APPENDIX 21

STORMWATER, WASHWATER AND WASTEWATER ASSESSMENT

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government
Te Kāwanatanga o Aotearoa

Hawthorn Geddes
engineers & architects ltd

STORMWATER AND OPERATIONAL RUNOFF MANAGEMENT & DISCHARGE ASSESSMENT FOR THE PROPOSED NORTHLAND SHIPYARD & DRYDOCK FACILITY

PREPARED FOR MBIE

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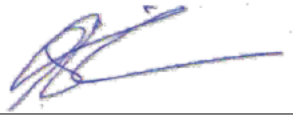

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STORMWATER AND OPERATIONAL RUNOFF MANAGEMENT & DISCHARGE ASSESSMENT REPORT

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Executive Summary

This report assesses stormwater and operational runoff management, treatment, conveyance and discharge requirements for the proposed Northland Shipyard and Drydock facility adjoining the existing Northport operation at Marsden Point. The assessment has been prepared to support approvals sought under the Fast-track Approvals Act 2024 and considers the proposed approximately 9.7 hectare reclamation footprint, its anticipated operational activities, and the ability of the existing Northport stormwater management system to receive, treat and discharge runoff from the additional catchment.

The proposed facility will comprise wharf frontage with wet berth areas, dry dock or ship lift infrastructure, vessel maintenance hardstand, workshops, storage, access and ancillary operational areas. Activities may include vessel washing, water blasting, wet blasting, sanding, painting, heavy engineering, equipment movement, fuel and lubricant handling, and general vehicle movements. These activities create a range of stormwater and operational runoff risks, including sediments, hydrocarbons, heavy metals, paint residues, blasting media, antifouling contaminants and other process-related contaminants.

The assessment concludes that standard rainfall runoff from the proposed facility can be managed through a combined treatment train comprising source controls, site-specific pre-treatment and conveyance to the existing Northport canal and stormwater treatment pond system. The Northport pond has sufficient volumetric treatment capacity for standard stormwater runoff from the expanded combined catchment, provided the additional shipyard runoff is appropriately pre-treated and managed before discharge to the Northport network.

High-risk operational runoff, particularly from vessel washing, water blasting, wet blasting, dry dock activities and other industrial processes, is not considered suitable for discharge to the stormwater system without specific containment and management. These flows should be isolated through surface grading, shut-off valves, containment, treatment and buffering, and discharged to the Whangarei District Council wastewater network under trade waste approval or to an appropriate licensed disposal facility. This approach is necessary to protect the performance of the Northport pond and maintain compliance with the relevant discharge consent limits.

Hydraulic modelling indicates that the proposed additional catchment will require adaptation of parts of the existing collection and conveyance network. In particular, the western and linking canal system will require modification, including widening and removal of flow restrictions, and the existing western spillway will require adaptation. A new western perimeter canal and an additional spillway at the northwestern extent of the proposed facility are recommended to maintain conveyance performance and manage exceedance flows during larger rainfall events.

It is recommended that consent conditions require preparation and approval of a detailed Stormwater Management, Monitoring and Maintenance Plan before construction and operation. That plan should confirm catchment delineation, drainage layout, treatment devices, discharge controls, trade waste routing, spill response, monitoring requirements, maintenance responsibilities and the measures required to avoid adverse interaction with adjacent stormwater systems. Subject to these measures, the proposed facility can be configured so that potential adverse water quality and hydraulic effects are appropriately managed.

Key Recommendations

- Utilise the existing Northport stormwater pond and discharge system as the primary receiving system for treated stormwater runoff.
- Direct all high-risk operational and process waters to the WDC wastewater network under trade waste approval.
- Implement site-wide pre-treatment measures appropriate to the contaminant risks of each operational area.
- Upgrade and extend the existing canal network and overflow structures to accommodate the additional catchment.
- Establish monitoring requirements and internal discharge quality controls equivalent to Northport discharge standards.
- Prepare and implement a detailed Stormwater Management, Monitoring and Maintenance Plan prior to construction and operation.

1. Purpose

The purpose of this report is to assess the effects associated with stormwater and operational runoff generated by the proposed Shipyard and Drydock facility and to recommend treatment and discharge solutions for these. The proposed facility and associated reclamation area directly adjoins the Northport operation adjacent to the existing western collection canal. The lack of available gradient for conventional reticulated pipework to serve the facility, in conjunction with the restrictions on available space for independent stormwater management ponds within the reclamation footprint, point to stormwater being managed collectively with Northport. Central to this assessment, this report considers the current Northport stormwater settlement and treatment pond system's capability, in terms of treatment, volumetric capacity and compliance, to receive these additional catchment sources, and what additional measures should be implemented to fully manage the treatment of runoff from the proposed facility.

2. Introduction

Hawthorn Geddes have extensive knowledge of stormwater network modelling, both for natural landforms and large-scale engineered development catchments. Hawthorn Geddes have particular experience in "zero-grade" stormwater networks, which includes the Refining NZ COC & AOC[1] stormwater networks and the Northport collection and conveyance network.

Hawthorn Geddes have been involved with the adaptation and refinement of the Northport stormwater pond, and the adjacent Marsden Maritime Holdings stormwater pond since 2002. Most recently Hawthorn Geddes prepared the stormwater treatment and performance assessment for the recent Northport Vision for Growth consent which reaffirmed the capability of the collection network and treatment basin to provide adequate stormwater runoff treatment for the actual and anticipated contaminants arising from the extended port apron. This assessment for the proposed shipyard and dry dock facility builds on and utilises the calibrated baseline model to establish suitability for collection and conveyance and discharge of the additional catchment, from both a water quality management (primary purpose) and flow capacity (hydraulic behaviour) perspective.

The assessment, while concept-based, establishes parameters and approach to collection, conveyance, treatment and discharge for the proposed facility. It adopts an assumed total contributing catchment area of approximately 9.7 hectares (divided into

[1] COC – Continuously Oil Contaminated & AOC – Accidentally Oil Contaminated

catchment activity zones), conservative imperviousness assumptions, and rainfall inputs derived from site-specific HIRDS V4 data.

3. Background

The receiving environment at Marsden Point is sensitive given its location within the coastal margin of Whangārei Harbour, with proximity to the ecologically sensitive Blacksmiths Creek intertidal estuary. Stormwater management must therefore address both contaminant control or containment, and hydraulic collection & conveyance to ensure quality, location and quantum of discharge are fully controlled.

4. Summary of Proposal

This assessment has been undertaken to support approvals sought under the Fast-track Approvals Act 2024 (FTAA) for the proposed facility. The proposal is to construct a shipyard and dry dock facility to the west of the existing Northport facility.

The proposal is to be formed on a reclamation, and includes wharf frontage for on-water repairs and maintenance as well as pre and post dry dock work (wet berths), the arrangement includes a berthing “pocket” to contain either a ship lift or floating dry dock, with land-based hardstanding vessel maintenance areas as well as ancillary buildings and facilities associated with the operation of the proposal. The proposed site is a new 9.7 hectare (approx.) reclamation west of the existing port apron, as shown in Figure A.

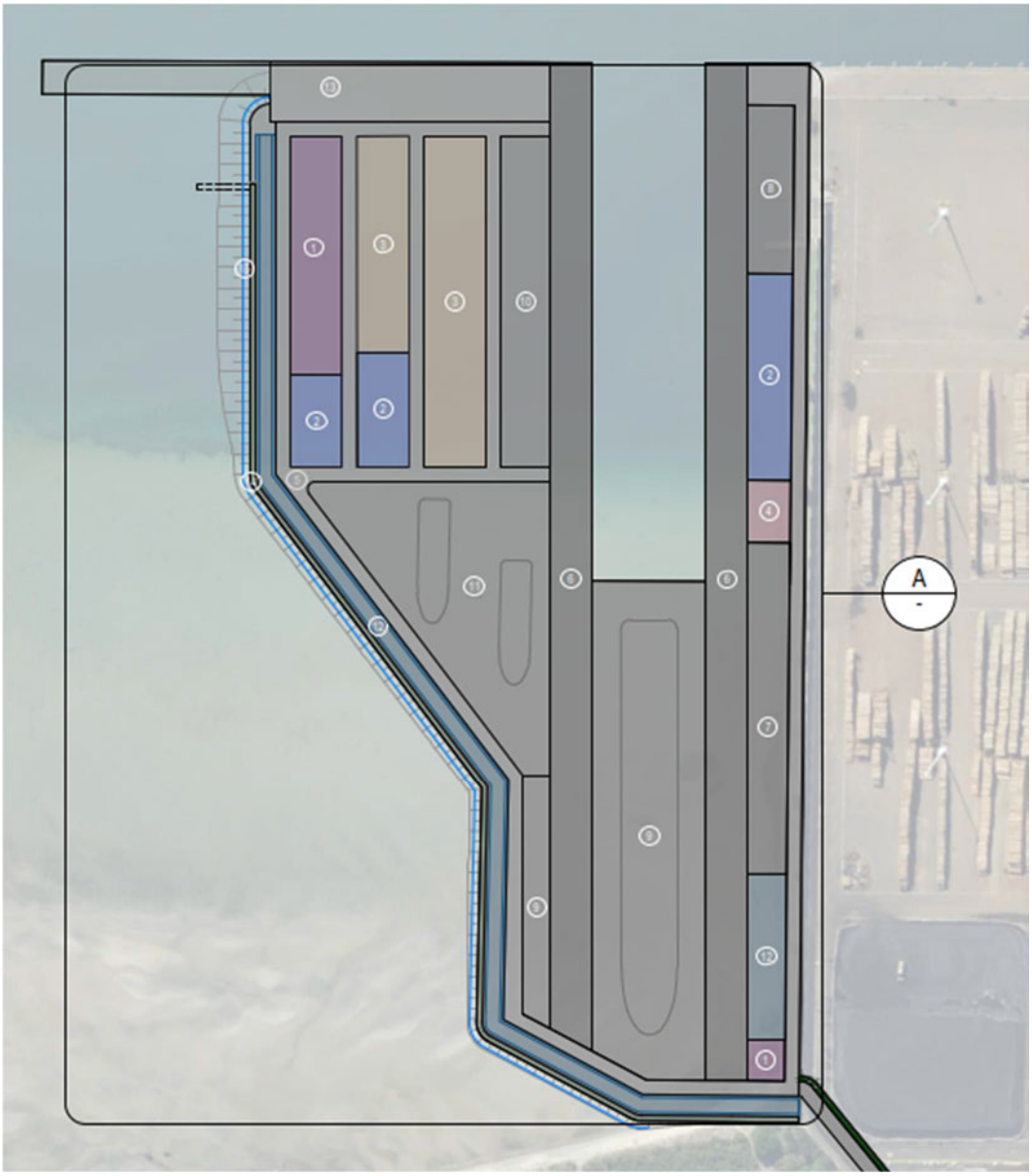


Figure A: Proposed shipyard and dry dock facility footprint (Beca 3237966-CA-K002 rev. E - 2026) – indicative NTS

Operations within this reclaimed area are anticipated to include general maintenance on small to large commercial vessels, water blast cleaning (below waterline) and high-pressure jetting / washing (above waterline)[2], heavy engineering associated with repair or modification of vessels, wet grit / sand blasting, sanding and painting (of both inert and antifouling paints / coatings). It is also anticipated that movement and storage of lubricants, fuels, solvents and paint products will also occur on the proposed site.

[2] Distinguishing waterblasting as a process with the intention of removing material ie fouling growth or ablative paints vs high pressure jetting as a washing process not specifically intended for the removal of material

Additionally, more conventional contaminants associated with general site use and vehicle movements will also generate non-point source pollution including particulates from tyre wear, general (inert) sediment, brake lining dust and vehicle sources of hydrocarbons / oils. It is not anticipated that the proposed development site will give rise to runoff with high oxygen demand associated with ground-up or degrading organic matter, or significant runoff-borne nutrients.

The contaminant sources can be divided into general operational runoff associated with rainfall and activity specific runoff, with the former proposed to be collected, pre-treated and discharged to an extension of the Northport collection canals network, while activity generated runoff (water blasting, pressure washing or wet-blasting) will be routed to containment for discharge to the Whangarei District Council (WDC) wastewater system under a trade waste license. Refer Appendix B for classification and arrangement of catchment zones. Building and structure roof runoff will also receive pre-treatment prior to discharge to the canals to ensure any airborne contaminants settling on the roofs will also be captured.

4.1 Stormwater Rainfall Runoff

Operational stormwater rainfall runoff is proposed to be captured on site, pre-treated and routed to, and will rely on, the existing conveyance, further volumetric treatment and discharge facilities in place and consented for Northport. Some expansion and modification to the collection and conveyance network to the Northport basin will be required to capture and transport stormwater from the approximate additional 9.7ha of impervious catchment. There is no need to adapt the pumped discharge settings for the primary buffering basin (the Northport pond), to maintain water quality volume standards for the ultimate discharge to the receiving environment (CMA).

The construction of the proposed facility will also drive a need to further adapt and expand the western network overflow (Spillway 1) beyond the adaptations established as required under the latest Northport consent [Environment Court Decision [2025] NZEnvC 322], refer Appendix 31 of the Substantive Application, and will also necessitate an additional overflow (Spillway 2) at the western extent of the proposed facility area. Refer Appendix B, drawing 13519-C02.

The collective catchment of the facility increases the areal load on the Northport pond and its associated treatment and discharge regimes by an additional 9.7ha (approximately 15%).

4.2 Operational Activity Runoff

Significant areas of the proposed reclamation are designated as “hardstand” working areas, which will potentially generate operational “wash water” associated with cleaning of vessels, both below the waterline (fouling zones) and above. Within these areas it is proposed to have active wash water collection and discharge system, where during wash / cleaning phases on vessel, and immediately subsequently (to clean

down the area), runoff will be contained and discharged to the Whangarei District Council wastewater network (subject to capacity constraints). Conversely, outside of high pressure cleaning / water blasting phases, or other phases with high contaminant risk such as spray-painting, runoff from these areas will be captured and treated before discharge to the Northport stormwater system.

5. Discharge to WDC wastewater network

Aspects of operational activity runoff from a ship maintenance facility have the potential to contain substantial concentrations of suspended solids, hydrocarbons, heavy metals, paint residues, coating particles, detergents & degreasers, process-related contaminants, and debris. Mechanisms to isolate and safeguard the functional performance of the Northport pond from excessive concentrations or extraordinary contaminants are required for these discharges and will rely on collection and discharge to the WDC wastewater system under trade waste approvals.

The WDC wastewater system in the Ruakaka area is undergoing capacity enhancement for both the treatment and disposal of treated wastewater, with the current phase anticipated to be complete by 2030. This expansion is expected to yield an additional wastewater treatment capacity volume in the order of 6,000m^3/day, with further capacity enhancements through to 2085 increasing the current capacity by 10,000m^3/day. Actual discharge rates to the wastewater network may be limited by local reticulation capacity (temporal or consistent) which may necessitate attenuated discharge of operational activity runoff, particularly if wash operations are undertaken concurrently with rainfall events.

It is likely that the development timing for this facility will align with the 2030 capacity provision in the WDC wastewater network.

Discharge from these catchments during rainfall periods, when operational processes are not being undertaken, will revert to discharge to the collection canals following pre-treatment. The principal pathways of concern are discharge to the existing Northport canal network and treatment pond, discharge to downstream outlet infrastructure, or direct discharge to the Coastal Marine Area.

6. Existing Northport Stormwater Discharge Consent

Resource consents for eastward expansion of Northport were granted in 2025. The consents authorise the port arrangement and extent, including its stormwater collection, treatment and discharge of stormwater runoff from the Northport facility, is considered as the baseline for the assessment undertaken herein for the ship repair facility (SRF) proposed shipyard and drydock facility (the ‘proposal’ or ‘proposed facility’)[3].

[3] The Northport expansion consent (2025) has been considered as the baseline “existing environment” since the discharge conditions (contaminant loads) within that consent have a tighter level of control

Figure B: Currently consented Northport apron extents (green shade not yet constructed)

The existing Northport stormwater system is based on a perimeter canal and treatment pond arrangement that serves operational runoff from the port apron. Runoff is collected from hardstand and apron areas via local reticulation and surface flow paths and is conveyed into a canal system around the landward perimeter of the port. Those canals route flows toward a dedicated stormwater treatment pond, where an inlet control weir manages discharge into the forebay and main pond areas. The system has historically been relied upon to effectively provide both runoff conveyance and stormwater quality treatment for port operations.

The collection & conveyance canal network has not been constructed with any measurable gradient within them (top end to pond entry), and relies entirely on induced hydraulic gradient. This has the benefit of maintaining low velocities which encourage sediment deposition, limiting re-suspension opportunity and allowing the induced hydraulic gradient to improve functionality of the overflow spillways at locations significantly distanced from the main Northport pond (where large event overflows cannot be readily accommodated).

Figure C: Typical Northport collection and conveyance canal. Note runoff from the port apron is for the most part direct discharge as lateral sheet flow.

Within the treatment pond, flows pass through a staged settlement process before discharge to the harbour. The pond includes forebay and baffled treatment elements, a central bund separating the pond into two “basins”, and a pumped outlet arrangement from the second basin to the gravity discharge line. The system also includes overflow and exceedance mechanisms, including the pond overflow structure and a western canal spillway, which together provide hydraulic relief during larger rainfall events when pond levels or hydraulic controls limit conveyance through the primary treatment and discharge pathway.

Downstream of the pond, within the reticulated discharge route, the Northport discharge combines with discharge from the adjacent Marsden Maritime Holdings (MMH) treatment system before entering the shared outfall to Whangarei Harbour (primary flows) or to Blacksmith Creek (large event overflows). The MMH basin and discharges are consented independently of the Northport facility despite sharing a combined outfall (NRC CON20081072304) The consent conditions for the MMH industrial land discharges differ from the 2025 Northport consent, hence the Northport discharge monitoring point being prior to the combination of flows in the discharge reticulation.

Figure D: Northport pond overflow inlet

Figure E: Northport treatment pond inlet weir from the canal system elevated water level condition – view N approx.

Figure F: Northport treatment pond with forebay baffles – view SSW approx.

Figure G: Northport treatment pond inlet weir at low water level – view SSE approx.

For the recently consented Northport expansion, the drainage framework assessed was an extension of that same established canal-and-pond system. In broad terms, that involved extending the perimeter canal network to serve the additional apron areas to the east, directing runoff back into the existing treatment pond system, and providing for an additional eastern high-flow spillway mechanism to complement the

existing western spillway, as dictated by hydraulic grade and flow exceedance performance beyond the water quality rain event depth and smaller scale rainfall (~10yr ARI).

The design and consented approach also contemplated retention of the existing pond-based treatment approach, with additional dead storage and related hydraulic controls within the network where necessary to maintain treatment performance and system capacity. Such performance and discharge quality was considered independent of the MMH discharges because the pumped status for the Northport pond effectively isolates the hydraulic performance between the two discharges despite the shared outlet

This description of the existing stormwater network and how stormwater generated by neighbouring sites / catchments is transported and treated, as well as the existing consents, is relevant to the proposed application because they share a discharge into the receiving environment for the events relevant to water quality assessment. The proposed facility and contributory area assessment has been undertaken by reference to the Northport system using a calibrated model (in terms of conveyance, assimilation and discharge). Critically, it contains discharge specific analytes and thresholds that are measured before mixing, either with discharges from the MMH land or in the mixing zone of the CMA.

The relevant consents from a stormwater perspective are:

- Northport consent (Environment Court Decision [2025] NZEnvC 322)
- Marsden Maritime Holdings discharge consent (NRC CON20081072304)
- WDC Blacksmith Creek and Marsden Point Catchment Consent (NRC CON20051353701)

The baseline hydrologic performance of the pond has not undergone further calibration since, at this time, the Northport expansion consent has not been given effect to, and the calibration undertaken for that expansion consent remains valid. The baseline performance therefore remains as calibrated for the Northport expansion consent application (granted in 2025), and this has been relied upon for this assessment of effects for the proposed shipyard and drydock facility.

A site visit undertaken on 17 April 2026 of the proposal area and the adjacent Northport/MMH treatment ponds and canal confirmed that despite the immediate proximity of both basins, other than the intended location of combining of flows from the Northport pond discharge and the MMH industrial land basin, there is no crossover between the two basins (operating under differing discharge consent conditions and potentially with differing contaminant load / treatment approaches). Until the discharge flows from the two basins combine within the discharge reticulation, they maintain independent storage and facilities for independent overflows (MMH basin overflows direct to Blacksmiths Creek).

Figure H: MMH Industrial treatment pond overflow and reach to pond outlet (arrowed) with Northport pond inlet canal on LHS

The adjacent Marsden Maritime Holdings system is also relevant because of the shared downstream discharge arrangement and the need to avoid adverse hydraulic interaction between the two systems for flows where the respective pond discharges are at their maximum (noting controlled network overflows within the Northport collection system and proposed as part of the shipyard facility construction & operation).

7. Network Performance Assessment

The existing Northport collection and conveyance system relies on hydraulic gradient to function. The existing perimeter canals, including those facilitate by the recent Northport consent, are constructed without conventional fall, and instead rely on induced hydraulic gradient within an enlarged conveyance canal which is proven to be effective and efficient for small scale rainfall events (ie water quality rainfall) and induces managed overflows for larger events at the upstream limits in proximity to the CMA. A further benefit to this drainage approach is that it allows for a broadly consistent channel profile to be employed throughout and maintains relatively low transfer velocities. This in turn facilitates sediment deposition within the channels and minimises opportunity for resuspension by flows.

The existing network operates adequately for the current condition and expanded Northport footprint. The critical flows (water quality treatment TP108 rainfall 1/3 of 2year ARI) are conveyed fully to the stormwater pond, as are the 5yr & 10yr ARI events

using a less aggressive Type 1A 24hr rainfall profile.[4] The preliminary modelling indicates that with the addition of the catchment from the proposed facility to the existing Northport conveyance system its capability becomes constrained. The pond however, operating under the principles of the current discharge consent, is not.

The existing western canal system operates with limited freeboard during larger storm events, is sensitive to downstream control from the 1200 mm culvert located immediately prior to the junction with the eastern canal (Culvert 1 in Appendix A & Figure L below), and relies on the overflow spillway at its northern end in rainfall events in the order of 10 year ARI. The additional runoff from the proposed facility catchment exacerbates this to the extent that the culvert will present a constraint to flow for the water quality rainfall event (1/3 2yr ARI TP108) causing spillway overflows direct to the harbour for that event. The modelling also indicates that the existing canal at the southern extent of the proposed shipyard footprint, linking through to the treatment pond, is also a constraint to flow at its current size and will require modification (widening) through to the pond to allow hydraulic grade to be maintained around the new western perimeter of the facility.

The modelling also indicates that while the pond outlet infrastructure (reticulation between the respective stormwater ponds and the outlet diffuser) has some capacity during minor rainfall, both the 825mm pipe (Northport) and 1200mm pipe (MMH) are operating under barrel control condition[5] for most rainfall events which limit the practical feasibility of direct piped discharge connection options from the shipyard facility (ie bypassing the Northport pond). Furthermore, a direct connection to discharge at or immediately upstream of the diffuser beneath the wharf would limit opportunity for discharge monitoring or control, a circumstance readily provided by routing through the Northport pond. Direct discharge is therefore not considered further.

The modelling also identifies a potential secondary overflow interaction toward the adjacent MMH system under elevated pond levels, which should be avoided through detailed design.

[4] The TP108 rainfall profile is used for TP10 water quality analysis but as larger scale rainfall events are considered it presents an unrealistic peak intensity. For conveyance analysis a Type 1A rainstorm profile is used such that while the same depth of rainfall is accommodated, the peak rainfall intensities are approximately 36% of those represented by TP108.

[5] Barrel control where the frictional losses of the pipe running under gravity flow conditions (ie not forced / pressure) limit the capacity of the pipe. The alternate flow control conditions being inlet control (where the losses at the entry to the system dictate flow) or outlet control (where the tailwater level dictates the limiting flow)

8. Rainfall Runoff Treatment

The preliminary question to be answered is whether treatment is to be provided within the proposed facility footprint, within the existing Northport treatment pond with modification, or through a combined treatment train. That issue has implications for both hydraulic performance and compliance with the existing Northport consent, particularly as the existing treatment system has been assessed against current port activities, and associated contaminant loads / risk, rather than the potentially different contaminant loading profile associated with the proposal.

The contaminant risk profile for the non-industrial areas of the proposal (ie not proposed to be trade waste connected) is expected to be the same or lower than that associated with the existing and consented extensions to the Northport facility, given the absence of cargo handling and bulk stored goods (including logs). Refer to Appendix B for their arrangement.

The original treatment design for the Northport pond was based on Auckland TP10[6] (now replaced by GD01)[7]. Since the pond was meeting the water quality requirements of the original consent it was appropriate to extend that design basis through the new Northport consent. From there, for non-industrial process area risk, noting the prior commentary on the shipyard land use, it has been carried forward that this continues to be the appropriate assessment and treatment methodology.

The original Northport discharge consent conditions are more stringent than the thresholds set out in the Regional Plan for Northland. The new Northport expansion consent (2025) tightens the criteria further. The new Northport consent required the sampling / monitoring location for analytes to be within the discharge network without the benefit of receiving environment mixing (removal of significant dilution). The monitoring therefore provides results data that both demonstrates *actual* treatment performance for the pond at discharge and, critically, provides for opportunity to intervene (by switching off the discharge pumps) should a contaminant risk event or spill occur in the port (or shipyard in the future).

8.1 Water Quality Volume

Considering the expanded footprint, including the full extent of the consented Northport expansion and both the standard and high-risk catchments of the shipyard (operating in rainfall runoff configuration), the total catchment area is 77.0ha. In accordance with the principles of Auckland TP10 the water quality volume (WQV) for the full development catchment area is 21,200m³ based on 1/3 of 2yr ARI rainfall. 50%

[6] Stormwater Management Devices: Design Guidance Manual.

[7] Stormwater Management Devices in the Auckland Region.

of this can be provided as dead storage, with the balance within an “extended detention” (ED) volume.

Survey information indicates that the available dead storage in the first half of the pond, below the level of the central bund at 3.75m CD, is 12,320m³. The dead storage available in the second half of the pond, below the pump off level of 3.10m CD, is 5,430m³. Therefore, the total dead storage currently available within the existing pond is 17,750m³. An adjustment of the “pump off” level upwards by 135mm (to 3.235m CD) will provide 100% of the WQV within the pond.

Alternatively, if we consider inclusion of the extended detention approach, providing 50% WQV as “live” storage, the existing arrangement exceeds the provision of 50% WQV for the proposed total catchment area. The extended detention volume is defined as 34.5mm of runoff released over a 24hour period. For the full catchment (Northport and shipyard) this equates to some 25,000m³ released at an average rate of 290l/sec. The pump station providing the primary discharge from the Northport pond operates on a duty-assist basis, with discharge at a single pump rate of 290m³/hr and combined discharge at a rate of 490m³/hr (80.5l/sec and 136l/sec respectively). This is substantially less than the maximum permitted under the principles of ED and on that basis 50% of the WQV need only be provided as dead storage, with the balance as “live” WQV, being 10,550m³.

Figure I: Southern portion of Northport pond with pump station (arrowed) – looking E

The loss of potential volumetric buffering capacity associated with the former approach (if selected by Northport for operational reasons) in terms of overall hydrologic performance is minor, with modelling indicating that within the bounds of the rainfall event return characteristics there is no substantive shift in event probability for the network canal spillways operating, which remain in the order of 10yr ARI for the current climate.

8.2 Contaminant "Profiling"

For performance of the Northport pond in terms of treatment we have relied on its historic performance and compliance record. While it is acknowledged that some of the potential contaminants arising from the port apron are particular to the port and its bulk cargo operations (eg degraded wood fibre and associated sediment, high aluminium from coal stockpiles, etc), for the most part the nature of operations can be considered to be aligned with the shipyard. Within the port footprint general operation of heavy plant and machinery is ongoing with all associated contaminant risks being the same as for the shipyard. Similarly heavy engineering (repairs to plant, storage bookends, etc) also occurs in the port, albeit at a lesser scale than for the shipyard.

Elements of site activity that differ substantially from port operations are the industrial processes associated with large vessels (washing, blasting and large-scale spray

painting) which have potential to generate air and / or waterborne contaminants in elevated concentrations where they would be beyond the scope of the existing treatment approach. It has been confirmed that flows arising from these, and similar industrial operations will be contained and discharged to trade waste (WDC wastewater network). Similarly, vessel discharge water (bilge washing, tank flushing, etc) will be fully contained and discharged to the wastewater network or (where appropriate) transported to a specialist disposal facility.

8.3 Treatment Approach

The collection, conveyance, treatment and ultimate discharge has therefore been assessed against the specific operational scenarios anticipated for each catchment / activity zone. In all catchments, irrespective of operational status, and including building roofs which may be subject to airborne contaminant deposition, the catchment areas will be subject to pre-treatment prior to discharge. These catchment zones along with anticipated activities / contaminant types (not analytes), and pre-treatment approach are set out in Table 1 below:

Area ID	Description	Area (m^2)	Anticipated Contaminants	Pre-Treatment Type	Shutoff Valve / Trade Waste Connection
1	Administration (Building)	3,250	Airborne deposition: Guano Paint Dust (blasting / sanding) Overspray particulates	GPT eg SW360 VortCapture	N
2	Warehousing / Storage (Building)	4,650	Airborne deposition: Guano Paint Dust (blasting / sanding) Overspray particulates	GPT eg SW360 VortCapture	N
3	Workshops (Building)	7,500	Airborne deposition: Guano Paint Dust (blasting / sanding) Overspray particulates	GPT eg SW360 VortCapture	N
4	Utilities (Yard or Hardstanding)	600	Hydrocarbons (transformers) Dust and particulates	Hydrodynamic Separator eg SW360 Cascade Separator	Y No Trade Waste
5	Roads - Primary Access & Internal (Roadway)	13,500	Hydrocarbons Heavy metals from brakes dust / tyres Particulates	Hydrodynamic Separator and / or Enviropod	N
6	Crane Corridors (Hardstanding)	19,250	Hydrocarbons Heavy metals from brakes dust / tyres Particulates (paint / blasting)	Hydrodynamic Separator (if isolated from work area) or Filtration eg Stormfilter (if combined)	Y Trade Waste if not isolated from ship hardstanding
7	Transfer Bogey Storage (Yard / Hardstanding)	3,150	Hydrocarbons Heavy metals from brakes dust / tyres Particulates	Hydrodynamic Separator eg SW360 Vortechs	N
8	Dock Block & Cradle Storage (Yard or Hardstanding)	1,800	Timber leachates Particulates (metals & paints)	Hydrodynamic Separator eg SW360 Vortechs	N

9	Maintenance Yard or Hardstanding	14,600	Operational particulates including paint (inert or active[8])	Filtration with activated carbon media eg SW360 Stormfilter	Y Trade Waste Connected
10	Side Slip Vessel Transfer Area and Laydown Hardstand	3,800	Operational particulates including paint (inert or active[9])	Filtration with activated carbon media eg SW360 Stormfilter	Y Trade Waste Connected
11	Small Vessel Work Area (Yard or Hardstanding)	9,450	Operational particulates including paint (inert or active) Hydrocarbons Sanding Dust	Filtration with activated carbon media eg SW360 Stormfilter	Y Trade Waste Connected
12	Environmental Controls (Yard or Hardstanding)	1,450	Particulates	Hydrodynamic Separator eg SW360 Vortechs	N
13	Wet Berth Laydown Area (Hardstanding)	5,600	Operational particulates including paint (inert or active) Hydrocarbons	Filtration with activated carbon media eg SW360 Stormfilter	Y Trade Waste Connected
14	Public Access Route (Roadway)	1,700	Sediment Particulates Guano	None	N
15	Stormwater Canals	6,250	Guano	None	N
16	Dry Dock pumped discharge	13,750	Operational particulates including paint (inert or active) Hydrocarbons	Filtration with activated carbon media eg SW360 Stormfilter	Y Trade Waste Connected
	SW Treatment Area Total (excl.14,15 & 16)	**88,600**			

Table 1: Catchment Activity Zones and pre-treatment approaches

Refer to drawing 13519-C01 in Appendix B for the anticipated arrangement and extents of the various activity catchment zones. The total of these areas has been considered in terms of conveyance, treatment and discharge under rainfall runoff conditions.

The differential between the water surface elevation in the collection canals (for the water quality rainfall event) at 4.2m CD, and the nominal apron elevation within the shipyard (5.0m CD) is such that the specific collection mechanisms within each activity catchment zone will need to be designed as shallow as practicable. Each discharge point to the collection canals will be installed with low-loss non-return controls (eg Wastops) to prevent high-flow events in the canals, or other circumstance giving rise

[8] Inert paint particulates are considered to be epoxies, polyurethanes and other marine coatings generally used above the waterline or as base layer below the waterline. Active paint particulates are considered to be antifouling paints operating with biocide or ablative growth control mechanisms.

[9] Inert paint particulates are considered to be epoxies, polyurethanes and other marine coatings generally used above the waterline or as base layer below the waterline. Active paint particulates are considered to be antifouling paints operating with biocide or ablative growth control mechanisms.

to elevated water level, back-flooding the treatment devices. The available vertical separation would be improved with an increase in the shipyard apron level.

8.4 Industrial Operation Runoff & Trade Waste

Notwithstanding the performance characteristics outlined above, it is recognised that a proportion of the facilities catchments contain operational activities with significantly elevated contaminant load. The most severe of these is considered to be water blasting (especially below the vessel waterline) and high-pressure jetting of vessels[10] when the vessel are dry-docked or ashore. These activities, which in addition to oils and grease and other petroleum products in the wash water, have potential to include soluble heavy metals (copper, tin, zinc) and other, less specific herbicide products (associated with marine antifouling) as well as other commercial coating products whether in solution or suspension. These contaminants fall outside the effective performance of the Northport treatment process (TP10 approach) and will almost certainly lead to a failure to meet the discharge conditions of the existing Northport consent.

A staged approach to management and treatment is therefore proposed to these areas. This is to include surface grading that provides for the impounding of runoff flows internally using pavement levels / gradients and associated watersheds. These are indicatively shown in Appendix B drawing 13519-C02. This prevents natural runoff to the collection stormwater canals directly and ensure the relevant operational control processes are maintained.

When these areas are not in use, or there are no high-risk activities being undertaken in these areas, rainfall runoff is proposed to be collected via surface channel drains, amalgamated at sump manholes (to collect large / heavy particulates) and routed through proprietary treatment filter devices prior to valved discharge to the collection canals. When in use with high contaminant risk activities (water blasting, etc), the discharge to the stormwater canals is to be shut off (either manually or via an electronic control system linked to the activity) and routed through the stormwater treatment device(s) to a pump station into a buffering / dosing tank prior to discharge to the WDC wastewater network under a trade waste discharge consent.

8.5 Trade Waste Discharge & Buffering

While Whangarei District Council have indicated that by 2030 they anticipate having sufficient capacity in their Ruakaka wastewater treatment plant and associated discharge (whether land or ocean outfall), the conveyance capacity in the network will

[10] Distinguishing waterblasting as a process with the intention of removing material ie fouling growth or ablative paints vs high pressure jetting as a washing process not specifically intended for the removal of material

likely remain restrictive. An approximate estimate of water blasting wash water flow rates, in addition to ablution facility flows, is likely to average over 1 l/sec, while the pumped discharge connection may result in periodic discharge flows from the shipyard in the order of 5-10 l/sec, which in-itself may be a flow rate problematic to the receiving network (or provide undue constraint on other development connection).

Where the specific elements of contaminants are unknown, buffering storage provides an opportunity to sample, test and treat specifically prior to discharge. For example, one common mechanism to address soluble heavy metals is coagulation and adsorption or dosing with hydrogen peroxide (also effective against residual herbicides). The buffering tank would provide a suitably contained and controlled environment under which to apply contaminant specific flocculants, allow settlement prior to discharge to the public wastewater network.

Operational management of these industrial high contaminant concentration areas will therefore include mechanisms to ensure that operational process runoff will not enter the stormwater system. The arrangement proposed provides for multiple opportunities for interception and intervention to prevent contaminated water discharging to the harbour. The proposed mechanisms include:

- Process driven SoP's for the shipyard;
- Pre-screening of industrial operation areas;
- High standard treatment / filtration of operational runoff;
- Valved discharge to containment and trade waste discharge;
- Runoff standard monitoring and verification through internalised stormwater consent conditions;
- Monitoring and tertiary containment at the Northport pond.

It is recommended that all off-site wastewater flows will be pumped via a continuous pressure main direct to the WDC reticulation in Marsden Bay Drive (also a pressure rising main) which provides for a resilient, low risk connection. Connection to the wastewater network within the Marsden Maritime Holding land is unlikely to be viable due to constraints associated with the current configuration (cascaded pump stations).

9. Collection & Conveyance

Modelling indicates that the existing stormwater collection and conveyance canal at the western limit of the existing Northport apron (identified as Canal 1 in Appendix A) has sufficient capacity to convey flows associated with the extended apron catchment in the shipyard as drawn, including the rainfall runoff area associated with the adjacent shipyard catchment zones 1, 2, 4, 7, 8 & 10 where located along the eastern edge of the shipyard (some 15,000m^2). A new collection and conveyance canal will be required around the new western perimeter to provide the shortest routes to outlet for any of the internal catchment zones reticulation, maximising the available hydraulic headroom. It is anticipated that the dimensions of this additional western canal will be

similar to that on the eastern side of the shipyard, and will provide collection and conveyance of stormwater runoff from the balance of the catchment zones, including for flows received from the reticulated network of the wet berth apron. The general arrangement of the canals, including identifiers, are contained in Appendix B, drawing reference 13519-C02.

The existing spillway at the northern end of the western Northport canal (Spillway 1) has modifications required to it currently, when Northport give effect to their new eastern expansion consent. Modelling indicates that further adaptation to that spillway may be required to accommodate canal 1 & 3 performance characteristic when subjected to the additional catchment runoff. Such adaptation is expected to be an adjustment in spillway level threshold and width to ensure that direct spills to the CMA are restricted to events of greater magnitude than the critical water quality storm. Modelling indicates that with the additional catchment area, and significant additional canal length around the western perimeter, the spillway will activate somewhere between the 10yr and 5yr ARI synthesised rainfall event.

The specific level adjustment will depend on the detailed design adaptations to Canal 3 and the selected level for the new spillway at the western limit of the shipyard. However, it should be sufficient at this stage to condition both the adaptation and new spillway characteristics to maintain the controlled spill event frequency to being for rainfall events in excess of the 5yr ARI (current climate).

Figure J: Existing Canal 1 at the western limit of the Northport apron – sound attenuation wall to the RHS

Figure K: Existing Spillway 1 current configuration, ie prior to the new Northport consent modifications being enabled

With the introduction of the further reclamation to the west of the Spillway 1 location, a further adaptation will be required to facilitate spillway discharges to be conveyed beneath the shipyard to discharge to either the drydock berth pocket or beneath the wharf frontage on the northern face, adjacent to the existing primary diffuse discharge. Given discharges via the spillways in actuality are extremely infrequent (modelled frequency using synthesised rainfall hyetographs notwithstanding), and that such discharges are substantially beyond the water treatment event threshold, the position of the extended spillway discharge is not considered to be critical.

In terms of Spillway 2, it is anticipated that the arrangement will be more conventional and that, subject to provision for trapping of any residual surface floatables or oils, as is currently provided for in the Northport expansion consent, will be constructed in a similar manner to that seen in Figure K above, with a floatables barrier.

Figure L: Junction of the eastern and western Northport canals with 1200dia culvert outlet constraint (arrowed)

Modelling indicates that the current arrangement of Canal 3 is a constraint to conveyance of flows to the Northport pond, both in terms of channel sectional capacity and with the presence of the 1200mm dia. culvert installed in that canal in proximity to the Northport pond inlet (Figure L), as discussed in the Northport 2025 expansion consent. In order to maintain performance equilibrium with the addition of the shipyard catchment this culvert constraint will need to be removed in conjunction with the widening of that canal section, and replaced with a crossing that does not restrict flow. Noting the need for a new dedicated access road to serve the proposed shipyard and the need to modify (widen) both Canal 3 and Northport pond inlet canal (in part, noting that sufficient width is in place approaching the pond inlet weir), the provision access crossings as clear spans will be a requirement to prevent network restriction.

10. Recommendations

The existing Northport pond has sufficient capacity to treat “standard” runoff contaminant loads from the proposed facility and remain compliant with the existing discharge consent analyte thresholds. The analytes for the Northport discharges are therefore appropriate to carry forward. However, noting the activities anticipated within the proposed facility, it is recommended that conditions be applied to the facility

“internally” such that stormwater discharges from it to the Northport system are monitored to a reflective but independent set of analyte concentrations. These analytes and compliance thresholds are set out in Appendix C.

The following measures and design responses are recommended to guide development of the final stormwater management strategy / plan and consent conditions pertaining to stormwater runoff management for the proposed facility:

- Provision of source controls that minimise rainfall contact with contaminants, including roofed or otherwise enclosed areas for abrasive blasting, coating removal, painting, and materials storage;
- Segregation of uncontaminated roof water and other “clean” runoff from potentially contaminated operational runoff, including separation of higher-risk dry dock and process-related discharges where appropriate;
- A stormwater treatment management strategy is a condition of consent, specifically focussed on the operation of the shipyard, within which it should clearly identify final designated zones of the site where pre-treatment is to occur within the shipyard footprint, which will rely on the existing Northport treatment system (without any modification), or which will require a combined treatment train approach in conjunction with operational management. A combination of these is recommended depending on the defined risk areas, the scale and specific areas of which have been outlined, but will be dependent on the finalised design;
- Piped reticulation to the Northport pond is unlikely to be viable at the scale of flows arising from the proposed shipyard and the lack of available gradient. The use of collection canals similar to those consented under the Northport consent is most appropriate and provides for ready observation of visual condition of discharge water as well as simplified maintenance / network cleaning;
- Provision of bunding, shut-off capability, first-flush capture, spill containment, and isolation measures for high-risk hardstand and operational areas;
- Specific management of washdown waters, dry dock water, and other process discharges so that these do not enter the stormwater system unless appropriately contained, treated, or otherwise lawfully disposed of.

It is recommended that consent conditions require a draft detailed Stormwater Management, Monitoring & Maintenance Plan (SMMMP) to be submitted to, and approved by, Northland Regional Council following finalisation of the shipyard layout arrangement and prior to construction, with the final version of the same being lodged for approval prior to site operation. That plan should identify:

- catchment delineation
- drainage layout
- conveyance design
- discharge points

- treatment device specifications
- contaminant source areas
- flow segregation measures
- spill and isolation controls
- exceedance flow management
- maintenance responsibilities
- incident response procedures
- water quality monitoring requirements

Such associated requirements and obligations shall lie with the shipyard operator. It should also address the preliminary modelling findings concerning western linking canal constraints (Canal 3), and the need to avoid adverse interaction with adjacent systems. Refer Appendix D for a more comprehensive schedule of the SMMMP content requirements.

11. Conclusions

It is recommended that the proposed shipyard facility collects stormwater and that this is discharged via the existing Northport stormwater retention ponds and outfall structure. The nature of the activity is such that the provision of pre-treatment for all runoff is provided using appropriately selected and sized proprietary treatment devices. We consider that the existing Northport pond in its current configuration and discharge arrangement has sufficient capacity to treat and discharge “standard” stormwater flows and associated contaminants from the additional catchments without modification, however the nature of the activity and lack of specific detail at this stage warrants the introduction of additional treatment mechanisms prior to release to the Northport network. The industrial activity risk warrants the provision of an internalised discharge consent or monitoring of discharges from the site into the canal network.

The proposed facility site levels are such that limited hydraulic grade is available to the Northport pond, where flows are constrained by the inlet weir. Elements of the existing conveyance network will require adaptation to provide for the additional contributory catchment area flows, and it is recommended that the collection approach currently employed (perimeter canals) is reflected around the western perimeter of the proposed site, with the addition of a further spillway at the northwestern limit of the proposed site.

For contaminant risks associated with stormwater runoff from the shipyard, modelling indicates that with adaptations to the connecting canals between the pond and spillways, along with the provision of a further western canal, the Northport pond in its current configuration has more than sufficient capacity to continue to function in accordance with the treatment discharge conditions of Northport’s current consent. There is no benefit in uplifting the pumped discharge rate from the pond since the discharge from the pond is ultimately limited by the network to the outfall diffuser.

It is recommended that multiple stormwater management pathways are utilised, specifically suited to the source / condition, with the approach to the mix of sources and the operational management of these established through the SMMMP required through appropriate consent conditions. Additionally, to further safeguard Northport consent compliance, it is recommended that the industrial activity stormwater discharges are to be subject to an internalised, independent discharge consent to the collection canals, with analytes and contaminant concentration compliance established to be comparable to the consented Northport discharge limits. Through this management, treatment and internal consenting approach, we consider that any potential adverse effects, including on water quality in the receiving environment, can be appropriately managed.

Operational runoff from the proposed facility has the potential to generate adverse water quality and hydraulic effects if not appropriately managed. The catchments subject to operational runoff shall have systems designed such that runoff during and immediately subsequent to operational processes that result in high contaminant loads, such processes anticipated to be specified through the SMMMP, shall not discharge to the stormwater system.

Such discharges are unlikely to be able to be treated to a sufficiently acceptable standards so as to comply with the proposed discharge contaminant limits from the facility, or those of the “receiving” Northport system’s discharge consent. It is therefore proposed that all operational runoff is diverted, collected and discharged to a wastewater system under a tradewaste connection to the WDC network or to an independent, appropriately licensed facility designed to receive contaminated wastewater of this nature.

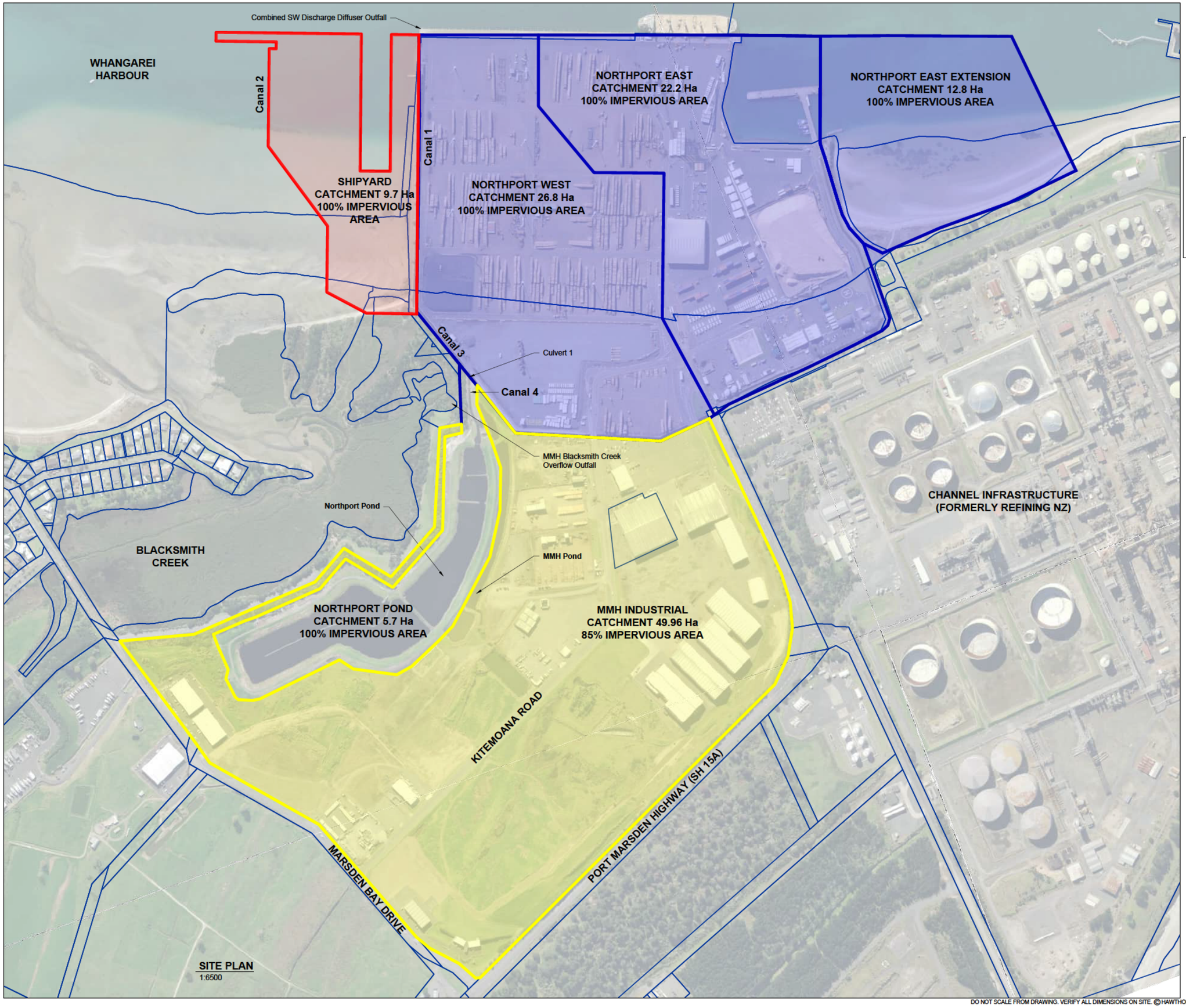
12. Limitation

This report has been prepared for the benefit of our client MBIE in relation to the Fast-track Application Assessment for the proposed Shipyard & Drydock facility. The comments in it are limited to the purpose stated in this report. No liability is accepted by Hawthorn Geddes engineers & architects ltd in respect of its use by any other person, and any other person who relies upon any matter contained in this report does so entirely at their own risk.

Appendix A – Catchment Zones Drawing Figure Ref. 13519-C00

Date: 11.06.26
HG ref.:13519

provisional - not for construction



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LEGEND

- Proposed Shipyard Catchment Area
- Northport Catchment Areas
- MMH Catchment Area
- Property / Parcel Boundaries

TO BE READ IN CONJUNCTION WITH SPECIFICATION

REV.	REVISION DETAILS	BY	DATE
P0	ISSUED FOR CLIENT COMMENT	MM	30/05/26

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PROJECT
MBIE - SHIPYARD FTA

RALPH TRIMMER DRIVE, MARSDEN POINT

DRAWING
LAYOUT AND CONTRIBUTORY CATCHMENTS

DRAWN MM APPROVED JAMES BLACKBURN
DATE 11/06/2026
CHECKED

STATUS PRELIMINARY

SCALE @ A3 1:6500
PROJECT No. 13519 SHEET C00 REV. P0

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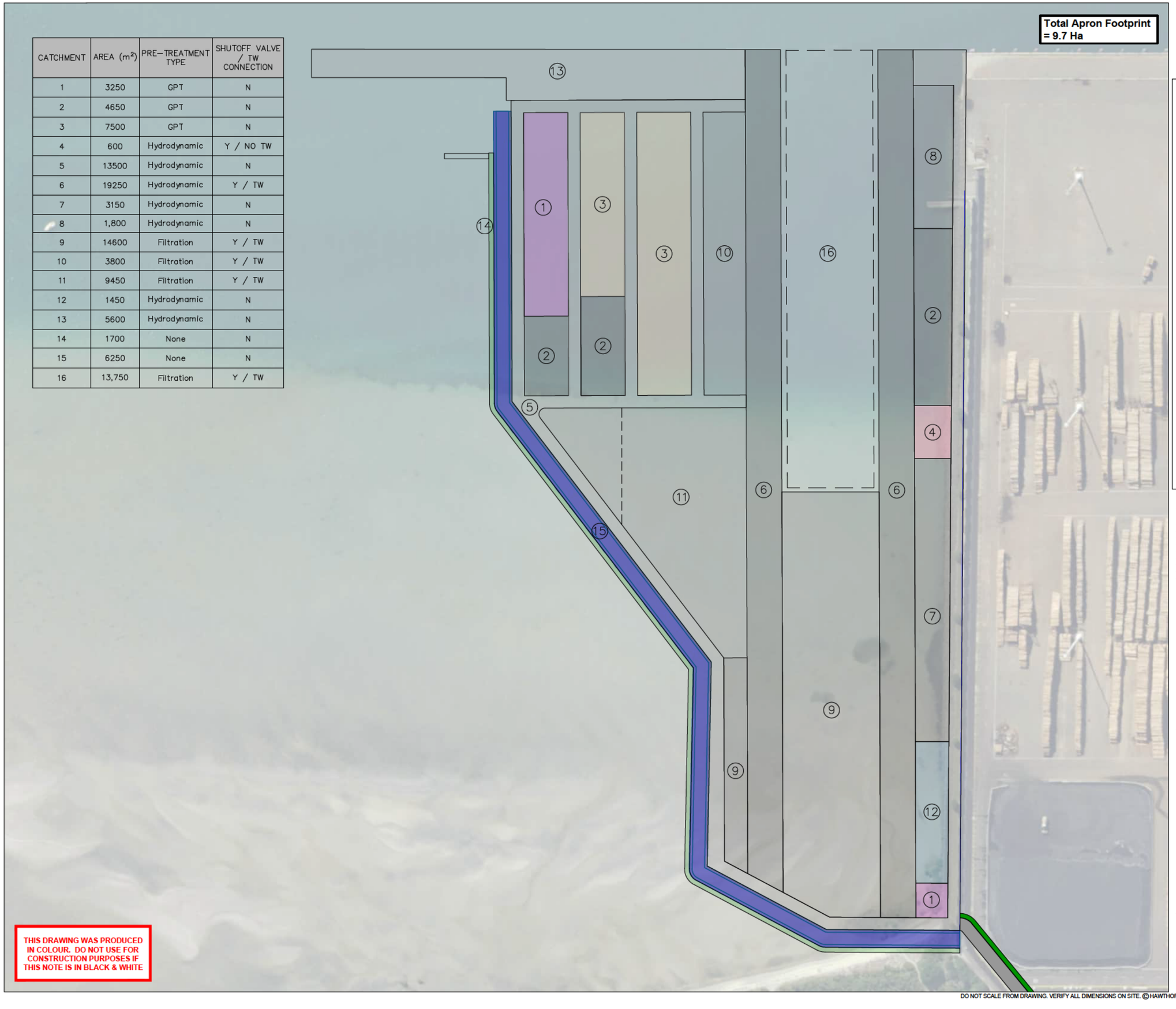
Appendix B - Drawing Figures Ref. 13519 C01-C05

provisional - not for construction

CATCHMENT	AREA (m^2)	PRE–TREATMENT TYPE	SHUTOFF VALVE / TW CONNECTION
1	3250	GPT	N
2	4650	GPT	N
3	7500	GPT	N
4	600	Hydrodynamic	Y / NO TW
5	13500	Hydrodynamic	N
6	19250	Hydrodynamic	Y / TW
7	3150	Hydrodynamic	N
8	1,800	Hydrodynamic	N
9	14600	Filtration	Y / TW
10	3800	Filtration	Y / TW
11	9450	Filtration	Y / TW
12	1450	Hydrodynamic	N
13	5600	Hydrodynamic	N
14	1700	None	N
15	6250	None	N
16	13,750	Filtration	Y / TW



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P4	AMENDED PROPOSED PORT - REV E	SG	06/08/26
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P2	ISSUED FOR CLIENT COMMENT	MM	03/07/26
P1	ISSUED FOR CLIENT COMMENT	MM	30/06/26

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MBIE - SHIPYARD FTA

RALPH TRIMMER DRIVE,
MARSDEN POINT

DRAWING
SHIPYARD CATCHMENT TREATMENT ZONES

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APPROVED JAMES BLACKBURN
DATE 11/06/2026
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SCALE @ A3 1:2000
PROJECT No. 13519
SHEET C01
REV. P4

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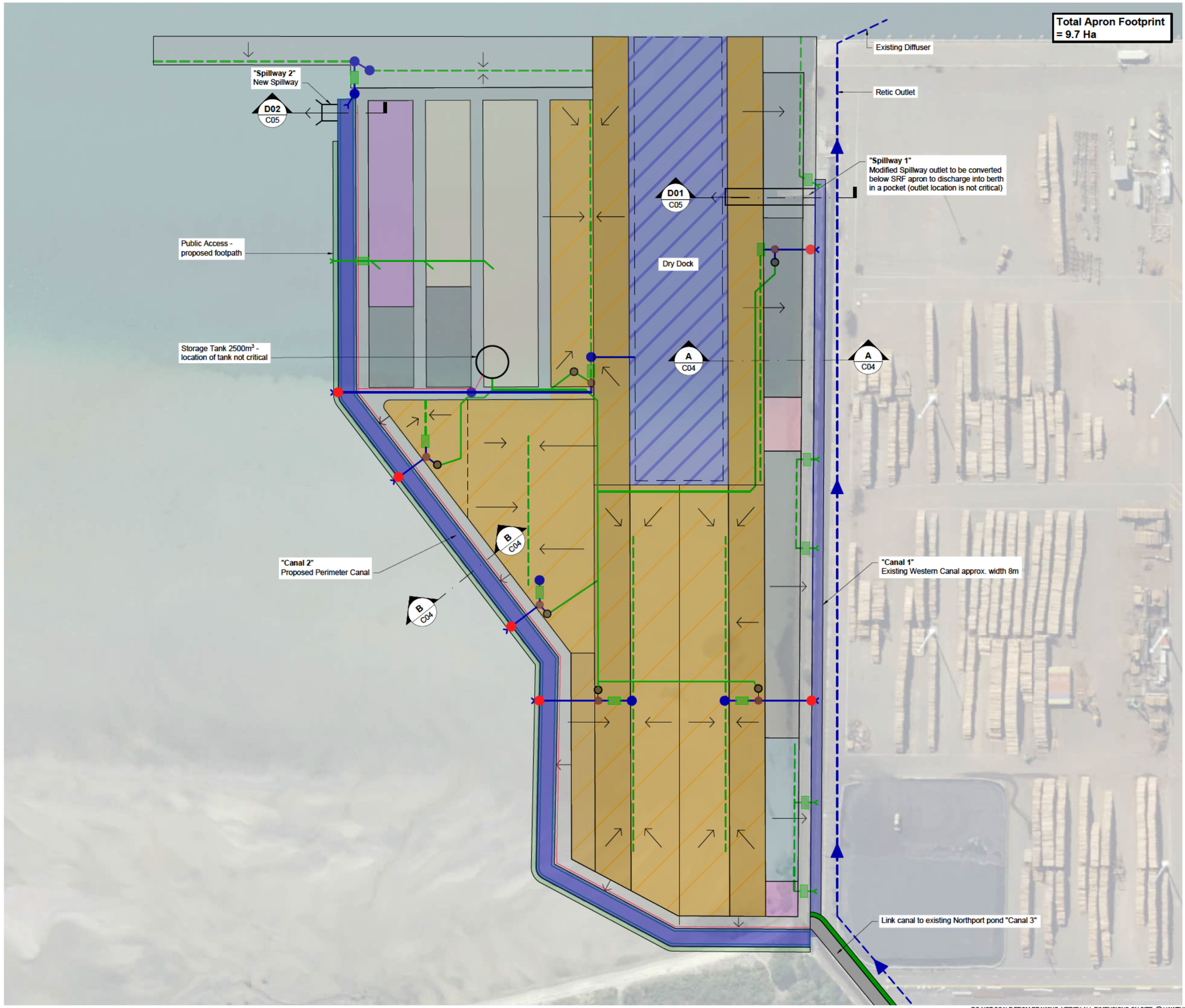

Total Apron Footprint = 9.7 Ha

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LEGEND

- Stormwater Chamber
- Pre-treatment (Proprietary Device)
- Valve Chamber
- Pump Chamber Storage Well
- Independent SW Monitoring Point
- Non-monitored Outlet
- Slot Drains
- Stormwater Pipe
- Wastewater Raising Main
- Stormwater Pumped

LEGEND

- Valued for Trade Waste Discharge / Independent SW Consent Monitoring
- Pumped discharge for Trade Waste / SW Discharge Independent SW Consent Monitoring

TO BE READ IN CONJUNCTION WITH SPECIFICATION

REV.	REVISION DETAILS	BY	DATE
P3	AMENDED PROPOSED PORT - REV E	MM	07/08/26
P2	ISSUED FOR CLIENT COMMENT	MM	02/07/26
P1	ISSUED FOR CLIENT COMMENT	MM	30/06/26

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MBIE - SHIPYARD FTA

RALPH TRIMMER DRIVE, MARSDEN POINT

DRAWING
SHIPYARD DRAINAGE PLAN

DRAWN MM APPROVED JAMES BLACKBURN
DATE 11/06/2026
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STATUS **PRELIMINARY**
SCALE @ A3 1:2000
PROJECT No. **13519** SHEET **C02** REV. **P3**

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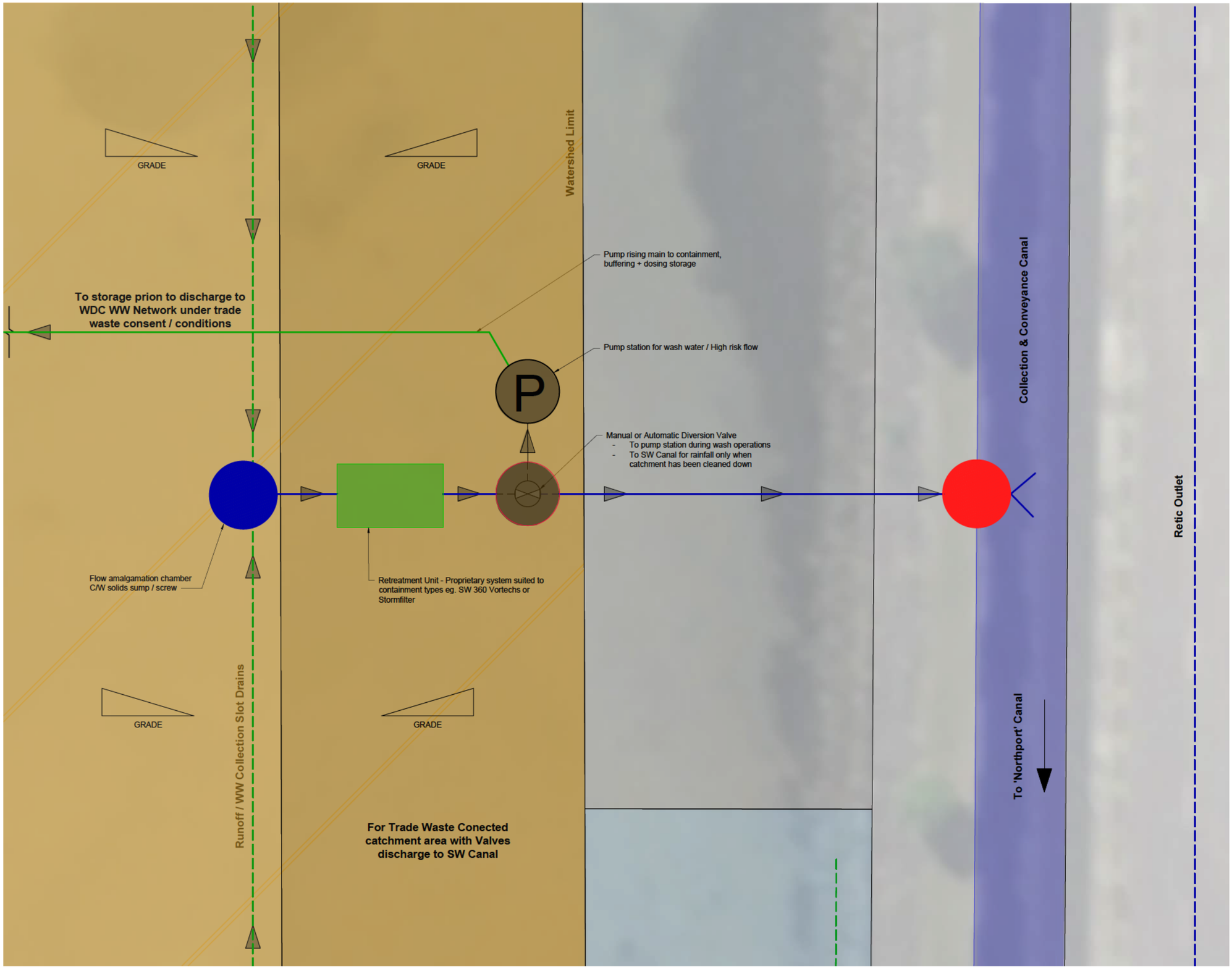

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LEGEND

- Stormwater Chamber
- Pre-treatment (Proprietary Device)
- Valve Chamber
- Pump Chamber Storage Well
- Independent SW Monitoring Point
- Slot Drains
- Stormwater Pipe
- Wastewater Raising Main
- Stormwater Pumped

LEGEND

- Valued for Trade Waste Discharge / Independent SW Consent Monitoring
- Pumped discharge for Trade Waste / SW Discharge Independent SW Consent Monitoring

TO BE READ IN CONJUNCTION WITH SPECIFICATION

REV	REVISION DETAILS	BY	DATE
P2	ISSUED FOR CLIENT COMMENT	MM	02/07/26
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RALPH TRIMMER DRIVE, MARSDEN POINT

DRAWING
TRADE WASTE FLOW DIVERSION SCHEMATIC

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DATE 11/06/2026
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STATUS **PRELIMINARY**

SCALE @ A3 1:250
PROJECT No. 13519 | SHEET C03 | REV. P2

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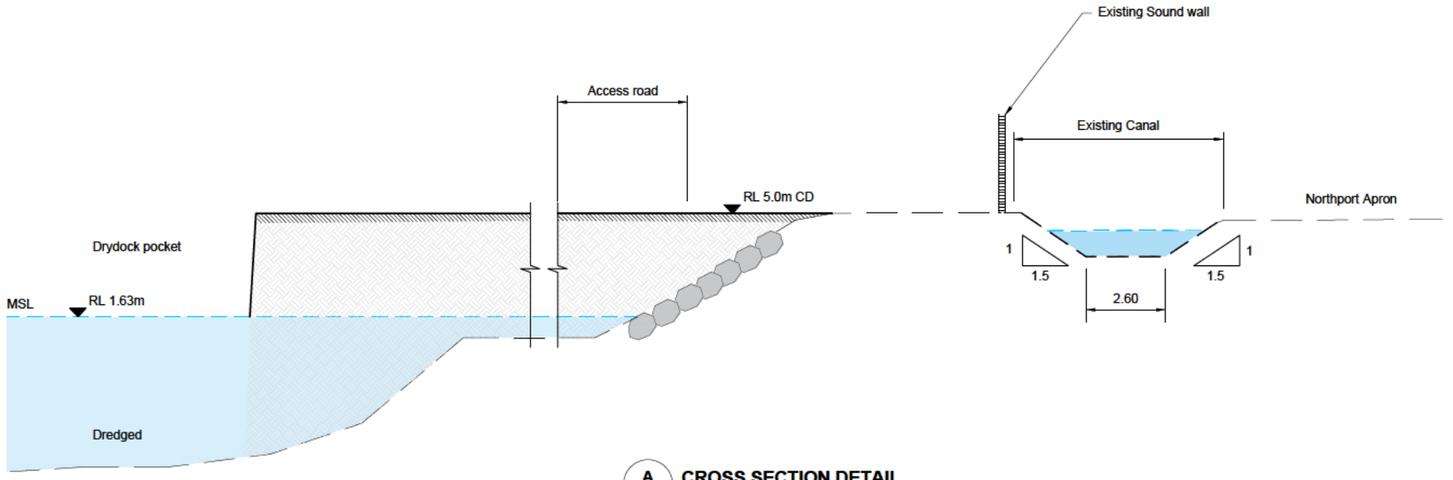
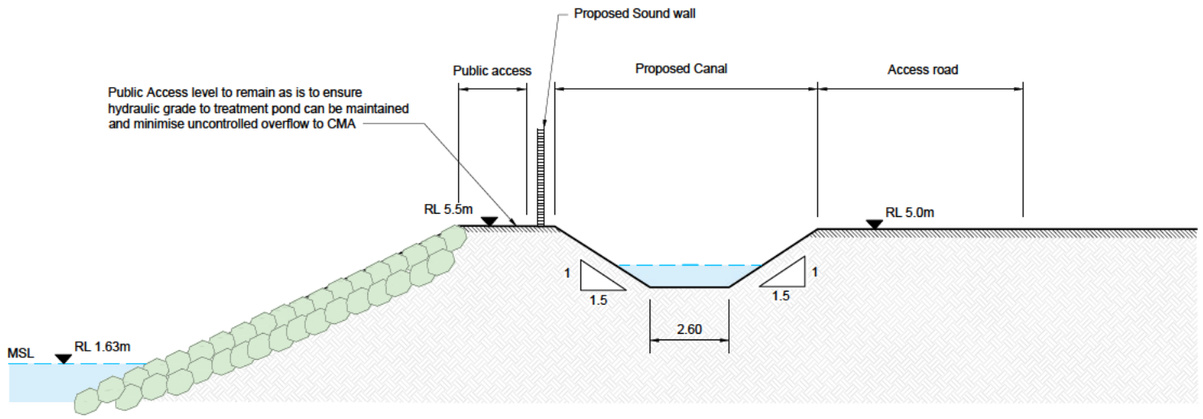


A C02 **CROSS SECTION DETAIL** 1:200



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ALL INFORMATION MUST BE CONFIRMED ON SITE.

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MBIE - SHIPYARD FTA

RALPH TRIMMER DRIVE, MARSDEN POINT

DRAWING
TYPICAL CROSS SECTION DETAILS

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DATE 11/06/2026
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PROJECT No. **13519** SHEET **C04** REV. **P1**

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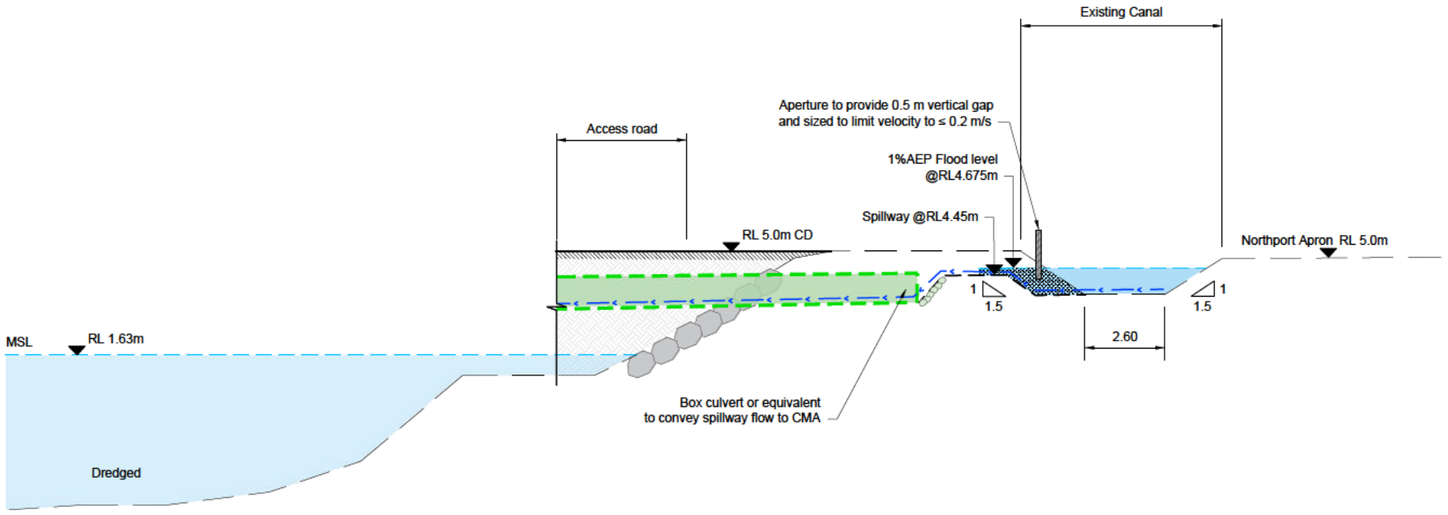

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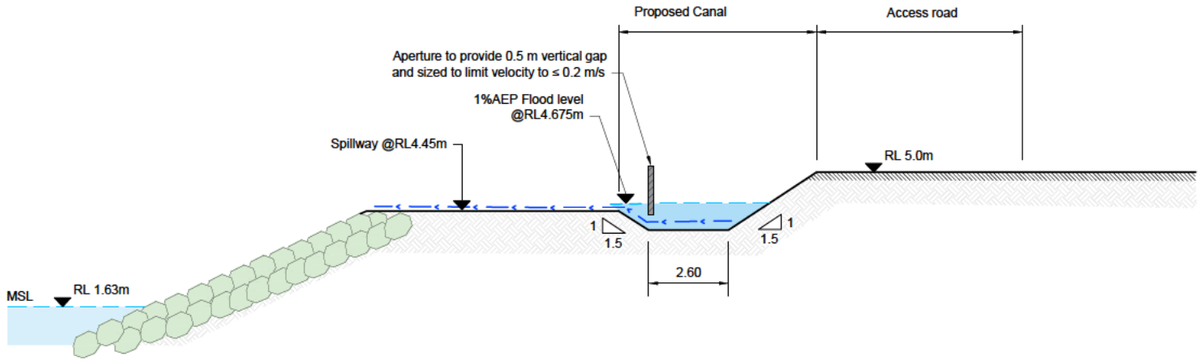

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1:250

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PROJECT
MBIE - SHIPYARD FTA

RALPH TRIMMER DRIVE, MARSDEN POINT

DRAWING
SPILLWAY DETAILS

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Appendix C - Stormwater Analytes & Compliance Limits for Discharges into the Northport System

Date: 11.06.26
HG ref.:13519

Stormwater Compliance Limits

The requirements in this schedule apply at each applicable internal monitoring point before stormwater from the Facility mixes with runoff from Northport or any other catchment.

Analyte	Fraction / analytical basis	Limit	Unit
pH	Field measurement	6.5–9.0	pH units
Total suspended solids	Total	100	mg/L
Total petroleum hydrocarbons	Total: C7-C36	15	mg/L
Total copper	Total	0.010	mg/L
Total lead	Total	0.044	mg/L
Total zinc	Total	0.150	mg/L
Total nickel	Total	0.059	mg/L
Total aluminium	Total for pH>6.5	0.055	mg/L
Tributyltin	Total Sn/l	0.0006	mg/L
Ammoniacal nitrogen (NH_4-N)	Total	1.86	mg/L
Acenaphthene	Total	0.058	mg/L
Anthracene	Total	0.0001	mg/L
Benzo(a)anthracene	Total	0.00018	mg/L
Benzo(a)pyrene	Total	0.001	mg/L
Fluoranthene	Total	0.01	mg/L
Fluorene	Total	0.03	mg/L
Naphthalene	Total	5	mg/L
Phenanthrene	Total	0.006	mg/L
Pyrene	Total	0.00025	mg/L

Appendix D - Stormwater Management Monitoring & Maintenance Plan Requirements for Discharges into the Northport System

Date: 11.06.26
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STORMWATER MANAGEMENT, MONITORING & MAINTENANCE PLAN

INDICATIVE REQUIRMENTS

The preparation of a Stormwater Management, Monitoring & Maintenance Plan (SMMMP) in respect of site catchment and stormwater management is anticipated to be a condition of the resource consent. The comprehensive SMMMP should include as a minimum the following aspects:

Section	Required Detail
System Outline & Principles	A summary of the systems approach used to manage and control contaminant risk in discharges from the site. Includes a schedule of roles and responsibilities associated with stormwater systems including 24-hour contact details.
Catchments & Control Zones	Schematic of site arrangement indicating the catchments applicable to each reticulation outlet, the areas of "High-risk" operational activities, the position of each pre-treatment device, discharge switching valve and reticulation discharge / monitoring point.
General Operational Processes	Site procedures detailing appropriate site management measures to minimize potential for entrainable material, including frequency and methods for site cleaning.
Ship Maintenance (operational condition)	Procedures detailing methodologies for managing contaminated runoff from ship maintenance activities, including (but not limited to): - Definitions of specific maintenance activities that require diversion to wastewater treatment network - Processes for ensuring diversions to wastewater treatment are activated and checked as operational prior to maintenance works commencing - Processes for staging /coordinating works to minimize contributory rainfall runoff quantities to trade waste - Process for ensuring catchment zones are cleaned down, including verification methods, prior to switching back to stormwater discharge. - Operational test procedure of flow diversion / shutoff system with test records
Stormwater Pre-Treatment Device Management, Monitoring and Maintenance	Detailed schedule of all devices utilised, type, location and purpose / treatment class; Procedures detailing periodic maintenance requirements, inspection frequency and

	recordkeeping requirements for all installed proprietary treatment devices, in accordance with the manufacturer's requirements and any site-specific requirements, including means of disposal for any contaminated materials removed from site.
Stormwater Network Monitoring and Maintenance	Procedures detailing inspection frequency and maintenance requirements for the stormwater conveyance network (including visual assessments and reporting requirements); Procedures for monitoring and cleaning the canal system to ensure functionality; Procedures for monitoring and clearing floatable debris / contaminant accumulation at the canal spillways.
Resource Consent Monitoring	Procedures detailing sampling requirements, personnel responsible, and administrative requirements for consent reporting; Flow depth and duration records for operation of canal spillways discharging directly to CMA.
Emergency Procedures	Procedures detailing responses in the event of a spill or equipment failure including locations and type of spill response equipment, means of deployment of spill response equipment, responsible personnel, and response timeframes.