



CONSTRUCTION MANAGEMENT PLAN

Ridgeburn, Queenstown

McKenzie & Co

Revision C



MCKENZIE & CO.

DOCUMENT CONTROL RECORD

PROJECT: Ridgeburn, Queenstown

CLIENT: Gibbons Developments Ltd

PROJECT LOCATION: 122 Morven Ferry Road, Arrow Junction,
Queenstown

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DISCLAIMER: This methodology is for advice only and is not deemed as the sole directive for construction, methodology should hereby be detailed and adhered to by construction contractor.

Methodology to be reviewed by the contractor prior to works commencing.

The site shall be set up in such a way that access is clear, and boundary protection established with ALL health and safety measures implemented as per the approved project management & site-specific safety plan.

Prior to commencing any works onsite, the approved documentation (RC, BC, EA, EMP) and design for construction set is to be issued to the construction contractor, who shall request a prestart meeting onsite with all relative project personnel and local council.

1. Purpose

This methodology has been specifically prepared for Ridgeburn Development to provide detail of the construction sequencing and associated methodology required to manage & mitigate the effects of associated construction activities and ensure a robust sequence of activities and phases to ensure effective delivery of the project, addressing the phasing of construction of the following items:

- Bulk earthworks associated with creating and forming building platforms, shared and private accessways, and parking
- Environmental Management – Refer to Environmental Management Plan (EMP)
- Vehicle crossings & transportation
- Stormwater management and disposal
- Wastewater collection and disposal
- Potable water supply
- Utilities
- Roading & Hardstand construction
- Landscaping

2. Project Contact Details

Refer to the environmental management plan (EMP) for the site's environmental roles, responsibilities and key contact details.

Refer to the contractor's quality plan (SQP), site specific safety plan (SSSP) & site entry notice boards for contact details prior to entering the site.

3. Project Location

The subject site covers an area of approximately 212.76 ha of rural land in the Wakatipu Basin, near Arrow Junction between Queenstown and Arrowtown (Address – 122 Morven Ferry Road). Legally described as;

Lot 2 DP 601937 – 24.7256 ha (RT: 1174254);

Lot 3 DP 529201 – 2.0584 ha (RT: 857180);

Lot 5 DP 300661 and Sections 21, 23, 24, 64, 71 in Blocks VIII & IX Shotover SD – 82.6923 ha (RT: 946021);

Section 22 Block IX Shotover SD – 23.0823 ha (RT: OT406/118);

Section 23 Block IX Shotover SD – 26.5069 ha (RT: OT7D/1456);

Sections 1–2 SO 478164, Section 25 Block IX Shotover SD, Lots 3–4 DP 300661 – 45.1025 ha (RT: 946040); and

Section 1 SO 420327 – 8.5980 ha (RT: 492534).

The site is bordered by the Kawarau River to the south, Morven Hill to the west and Morven Ferry Road to the north-east.

4. Development Proposal

A full description of the Site and surrounds is provided in the application AEE.

The development scheme layout consists of approximately 1210 residential dwellings and 202 commercial units in total split into 6 phases as detailed below and shown in the masterplan (Figure 1):

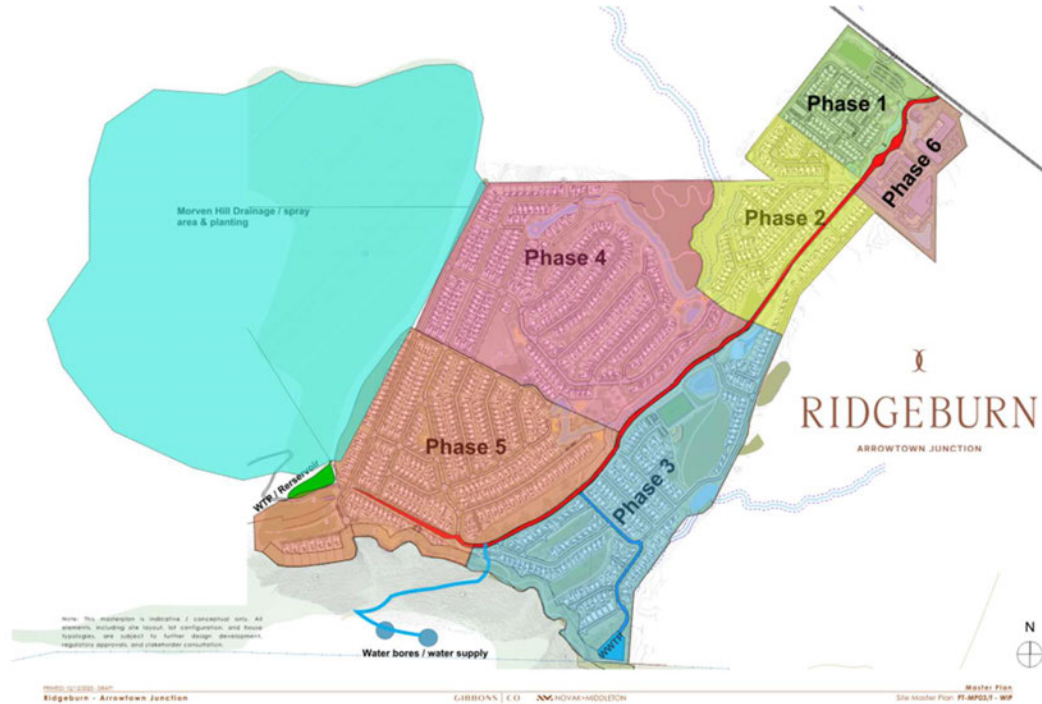


Figure 1: Ridgeburn Masterplan phases (Source: Novak + Middleton 22/01/26)

Phase 1: 180 residential dwellings

Phase 2: 141 residential dwellings

Phase 3: 213 residential dwellings

Phase 4: 336 residential dwellings

Phase 5: 337 residential dwellings

Phase 6: 202 commercial units

Other works include:

- External transportation upgrade works:
The upgrade of Morven Ferry Road and SH1 intersection, to accommodate the expected traffic from the development and provide a safe and efficient connection for all users.
- Wastewater Treatment Plant – Including disposal field:
Construction of a low-pressure wastewater system with an onsite WWTP (wastewater treatment plant) using a SBR (sequencing batch reactor) system to treat all domestic wastewater from the development. The commercial units will be equipped with their own pump chamber system with emergency storage capacity which convey WW flows

via low-pressure grinder pump network to the onsite WWTP and disposal to the land irrigation field. A technical report on the Ridgeburn Development Wastewater Disposal Options and Effects has been produced by WGA which can be found in **Appendix E**.

- **Potable Water Supply facility:**
An onsite groundwater bore take and central storage and treatment facility to service the entire site. A technical memo was produced by GWE Consulting Engineers to outline the water quality and quantity for Ridgeburn Development and the required consenting pathways which can be found in **Appendix F**.
- **Ecological Works & Considerations:** The development also includes significant landscaping and ecological works of about 60ha of native planting around Morven Hill and along the Kawarau River border.

Please refer to the construction drawings for detailed development scope.

Reference should be made to Figure 1 for the staging of the building construction, as well as the Environmental Management Plan (EMP) as well as the selected contractors construction programme for timeframes.



Figure 2: Site Location (Source: Google Earth)

5. Extent of works

Earthworks, vegetation clearance, infrastructure installation, and associated construction activities are proposed across:

- Residential terraces and development platforms (Phases 1–6)
- Morven Hill slopes and ridgeline planting areas
- Stormwater, wastewater, potable water and utilities corridors
- SH1 roundabout and Morven Ferry Road upgrade footprint
- Sediment control ponds, diversions and discharge structures
- Temporary access, laydown, and trail management areas

All works areas are shown on the Engineering Drawing Set (Appendix A).

6. Existing Infrastructure & Site Features

An existing homestead building, stone walls, a woolshed and other farm-buildings/sheds are located on the site.

The land contour predominantly consists of undulating rural farmland, with a portion of the site located on the steep slopes of Morven Hill. It has direct access to recreational networks. There are communications towers located on top of Morven Hill.

An open water race traverses through the site, which is operated by the Arrow Irrigation Company Ltd. This water races services downstream properties for irrigation purposes.

Several natural wetlands and ephemeral streams are located within the site. These are shown on Drawings 4048-0-4300 series in **Appendix A** and detailed in the ecologist's report, refer to **Appendix B**. The natural wetlands will be protected during the works, and the existing hydrology will be maintained as far as practicable.

Some constructed ponds are also present. These will be removed as part of the earthworks process.

Existing trees, fences, tracks, drainage and redundant buildings and farm equipment will all be removed or relocated where they do not support the development proposal.

There is an existing bore on site that provides potable water to the existing dwelling to be removed.

No reticulated sewer, stormwater or water for the broader area.

6.1. Transmission Tower

Based on information from Transpower, a high-voltage transmission line corridor traverses a portion of the southern part of the site, including at least one transmission tower. While the corridor is indicated on publicly available maps, the exact location and boundaries of the easement should be formally surveyed by a licensed surveyor in consultation with Transpower. Accurate identification of the corridor is essential to ensure compliance with National Grid regulations, maintain required safety clearances, and inform subdivision layout and lot design. This survey will provide certainty for building setbacks, infrastructure placement, and overall subdivision planning. Refer to Figure 3.



Figure 3: Transmission Tower/Pylon Location (Source: Transpower Website)

7. Staging/phasing and Delivery Programme

The overall development programme is anticipated to be delivered over approximately six years with construction commencing mid-2026 and progressing through the staged masterplan phases.

As part of this phasing plan for the site, there will be three major road upgrades that will be carried out on the wider transport network:

- Lake Hayes/SH6 Seagull Intersection to be completed prior to occupation of first house in Phase 1.

- Morven Ferry Road upgrade to be completed prior to occupation of first house in phase 1.
- Morven Ferry Road/SH6 Roundabout to be completed prior to occupation of first house in Phase 3.

A high-level phasing and delivery programme (Gantt-style summary) is provided in Appendix G. This programme demonstrates the relationship between:

- Enabling works and establishment of site access
- Bulk earthworks and sediment control implementation
- Civil infrastructure installation (stormwater, wastewater, potable water)
- Roading works including Morven Ferry Road upgrades and the SH1 roundabout
- Progressive built development and landscape establishment

The staging programme provides confidence that the development can be delivered within the anticipated Fast Track consent timeframes, while maintaining compliance with the EMP, CTMP, and consent conditions.

8. Traffic Management

Construction activities associated with the Ridgeburn development will generate temporary increases in heavy vehicle movements during enabling works, bulk earthworks, infrastructure construction, and building phases.

A Construction Traffic Management Plan (CTMP/TMP) will be prepared and implemented for all stages of the project to ensure the safe and efficient movement of construction traffic, minimise adverse effects on the local road network and neighbouring properties, and maintain emergency access at all times.

The CTMP/TMP will be prepared in accordance with the relevant requirements and standards of Queenstown Lakes District Council (QLDC), NZTA/Waka Kotahi, and other applicable authorities, and will be submitted to the appropriate road controlling authority for review and approval prior to the commencement of relevant works.

Construction traffic management measures will include, as a minimum:

- Clearly defined access and egress points to the site
- Temporary signage and traffic control measures (including stop/go personnel where required)
- Designated haul routes and internal construction traffic corridors
- Provision for safe turning movements and truck manoeuvring areas

- Wheel wash and mud control measures to prevent sediment tracking onto public roads
- Measures to maintain public safety where recreational trails or accessways are affected
- Temporary detours and pedestrian management where required
- Regular review and updating of traffic controls as construction staging progresses

Traffic management measures will be adapted as necessary across the various phases of construction, and tracking diagrams will be used to ensure construction traffic does not encroach on adjacent properties or unsafe areas.

7.1 Initial Construction Access and Road Upgrades (Enabling Works / Stage 1)

Initial construction access for enabling works and Stage 1 bulk earthworks will be via Morven Ferry Road, prior to establishment of the permanent internal roading network.

Before any sustained heavy construction traffic occurs, the condition and structural capacity of Morven Ferry Road (from SH1 to the site access) will be confirmed through pavement and surface investigations undertaken in consultation with Queenstown Lakes District Council (QLDC) and the relevant road controlling authorities.

Where investigations identify that strengthening, pavement rehabilitation, widening, or localised remedial works are required to safely accommodate construction traffic, these upgrades will be undertaken either prior to, or during, the early enabling works stage. Any required upgrades will apply up to the site access point, with works beyond this not anticipated.

In addition, the proposal includes external transport upgrade works comprising:

- Construction of a new roundabout connection on State Highway 1 (SH1)
- Associated intersection safety improvements
- Upgrades to Morven Ferry Road to support safe construction and long-term operational access

All external road works will be designed, approved, and delivered in accordance with the requirements of Waka Kotahi NZ Transport Agency, QLDC, and any approved Construction Traffic Management Plan (CTMP/TMP).

These works will be secured through conditions of consent and implemented prior to, or alongside, the relevant development stages to ensure safe and efficient access throughout construction.

9. Contaminated Land

Within the 122 Morven Ferry Road property, a portion of the land was identified as an unverified HAIL (Hazardous Activities and Industries List) site. HAIL is a national register of sites that may have experienced hazardous activities, such as fuel storage, chemical use, timber treatment, or industrial processes, which could result in contamination of soil or groundwater.

As a result, a Detailed Site Investigation (DSI) was carried out by Springline (**Appendix C**) which key findings are summarised as follows:

- Contamination requiring remediation or management was confirmed at all investigated HAIL areas, including the clay target shooting area, fuel storage areas, aboveground storage tank, stockyards, spray area, and livestock shed.

The report also gives recommendations whilst the detailed development plans are progressed.

10. Environmental Management Plan

Details on how to management erosion & other environmental aspects are as detailed in the environmental management plan (EMP) which follows the ORC & QLDC Erosion and Sediment Control Guidelines. The site contains multiple sensitive environmental receivers including existing streams/wetlands, existing water irrigation race and Kowarau River which along with the site featuring areas with steep gradients results in it being classified as a High-Risk site.

The EMP is a live document and is regularly monitored and reviewed throughout physical works and is updated as appropriate to best suit site conditions. The erosion and sediment control features proposed are outlined in the erosion and sediment control plan (ESCP) for this project.

The EMP covers the methodology on how to mitigate risks associated with hazardous substances/spills and dust, noise and vibration etc.

Staging of establishing, maintaining and decommissioning site and environmental controls are outlined and to be followed under the acceptance of the SQEP who will advise on proposed changes.

11. Ecological Considerations

Viridis Environmental Consultants have been engaged to conduct an ecological impact assessment (**Appendix B**) to inform the application which has identified existing ecological values and provides recommendations to avoid, remedy, or mitigate adverse effects the development may have on these values. The assessment should be referred to for protection areas and is to be discussed and understood prior to any construction onsite. Specific vegetation and wetland areas are to be marked out and isolated from effects from earthworks.

All works proposed are to be undertaken in accordance with the recommendations within the Ecological report and conditions of consent.

12. Archaeology and Cultural Heritage

The Contractor is responsible for appropriate management and protection of Cultural Heritage within and adjacent to the site to avoid any damage or adverse effects to Cultural Heritage from construction works. The works shall be undertaken, and the protection of the Cultural Heritages is to be managed in accordance with the guidelines set by Heritage New Zealand Puohere Tāonga Act, 2014 (HNZPTA).

It is required that during the daily site walkover, a visual assessment is undertaken to cover the Cultural Heritage aspects and ensure that any accidental items are found.

In the event of accidental discovery, the Environmental Representative is to inform the Site Supervisor and appropriate actions outlined in the Resource Consent Conditions and HNZPTA must be followed.

Cultural Heritage will be an ongoing topic to be confirmed subject to engagement with local iwi.

13. Existing Water Race

The existing irrigation water race will be maintained operational throughout construction until the approved diversion/piping works are implemented.

Piping of the race is proposed as an early enabling work prior to bulk earthworks, undertaken during dry-bed conditions, undertaken during dry-bed conditions, in consultation with the irrigation operator and ecologist.

The final piped alignment will be confirmed through detailed design to achieve the most direct practicable route while maintaining downstream supply and avoiding unnecessary disturbance.

Until piping is complete, appropriate setbacks, temporary protection, and monitoring will apply.

The piped alignment will be confirmed through detailed design and does not necessarily follow the existing meandering route.

14. Public Trail Management

The Twin Rivers Trail network will be maintained where practicable. Where temporary closures or diversions are required (e.g., vegetation clearance or haul road crossings), these will be implemented through:

- Temporary fencing and signage
- Alternative route provision
- Public notification procedures
- Reinstatement following completion of works

Any closures will be minimised and managed under the CTMP and consent conditions. Where safety requires, temporary closure may occur during vegetation clearance or major haul movements, subject to TMP and notification procedures.

15. Site Security

The site will be fenced accordingly to ensure the safety and security of contractors and the public from being exposed to high health and safety risks. Actual fence type and area is to be co-ordinated onsite case by case as works progress. Additionally, signage will be erected around the perimeter of the site to clearly communicate the risks associated on site.

Outside of working hours the site shall be secured overnight to mitigate trespass risks with security measures such as lighting and CCTV to be considered.

16. Prior to construction & excavations

Safety measures such as temporary retaining, benching & trench shields are proposed which are further outlined in the contractor's site-specific safety plan (SSSP). This SSSP is required to be reviewed by the project personal and approved by the relative Engineer prior to works commencing onsite.

Note: all site personnel are to be inducted on the proposed site and specific requirements & measures prior to starting any associated works.

The following procedure is to be followed as a minimum prior to site excavations.

1. B4UDIG – Initial services to be made aware, identified to contractor and any effected party or stakeholder notified of any possible risk.
2. Ground penetrating radar (GPR) – Site to be scanned across the entire extents (where applicable) to ensure any possible unknown services are identified.
3. Site survey – Any further services identified to be surveyed and issued to the designer for any final clash checks.
4. Services mark out – All known services to be marked out and made aware to all construction personal.
5. Survey control – Electronic devices installed and set up prior to excavations.
6. Hydro vac services locate – The use of a hydro vac, excavating a narrow shaft to manually check the location for mains connection shall be used prior to excavating to with heavy machinery such as an excavator.
7. Commence excavations once all services are clearly identified, risks are mitigated, and it is safe to proceed.

Note: Any temporary excavations to be fenced off and/or isolated as stated in the sites SSSP.

17. Protocol for discovery of unknown in ground services or historical features

The protocol for discovery of any unknown services & historical features shall be as follows;

1. Notify the project manager & engineer, whom will then in conjunction with the contractor advise next steps (based on the services or found or discovery).
2. Contractor to ensure site is safe and secure whilst awaiting instructions.
3. Refer to the sites EMP for discovery protocol, if applicable.
4. Council (Subdivision Inspector initially) to be notified should any damage occur to any council services.
5. Contractor to clearly mark out discovery prior to waiting formal instructions.
6. Project manager & engineer to advise in writing specific instructions on how to proceed.
7. Follow up reporting provided to any relating stakeholders.

18. Phases of excavation & construction

The EMP and phases of excavation are subject to change based on the contractor's desired programme of works. This programme of works will be made available to council, on request, for the purposes of this methodology, key timelines and hold point inspections.

The sequence of construction works will be detailed in the programme of works, following H&S requirements, project specifications, hold points and inspection as required. Notifications will be given by the contractor for each hold point phase to ensure full compliance. All relating construction parties are required to undertake a full site induction before commencing any

works in which any key or critical sequence of operation will be addressed and discussed in depth onsite.

Hold point inspections are as per the contract specification, QLDC Code of Practise, and any other specific inspections stated or requested by council's inspectors and the projects Engineer.

All hold point inspections are to be stated and included in the contractor's inspection test plan (ITP).

Please note: The below lists a guideline to be reviewed by the construction personal, once engaged, which will set the baseline for construction sequencing. This is provided as guideline which is to be worked through as further personal are procured as well as detailed design and is subject to change prior to and during construction.

18.1. Pre-Construction Phase - Preliminary works and site establishment:

1. Ensure the current EMP and associated resource consents are available onsite and complete site induction with the Environmental Consultant.
2. Undertake safety inductions and discuss construction methodologies with construction & associated personal.
3. Confirm appropriate TMP approved for works.
4. Establish site laydown and form stabilised accesses off Morven Ferry Road.
5. Establish haul roads and form with hard road aggregate. All Haul roads to be co-ordinated onsite by Civil Engineer.
6. Set out boundaries and control benchmarks and establish grid for machine control.
7. Install clean water diversion bunds (CWDB) along the north-western boundary of the site to redirect flows from Morven Hill with check dams installed where required as directed on-site by SQEP and rip rap installed at CWD end.
8. Install super silt fences around all natural water channels, ponds and wetlands and/or stabilised diversions as directed on site.
9. Install dirty water diversion bund (DWDB) along the west and south of Phase 1 boundary with drop out pits installed within DWDB prior to any pond forebay.
10. Install sediment retention ponds (SRP) as required to enable bulk earthworks with outlets to be confirmed on-site with SQEP and piped outlet to open ground to be installed with a flexi flumed outlet where required.
11. As-built controls & document.
12. Audit site, before next steps, in conjunction with Environmental Consultant, Engineer & Contractor.
13. Lizard relocation as stipulated in Ecological Assessment (**Appendix B**)
14. Implement Fish management plan as stipulated in the Ecological Assessment (**Appendix B**).

15. Undertake remaining requirements as per the Ecological Impact Assessment.
16. Conduct the necessary vegetation clearance and revegetation of native shrubland and tussock land on Morven Hill, the river escarpment and the river terrace with the clearing being outside of the bird breeding season unless a suitably qualified ecologist confirms no native birds are using it for breeding, also covering any archaeological referencing during this sequence also.
17. Contaminated soil remediation of any areas of contamination identified in the DSI and the deconstruction of existing structures on the site following the Remedial Action Plan (RAP) and Contaminated Site Management Plan (CSMP) to guide soil handling and management/disposal of contaminated material during construction.
18. Removal of pine trees present on the site.
19. Install the water race inlet at the northern boundary of the site and progressively pipe the existing water race throughout and construct the outlet to where the water race exits the site on the south-eastern boundary.
All piping of the water race to be undertaken in dry bed conditions and after implementation of the Ecological requirements.
20. Upgrade of Morven Ferry Road to meet requirements to service the proposed development.
21. Construct Wastewater Treatment plant (WWTP) at the southern boundary of the site.
22. Construct bore take, potable water treatment plant and reservoir along with the riser main conveying raw water from the bore take to the treatment plant. 3 x 18.5m dia. x 6m high cylindrical tanks with area reserved for a future tank.
23. Construction of SW/WW/WS trunk mains to service Phase 1.
24. Complete any remaining landscaping and revegetation for pre bulk earthworks.

18.2. Stage 1 – Bulk Earthworks (all lot phases 1-6):

1. Commence stripping and undertake earthworks once all hold points are met and notice is given.
2. Strip topsoil progressively placing stockpiles clear of clean and dirty water diversion bunds and compact the exposed subgrade where required.
3. Undertake excavation of internal road corridors, progressively applying a clean aggregate cap once subgrade is reached to reduce potential erosion. Progressively form DWDCs and associated drop-out pits, check dams and trafficable swales leading to the retention devices.
4. Undertake bulk cut-to-fill earthworks to form unit platforms and progressively cap with aggregate to reduce erosive potential of the surface. Locate any stockpile material in the nominated stockpile area.
5. Install any retaining features – retaining walls and reinforced earth slopes.

6. Proof roll subgrades to confirm stability which is to be inspected by geo-professional and tests to be carried out on each layer with no placement on saturated subgrade. Any soft spots are to be undercut and replaced with approved fill.
7. Complete bulk earthworks and prepare for pavement & building site foundations to the required FGLs to ensure that flood risk is mitigated with sufficient freeboard from modelled flood levels and surface water flows are conveyed as designed.
8. Complete any associated pre-vertical building works.
9. Stabilise earth worked areas as completed and replace topsoil in landscaped areas, install any planting, mulch and hydroseed as per landscape plan.
10. Decommission under the direction of the SQEP, who will advise this sequence further.

18.3. Stage 2 – Civil Infrastructure and surface stabilisation (all phases 1-6):

1. Construct the treatment and detention ponds the SW pipe network will discharge into along with the proposed dry ponds for the associated catchment relevant to the phase as detailed in the construction drawings.
2. Once the contributing catchment for the SRP has reached 80% stabilisation, this device may be decommissioned to facilitate the remaining bulk earthworks to form unit platforms and retaining walls. Apply aggregate cap to remaining unit footprints following decommissioning of SRP.
3. Install civil service pipes once bulk levels are achieved by excavating along surveyed alignment to design invert levels, inspect trench bottoms for soft spots and undercut and backfill with approved material if needed, place and compact bedding and lay pipe.
4. Install civil service pipes and pressure pumps, ensuring that the internal stormwater services are capped off to until surfaces have reached 80% stabilisation cover to prevent any sediment discharge from site.
5. CCTV lines where required and backfill and conduct compaction tests.
6. Undertake remaining works to construct road corridors placing sub-base and basecourse, installing kerb and channel and footpaths in accordance with final design. Seal & apply finished surfacing to road bases. Apply topsoil and grass seed to berms and remaining exposed banks & stabilise via direction of Engineer and/or Environmental Consultant (SQEP).
7. Commence vertical construction of dwellings/commercial units.
8. Construct any landscape features according to the approved landscape plan
9. Install & commission the connections between wastewater disposal fields and the WWTP.
10. Commence preparation for Stage 3.

18.4. Stage 3 – General Decommission Sequence Guideline (all phases 1-6);

1. Ensure site & all earthworked areas are fully stabilised where there is no longer risk of erosion or sedimentation. This includes but not limited to 80% thick grass sward for grassed areas (or approved mulch alternative) or hardfill aggregate for roads & building platforms, where dust or sedimentation is low risk of occurring.
2. Remove DWD's and stabilise associated area.
3. Remove CWD's and stabilise associated area.
4. Decommission SRP and stabilise associated area.
5. Reinstate construction entranceways where required.
6. Remove silt fences as directed by SQEP.
7. Remove sump and/or SW inlet protection measures.
8. Audit site in conjunction with Engineer & Environmental Consultant prior to dis-establishing from site.
9. Advise council of de-commissioning and advise site is safe to dis-establish, arrange site inspection if required.

18.5. Phases of Building sites & Sequence of works

Staging of the development is as shown in Figure 1. This staging plan is intended to serve as what areas will need to be 'finished' in order. This order is subject to change however, is provided for current co-ordination purposes.

The sequence of each of these phases, is to follow the above staging, also referred to as 'sequence of works', each site and associated area will be inspected by the required SQEP and notice can be given as each phase is completed and handed over the builders & later owner.

The step-by-step method of completing each phase is as described in this document and under the contractor's quality plan (CQP), inspection test plan (ITP) and the environmental management plan (EMP).

Stabilisation is different for each associated area, being compacted aggregate for building pads & hardstand areas, 80% thick grass sward for grassed areas as well as planting, mulch & biodegradable matting for landscaped areas. Each area is to be assessed case by case by the responsible SQEP whom will advise when each area is assessed as 'stabilised'.

Updates to site works and status of each phase will be provided in the monthly report to council.

Detailed programme of works can be provided to council, on request prior to commencement of construction, where detailed completion dates associated with each phase can be provided, in the interim of the formal programme of works becoming available the below is

provided for indicative starting works timeframes associated with Figure 1, and provides current estimated construction timeframes for each phase;

Phase 1: Q2 2026 or Q3 2026 – 35– 40 weeks

Phase 2: Q2 2027 or Q3 2027 – 30–35 weeks

Phase 3: Q1 2028 or Q2 2028 – 47–52 weeks

Phase 4: Q1 2029 or Q2 2029 – 70 –75 weeks

Phase 5: Q3 2030 or Q4 2030 – 70 –75 weeks

Phase 6: Q4 2031 or Q1 2032 – 45–50 weeks

Whilst earthworks timeframes are provided above, each phase is anticipated to be considered fully stabilised within a 12-month timeframe.

End dates & construction duration timeframes associated with each phase can be provided via detailed programme of works, available prior to commencement of construction works on request.

19. Groundwater control measures

If unsuitable materials found to occur on site and/or when groundwater is encountered, the Engineer shall make specific arrangements for testing, de-watering and disposal in advance of earthworks, placement of fill, installation of concrete or elements manufactured of concrete, to the satisfaction of the Local Authority Engineer. This shall include the period of de-watering required after concrete is poured.

Should subsoil water appear in trenches, it must be kept below the level of the bottom of the concrete or the joints until the concrete is thoroughly set. The Contractor shall provide and use in the work all necessary pumps, motors or other engines, pipes and every appliance necessary for this purpose. All wells or sumps are to be sunk and pumps located not to interfere with the bedding or laying/ jointing of the pipes.

All de-watering shall be undertaken in accordance with parameters established by the Geo-professional, the Engineer & the Environmental Consultant including monitoring, measurement and inspection.

Should the Contractor fail to take adequate steps to keep the subsoil water down or should the Engineer consider the methods adopted by the Contractor are endangering the foundations of sewers/wastewater, the Engineer shall direct the Contractor to adopt other methods.

Under no circumstances shall any water be allowed to drain into existing sewers/wastewater. The Contractor shall not permit any pump to discharge onto the road, and they shall provide and attach to the delivery of the pump, a flume or other connection capable of conveying the water to designated location onsite (Engineer to co-ordinate onsite). The Contractor shall also intercept all sand and silt in suspension or otherwise to prevent any deposit in or blockage of the channel, watercourse, stream or reservoir.

At certain phases of pipeline construction and at completion, high ground water levels could result in uplift due to buoyancy which exceeds the weight of the partially complete but not backfilled pipeline. The Contractor shall always take adequate precautions to ensure that no pipeline is displaced or damaged by buoyancy forces during laying or afterwards.

Where the steps protrude through the wall of manhole they shall be sealed on the outside with epoxy to ensure that ground water infiltration is not apparent.

All excess water (surface or groundwater) shall be diverted to an appropriate sediment control system before discharge from the Site. Under no circumstances shall dirty water be allowed to be discharged from site without prior approval.

Any fill or final excavation surface materials that have been allowed to become too wet or soft shall be removed and dried, stabilised or replaced. All fill surfaces shall be graded and rolled at the end of each day to prevent any ponding and erosion, where space allows, otherwise these areas can be covered via suitable waterproof covers. Prior to commencement of the day's filling operations, any previously softened material shall be removed, or the previously graded and rolled surface shall be scarified by approved plant and the material reworked to prevent formation of sub-standard, or weak layers within the fill.

20. Excavation retention measures, trenching, excavation & stockpiling

All excavations are to be undertaken in accordance with site-specific Geo-Professional recommendations, WorkSafe guidelines, approved codes of practice and measures shall be put in place to address risks of trench wall collapse, falls into excavations among other risks identified. The stacking of excavation material close to excavated faces should be avoided where this would have a de-stabilising effect on the excavation. Maximum temporary cut slope and fill slope angles shall be as recommended by the Geo-Professional recommendations.

Trenches shall be benched and areas in proximity kept free from external load or surcharge.

Stockpiles are to be placed clear of excavation and trench lines to ensure safety measures are adhered to and do not pose further erosion risk. Due to the dynamic nature of the site and associated construction activities it is proposed that this will be carefully co-ordinated onsite via the Engineer, Geo-Professional & Environmental Consultant.

Where unstable materials occur, or trench depths exceeds 1.5m, the sides of excavations shall be supported by suitable timber or trench-shore products, placed so that it does not interfere with pipe laying or other construction work.

The Contractor shall be responsible for determining appropriate trench and access pit widths and sizes to facilitate installation and for selecting appropriate trench wall protection systems. This may include the use of benching methodologies (as detailed by the Geo-Professional), steel trench shields, timber shoring and specific methodology considerations such as shortening the length of trench opened at any one time etc. The Contractor shall ensure their trenching methodology provides a safe working environment and that shields and equipment used have been designed and certified for the application. Evidence of this shall be provided on request.

The Contractor shall be responsible for determining and implementing an appropriate methodology for the prevention of falls from heights into trenches and excavations. It is expected the level of edge/fall protection will be catered to each site on a risk assessment basis. The general expectation is that appropriately sized exclusion zones (cones and light barriers) are put in place for all excavations over 1.2m in depth and that rigid barriers/gates are put in place for excavations over 2.0m in depth. Alternatives to these will be considered and evaluated in accordance with a risk assessment however the Engineer will retain the right to enforce the use of the above-suggested controls should an acceptable alternative not be presented. Please note that when the site is unattended excavations shall be covered or gated to prevent members of the public falling into the trenches.

In addition to this, the Contractor shall include in their methodology appropriate controls to comply with Confined spaces entry into trenches, excavations and structures (gas detectors, locating of plant exhaust systems etc.).

21. Deep excavations

Deep excavations are to be managed via benched trenching (1:1 minimum or as specifically detailed by the Geo-Professional) for temporary cut excavations. Any areas steeper than 1:1 must be controlled via steel trench shields for short durations and temporary sheet piling for long durations, the Geo-Professional will advise on site specific benching methods if any steeper than minimum e.g. solid rock. The use of sheet piling is to be added to the programme of works, ITP and notification given for a hold point inspection. The contractor will also provide further information on the machinery and materials to be used prior to undertaking.

The SSSP must be adhered to for any excavations left open or un-attended overnight. This includes measures such as safety fences, barriers, drop nets and or temporary backfill for any longer durations or prior to extreme weather events.

End.

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APPENDIX A – ENGINEERING DRAWINGS