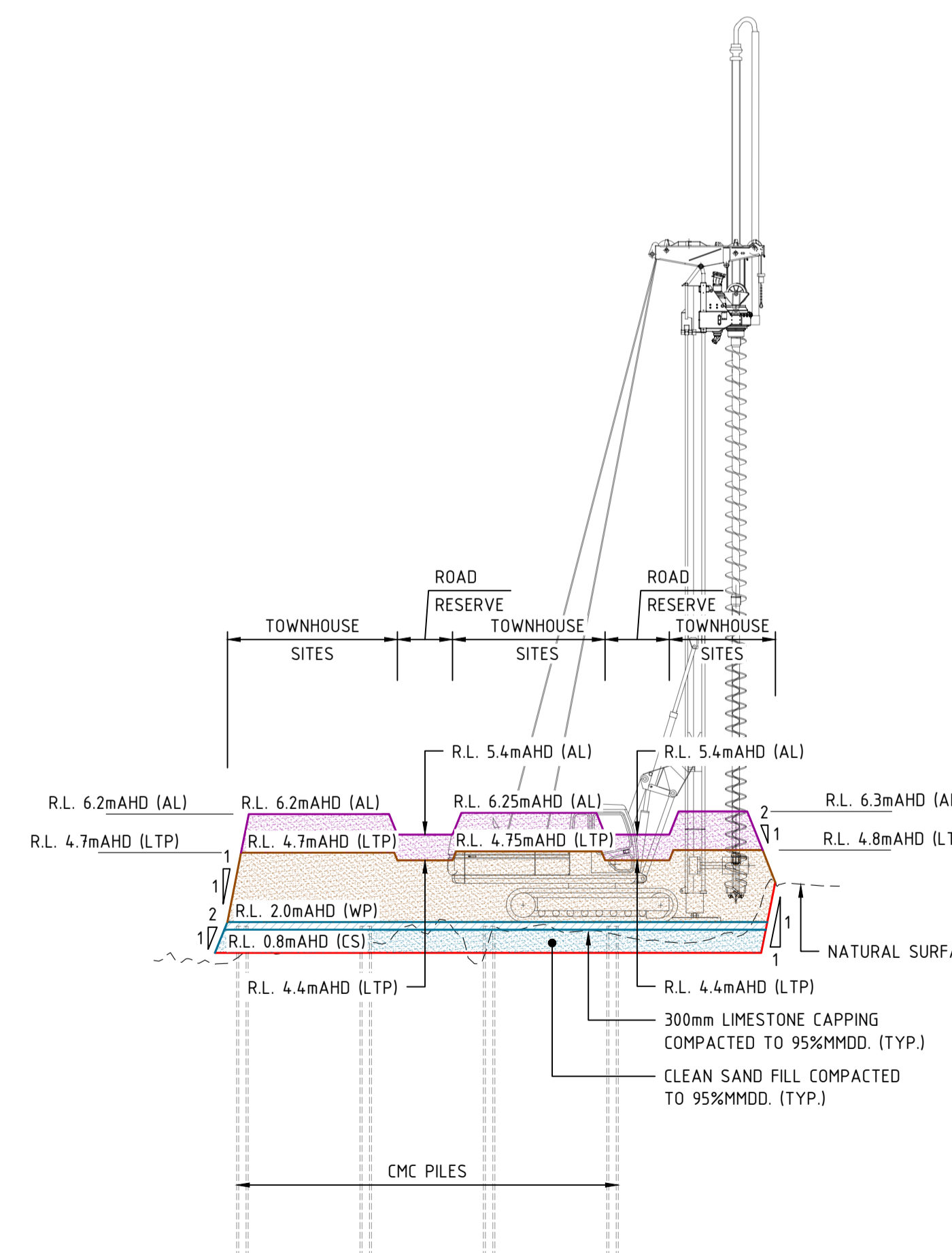
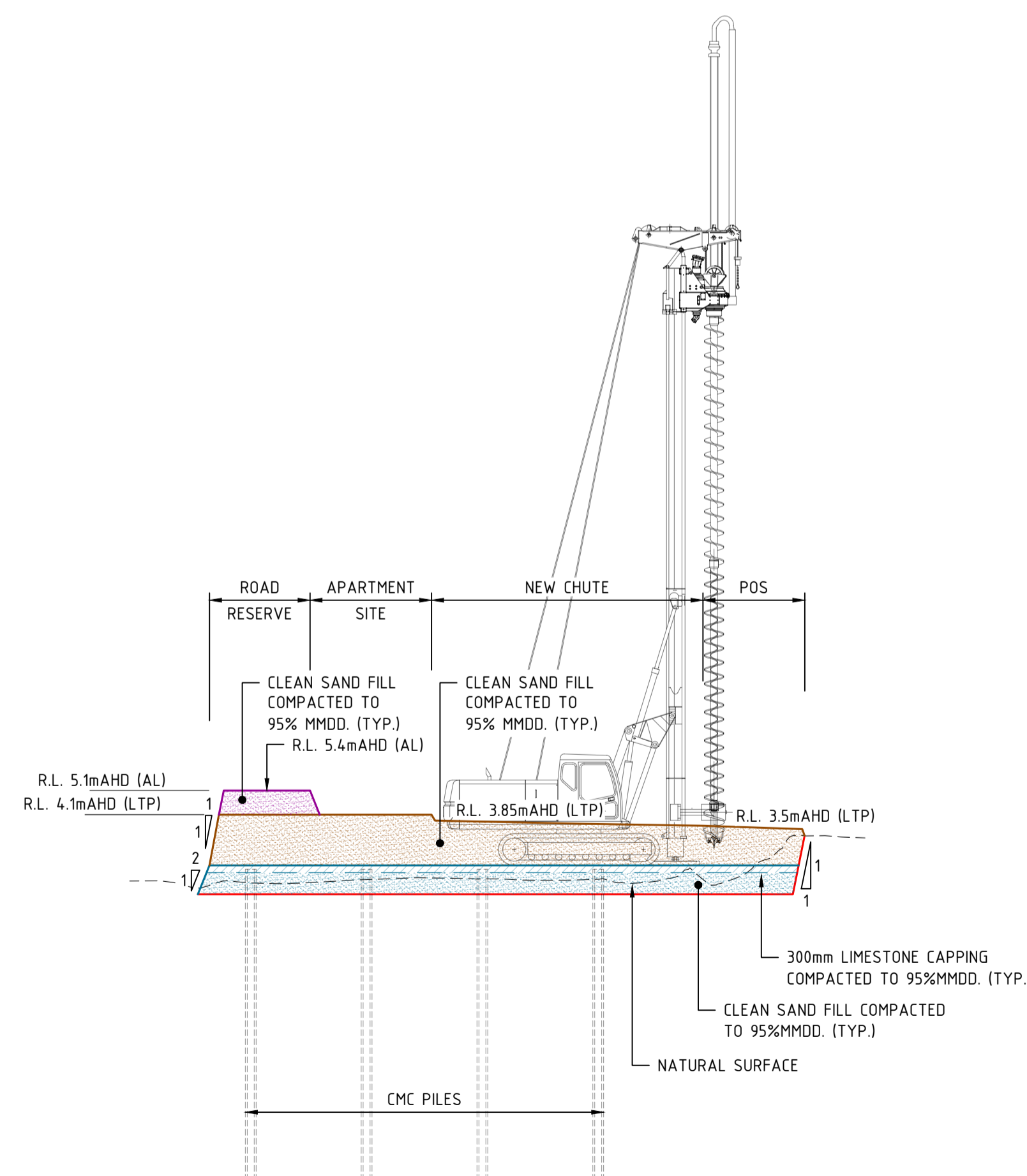
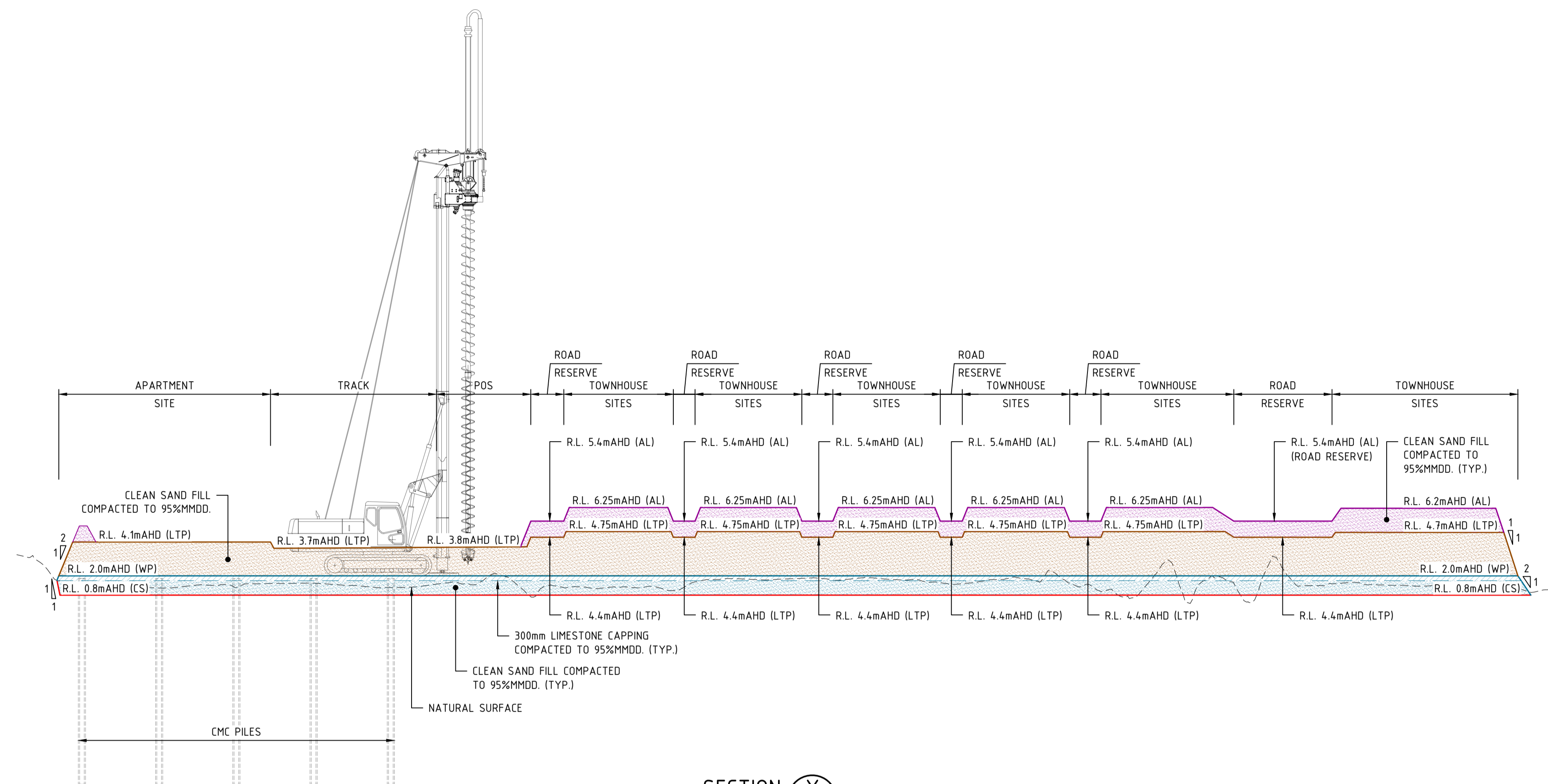
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PC21425	CI-02.01	D

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- DRAWING TO BE READ IN METERS.
- HORIZONTAL DATUM IS PERTH COASTAL GRID (PCG94).

LEGEND

- PHASE 1 - CLEARING (CS)
- PHASE 2 - WORKING/PILING PAD (WP)
- PHASE 3 - LOAD TRANSFER PLATFORM (LTP)
- PHASE 4 - ACTIVATION LAYER (AL)



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B	ISSUED FOR TENDER	MS	19.05.22

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 E: ENQUIRE@PERITASGROUP.COM.AU E: ENQUIRE@PERITASGROUP.COM.AU

CLIENT:

GG
GOLDEN GROUP

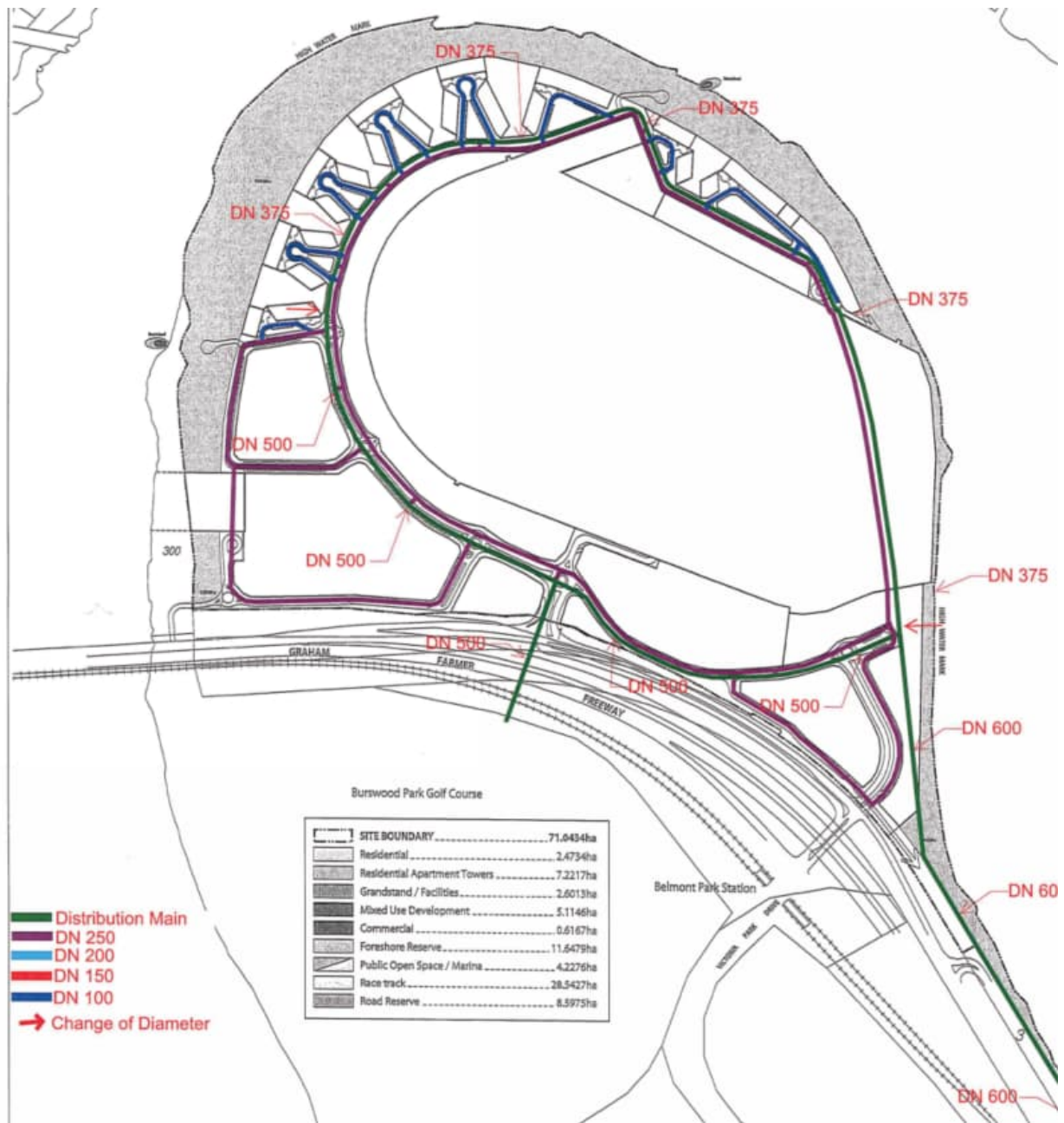
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PROJECT:
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 PRECINCT A - NORTH PARK
 FORWARD WORKS PACKAGE
 BELMONT PARK, BURSWOOD

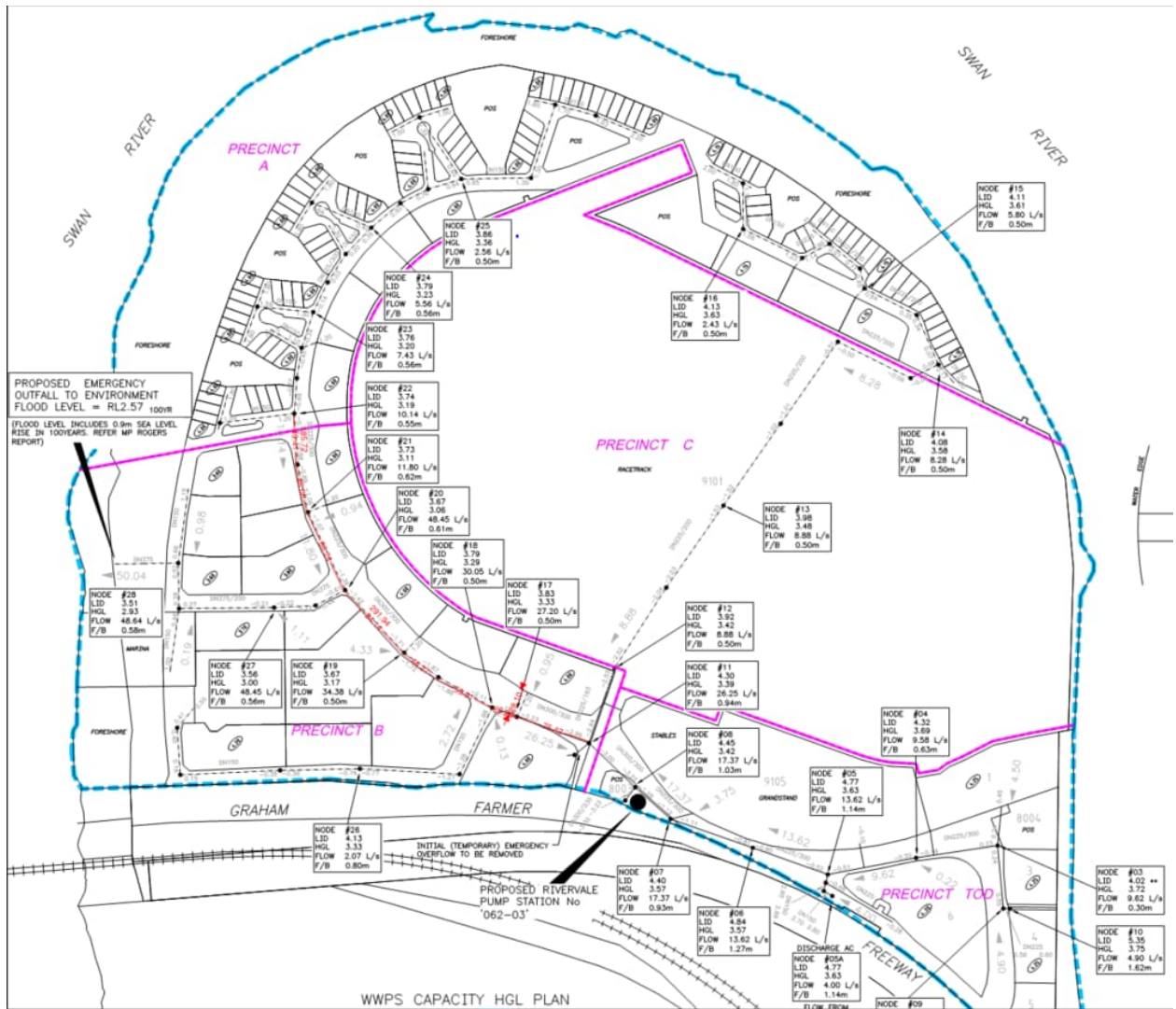
REMEDATION EARTHWORKS SECTIONS

PC21425	CI-02.20	B
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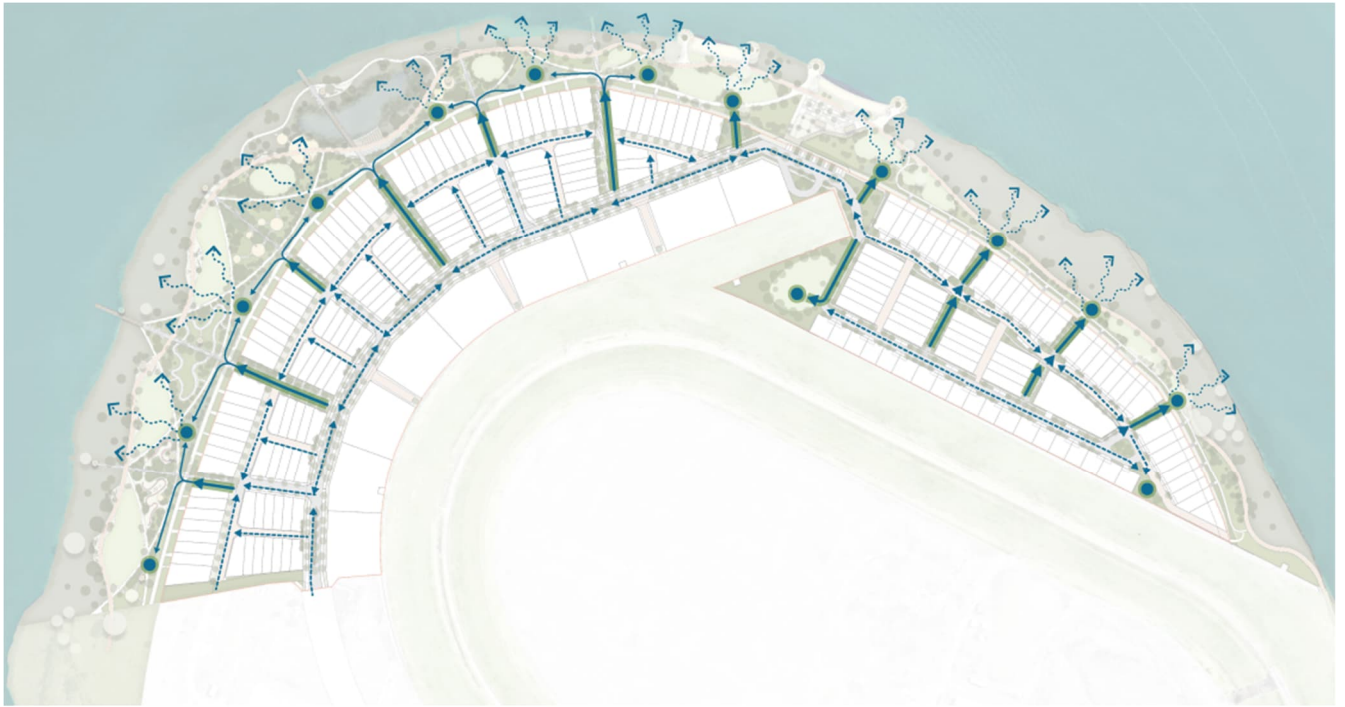
Appendix D – Proposed Water Supply Strategy Plan



Appendix E – Proposed wastewater servicing concept plan

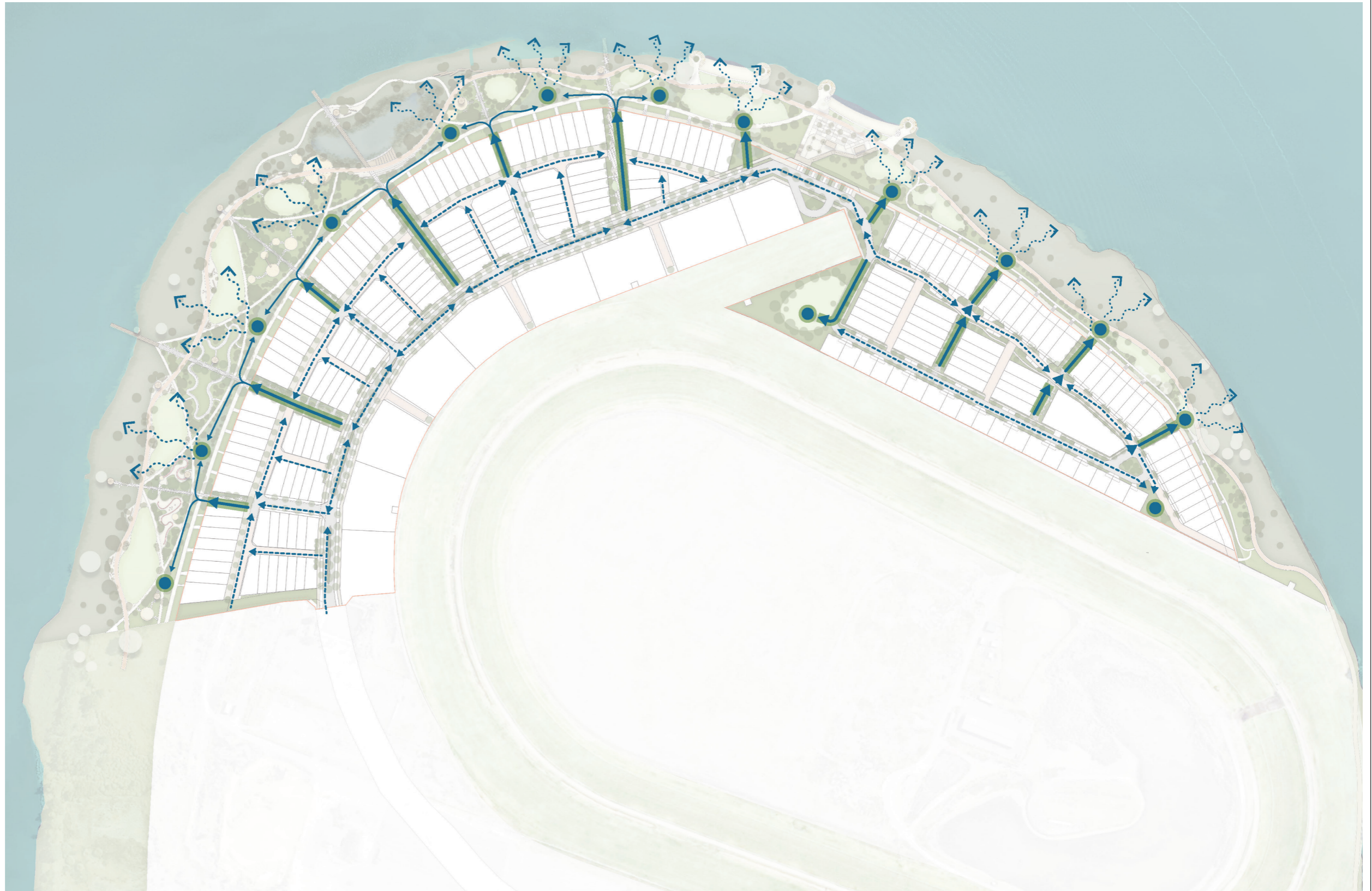


Appendix F – Proposed Stormwater Drainage Concept Plan



7. URBAN WATER MANAGEMENT STRATEGY

This diagram illustrates the strategy for accommodating and filtering stormwater, which will be collected from impermeable surfaces through the site and treated in swales before arriving into the river foreshore park.



- WATER SEEPS TOWARDS RIVER UNDERGROUND
- WATER COLLECTED IN BIORETENTION BASIN
- STORMWATER TREATED IN PARKLAND SWALE
- STORMWATER CONVEYED FROM IMPERMEABLE SURFACES

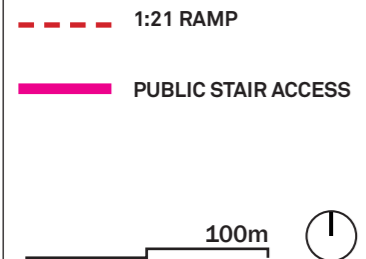
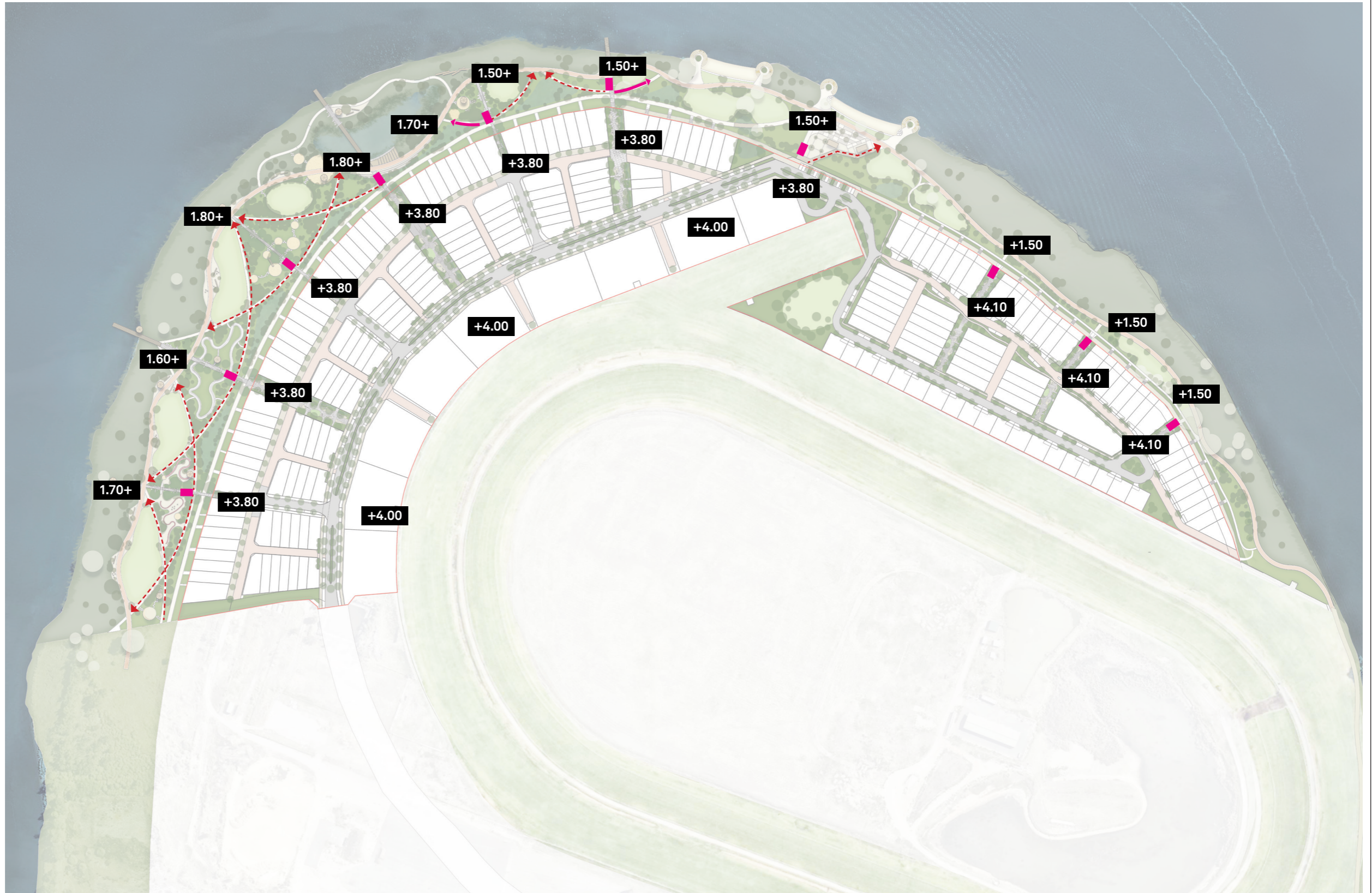
100m



3. LANDSCAPE CONCEPT

This Foreshore Levels Diagram indicates how access is provided from the level of the development site to the lower levels of the river foreshore park.

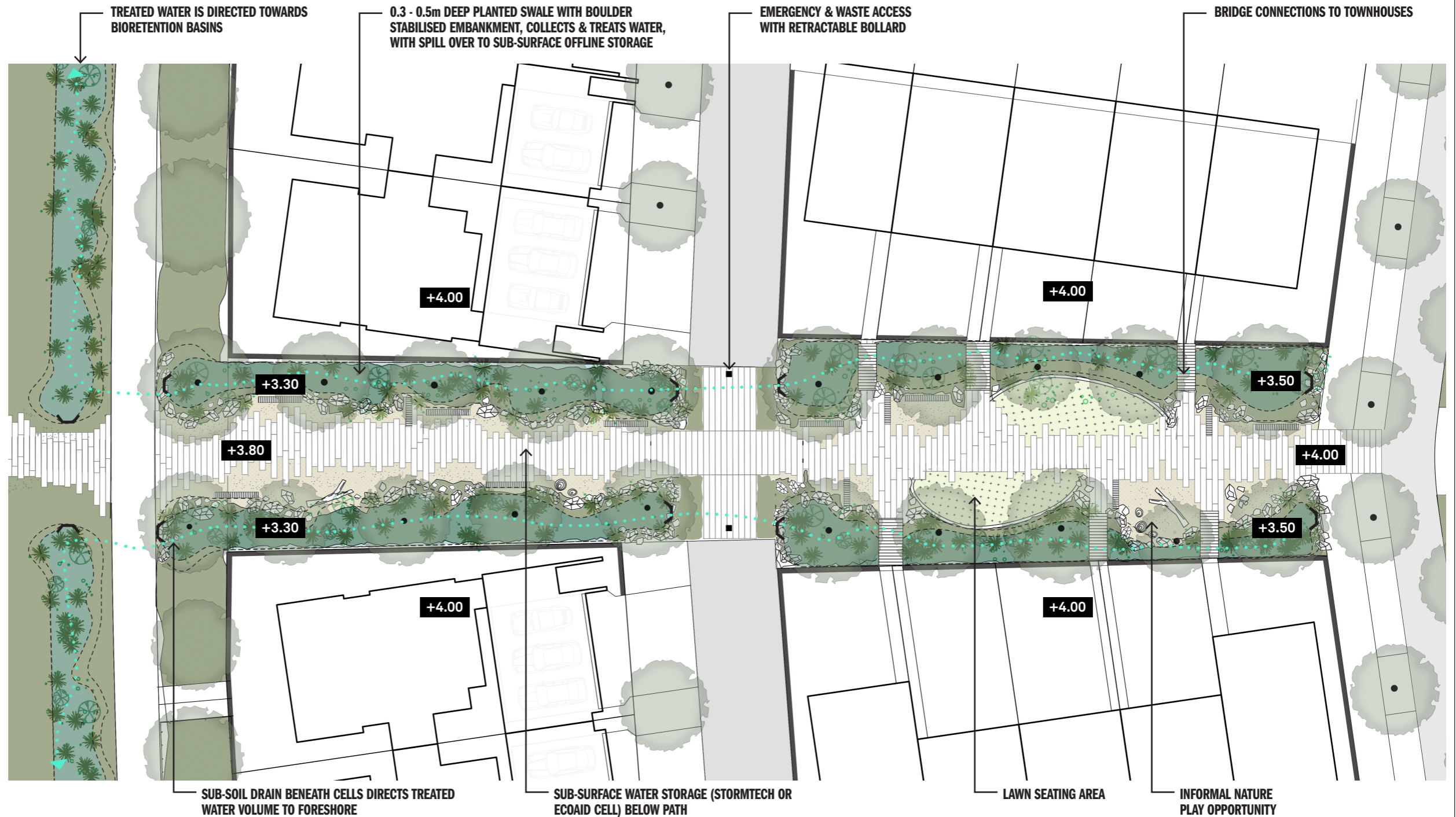
*Note all levels are approximate only



3. LANDSCAPE CONCEPT



This "green finger" park design indicates a typical treatment for the linear POS inside the development area, incorporating central path alignment, avenue of trees, play opportunities and bio-filtration swales on both sides.



10m