

Liverpool City Council

Attention: Lina Kakish, Manager Development Assessment

31 July 2020

Dear Madam,

Proposed Georges Cove Marina (DA-611/2018) Building Floor Levels

1. Introduction

The two main buildings in the proposed Georges Cove Marina are the Maritime Building and the Marina Club. The uses proposed in these buildings are outlined in the attached plans. The buildings are in an area zoned RE2 Private Recreation. All the uses in these buildings are associated with the marina operations. It is readily apparent that recreation is the focus of these uses and associated with the water, views over the water and access to the boats.

This letter provides a Site Specific Assessment of whether the floor levels in the Maritime Building and the Marina Club meet the objectives of Section 9 'Flooding Risk' of the Liverpool Development Control Plan 2008 Part 1.

2. Relevant flooding controls

The allowable floor levels are specified in Liverpool DCP 2008, Part 1, Section 9 'Flooding Risk'. This outlines the four steps required to determining the relevant controls.

Step 1. Identify Flood Risk Category (degree of flooding risk).

The marina is in the 'Medium Flood Risk Category' as it is land below the 1% AEP flood that is not subject to a high hydraulic hazard and where there are no significant evacuation difficulties (refer Moorebank East Areas A, C and D Flood Evacuation Justification v2 270220).

Step 2. Identify Land Use Risk Category.

DCP Section 9.3 lists Land Use Risk Categories according to the sensitivity of each land use to flooding. The definitions of each land use are based on the Liverpool LEP 2008.

The Liverpool LEP 2008 defines 'marina' as:

marina means a permanent boat storage facility (whether located wholly on land, wholly on a waterway or partly on land and partly on a waterway), and includes any of the following associated facilities—

- (a) any facility for the construction, repair, maintenance, storage, sale or hire of boats,
- (b) any facility for providing fuelling, sewage pump-out or other services for boats,
- (c) any facility for launching or landing boats, such as slipways or hoists,

(d) any car parking or commercial, tourist or recreational or club facility that is ancillary to the boat storage facility,

(e) any berthing or mooring facilities.

Section 9.3 of the DCP lists "Marina" under "Recreation or Non-urban Uses".

Step 3. Identify relevant Floodplain.

DCP Section 9, Figure 5 identifies the marina site as being within the Georges River Floodplain so Table DCP Section 4 applies.

Step 4. Identify relevant Floodplain Controls.

Table 4 specifies the floor levels planning controls applicable in a Medium Flood Risk category for Recreational and Non-Urban Uses as:

- 2 Non-habitable floor levels to be as high as practical but no less than the 5% AEP flood level; and
- 7 Habitable floor levels to be no lower than the 1% AEP flood plus 500mm freeboard unless justified by site specific assessment.

The DCP defines a "habitable use" in an industrial and commercial building as an office or storage of valuable possessions susceptible to flood damage. A non-habitable use therefore is all other uses.

At the marina site:

- the minimum floor level for habitable uses is RL 6.1m AHD, the flood planning level (1% AEP (100 year ARI) flood plus 500mm = RL 6.1m AHD) except where justified by a site specific assessment.
- the minimum floor level for a non-habitable use is RL 4.6m AHD (the 5% AEP (20 year ARI) flood level.
- 3. Marina Club Building

The Marina Club building has floor levels at RL 2.8m AHD (Level 1) and RL 6.1m AHD (Level 2 which is 500mm above the 1% Flood Level). Level 1 will not have any offices or storage of valuable possessions that can be damaged by floods, ie it is non-habitable floor area. While Level 1 is below the 5% AEP flood level, it is as high as practical for its use, ie small boat storage (which needs to minimise the elevation from the water for boats to be moved by hand) and a viewing/barbeque area to be used by patrons accessing moored boats from the marina's floating berths.

A Site Specific Assessment of the uses of Level 1 of the Marina Club Building against the objectives of DCP Section 9 is provided below.

In summary, the materials and finishes on this floor will consist of flood proof materials and finishes which will minimise any flood damage. It will consist of a viewing area in which all furniture will be made of materials resistant to water damage and will be fixed to the floor. All service to this floor will come from Level 2 above. The boat storage area will have a permeable façade which will prevent the small boats from being washed away during a flood event.

Georges Cove Marina Floor Level Justification v3 310720



Site Specific Assessment:

- a) To minimise the potential impact of development and other activity upon the aesthetic, recreational and ecological value of the waterway corridors. The proposed uses are contained within the building footprint and will enhance the recreational outcomes by providing areas for increased viewing across the water and the boats near to normal water levels in the marina. It will provide ready access to the water from the small boat storage thereby further improving the recreational outcomes from the marina. This proposed floor level will not detract from the aesthetics of the area or the ecological value of the waterway corridor. It is well recognised that the Georges River corridor is currently underutilised and is a significant potential source of increased recreational amenity for the wider area.
- b) To ensure essential services and land uses are planned in recognition of all potential floods. This floor will not contain essential services however the planning for this floor level has considered all potential flood levels.
- c) To reduce the risk to human life and damage to property caused by flooding through controlling development on land affected by potential floods. The risk to life has been adequately addressed in an overall Flood Emergency Response Plan for the entire development (refer Moorebank East Areas A, C and D Flood Evacuation Justification v2 270220), in addition to nearby planned developments. This Plan adopts an evacuation strategy as its primary response to flood risk and based on the NSW SES methodology, it demonstrates that there is ample time for evacuation of the site to flood free lands. Flood damage to Level 1 of the building and the contents would be minimised by the flood proofing of the building materials/finishes and the lack of storage of valuable contents. There would be no valuable, flood-damageable possessions stored on this level other than small boats which consist of waterproof materials.
- d) To ensure that the economic and social costs which may arise from damage to property due to flooding is minimised and is not greater than that which can be reasonably managed by the property owner and general community. The materials and finishes on Level 1 will consist of waterproof materials and finishes which will

minimise any flood damage. This will minimise potential property damage due to floods and the costs to clean-up and repair any damage on Level 1 would be reasonably afforded by the property owner.

e) To limit developments with high sensitivity to flood risk (e.g. critical public utilities) to land with minimal risk from flooding.

There will be no development and uses with high sensitivity to flood damage risk on Level 1.



- *f) To prevent intensification of inappropriate use of land within high flood risk areas or floodways.* The proposed uses on Level 1 are an appropriate use of land in a flood zone.
- g) To permit development with a lower sensitivity to the flood hazard to be located within the floodplain, subject to appropriate design and siting controls.
 The proposed uses on Level 1 (small boat storage) are part of the marina development that has been appropriately sited and designed to provide access for recreational and community uses of the Georges River and the adjoining floodplain.
- h) To ensure that development should not detrimentally increase the potential flood affectation on other development or properties either individually or in combination with the cumulative impact of development that is likely to occur in the same floodplain.
 Level 1 of the Marina Club was included in the flood impact modelling which established that this development would not have adverse impacts on flooding for adjacent properties nor exacerbate additional flood effects upon adjoining properties.
- *i)* To ensure that development does not prejudice the economic viability of any Voluntary Acquisition Scheme.

The provision of Level 1 in the Marina Club does not significantly alter the economic value of the proposed development nor its impact on any Voluntary Acquisition Scheme. This proposed floor level improves the recreational experience, and adds to the amenity and functionality of the Club.

4. Maritime Building

The Maritime Building has uses other than boat or car parking on Levels 1 to 4. Level 1 has a floor level of RL 4.6m AHD while the higher levels have floor levels at RL 7.3m, 10.525m and 14.71m AHD. Level 1 has nominated uses which are ancillary to a marina including kiosks, commercial, tourist, recreational and club facilities along with boat storage.

A Site Specific Assessment of the uses of Level 1 of the Maritime Building against the objectives of DCP Section 9 is provided below. The assessment assumes that Level 1 includes habitable uses, with minor offices and storage of valuable possessions. Although upon receiving a flood warning, there will be ample opportunity to move 'valuable possessions' to higher levels in the Maritime Building above 6.1m AHD.

In summary, Level 1 will have materials and finishes consisting of flood proof materials and finishes which will minimise any flood damages. It will consist of a kiosk/café and viewing area in which all furniture will be made of materials resistant to water damage. There would be limited valuable possessions stored on this level and these could be readily relocated to floors above RL 6.1m AHD. No storage will be provided for important data or difficult to replace materials on this level. The boat storage area will have a permeable façade which will prevent the boats from being washed away in a flood.



Site Specific Assessment:

- a) To minimise the potential impact of development and other activity upon the aesthetic, recreational and ecological value of the waterway corridors.
 The proposed uses are contained within the building footprint and will enhance the recreational outcomes by providing areas for increased viewing across the water and the boats near to normal water levels in the marina. It will provide ready access to the water from the small boat storage thereby further improving the recreational outcomes from the marina. This proposed floor level will not detract from the aesthetics of the area or the ecological value of the waterway corridor. It is well recognised that the Georges River corridor is currently underutilised and is a significant potential source of increased recreational amenity for the wider area.
- b) To ensure essential services and land uses are planned in recognition of all potential floods. This floor will not contain essential services however the planning for this floor level has considered all potential flood levels.
- c) To reduce the risk to human life and damage to property caused by flooding through controlling development on land affected by potential floods.

The risk to life has been adequately addressed in an overall Flood Emergency Response Plan for the entire development (refer Moorebank East Areas A, C and D Flood Evacuation Justification v2 270220), in addition to nearby planned developments. This Plan adopts an evacuation strategy as its primary response to flood risk and based on the NSW SES methodology, it demonstrates that there is ample time for evacuation of the site to flood free land (over 13 hours). Flood damage to Level 1 of the building and the contents will be minimised by flood proofing of the building materials/finishes and the relocation of valuable contents to higher floor levels. No storage will be provided for important data or valuable materials on this level. Storage will be located on upper levels. Any minor offices on this level will not have any significant storage. The only valuable possessions on the floor would be the coffee machine and cakes servery. The coffee machine would be located within a stainless steel unit on wheels. The servery would also be located in a stainless steel and glass mobile unit. Both these units could be readily relocated via the goods lift to Level 3 in the event of a flood as there is ample flood warning time (over 13 hours). The boat storage area will have a permeable façade which will prevent the boats from being washed away in a flood.

d) To ensure that the economic and social costs which may arise from damage to property due to flooding is minimised and is not greater than that which can be reasonably managed by the property owner and general community.

The materials and finishes on Level 1 will consist of waterproof materials and finishes which will minimise any flood damage. As described above, the only valuable possessions on the floor will be readily movable to higher levels upon receiving a flood warning. This will minimise potential property damage due to floods and the costs to clean-up and repair any damage on Level 1 would be reasonably afforded by the property owner.

- *e)* To limit developments with high sensitivity to flood risk (e.g. critical public utilities) to land with minimal risk from flooding.
 The proposed uses on Level 1 would not have a high sensitivity to flood risk.
- *f) To prevent intensification of inappropriate use of land within high flood risk areas or floodways.* The proposed uses on Level 1 are not an inappropriate use of land in a flood zone.
- g) To permit development with a lower sensitivity to the flood hazard to be located within the floodplain, subject to appropriate design and siting controls.
 The proposed uses on Level 1 do permit development with a lower sensitivity to the flood hazard while improving the recreational and community outcomes for this ancillary marina use.
- h) To ensure that development should not detrimentally increase the potential flood affectation on other development or properties either individually or in combination with the cumulative impact of development that is likely to occur in the same floodplain.
 Level 1 of the Maritime Building was included in the flood impact modelling which established that this development would not have adverse impacts on flooding for adjacent properties nor exacerbate additional flood effects upon adjoining properties.
- *i)* To ensure that development does not prejudice the economic viability of any Voluntary Acquisition Scheme.

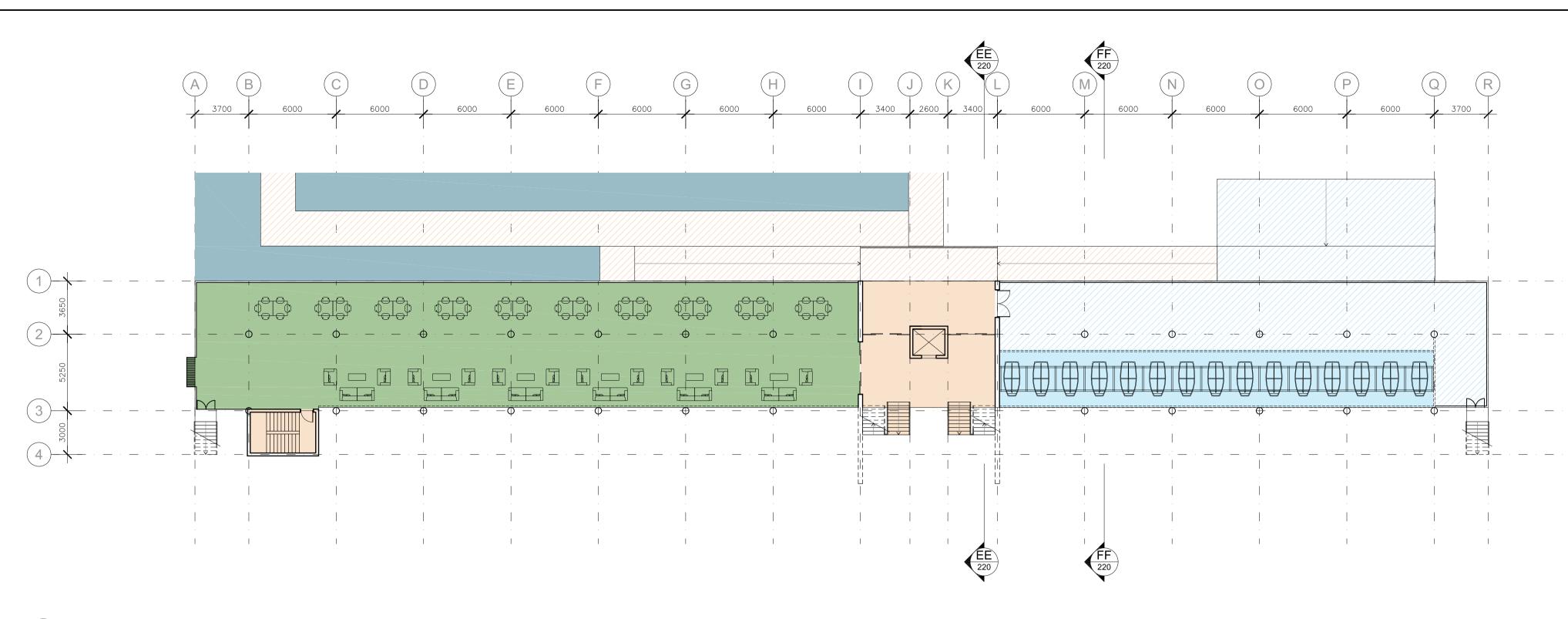
The provision of Level 1 in the Maritime Building does not significantly alter the economic value of the proposed development nor its impact on any Voluntary Acquisition Scheme. This proposed floor level improves the recreational experience, and adds to the amenity and functionality of the building.

In summary, the floor levels in the Marina Club and Maritime Building below RL 6.1m AHD will meet the objectives of Section 9 of the Liverpool DCP 2008 and have uses and flood proofing which will not result in a significant increase in the risk to life and flood damages nor on flood impacts on adjacent properties. They will however provide significant recreational use benefits as part of the overall marina development. These floor levels have been justified in the Site Specific Assessment as permitted by the DCP.

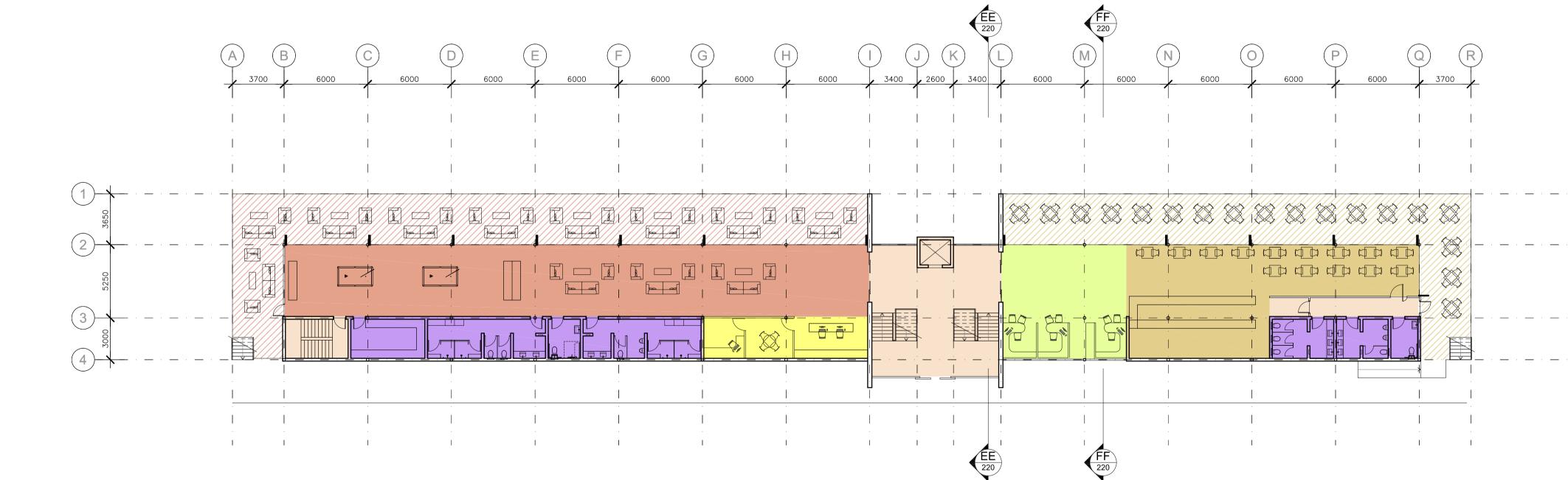
Yours sincerely

JOOK

Mark Tooker Director



01 Plan - Level 1 - RL: 2.800



02 Plan - Level 2 - RL: 6.100 1: 200



THIS DRAWING IS SUBJECT TO COPYRIGHT AND IS NOT TO BE USED OR REPRODUCED FOR PURPOSES OTHER THAN THE CONSTRUCTION OF THE SUBJECT BUILDING ON THE SUBJECT SITE WITHOUT THE CONSENT OF MICHEAL FOUNTAIN ARCHITECT. FIGURED DIMENSIONS TAKE PRECEDENCE. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE PRIOR TO ORDERING ANY MATERIALS AND/OR BUILDING ELEMENTS AND PRIOR TO COMMENCEMENT OF THE AFFECTED WORKS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS ISSUED FOR CONSTRUCTION AND SO MARKED IN THE AMENDMENT COLUMN, AND IS APPROVED AND SIGNED BY THE PRINCIPAL OF MICHEAL FOUNTAIN ARCHITECTS.

| ISSUE REV | AMENDMENTS | DATE | ISSUE | REV | AMENDMENTS | DATE | CLIENT |
|-----------|--------------------------------------|----------|-------|-----|------------|------|--|
| A | Issue for Development Application | 16.11.10 | | | | |] |
| В | Re-issue for Development Application | 26.03.15 | | | | | Benedict Industries Pty. Ltd. |
| С | Re-issue for Development Application | 01.05.15 | | | | | |
| D | Issued to Client | 27.09.19 | | | | | |
| E | Issued to Client | 11.10.19 | | | | | PROJECT |
| F | Issue for Development Application | 17.10.19 | | | | | George's Cove Marina |
| | | | | | | | Newbridge Road |
| | | | | | | | Moorebank NSW 2170 |
| | | | | | | | PRINTED: Oct 17, 2019 - 11:47am P:\MOOREBANK MARINA\Cadwork\Drawings\028_Amended DA_September 2019 - NEW\SK |

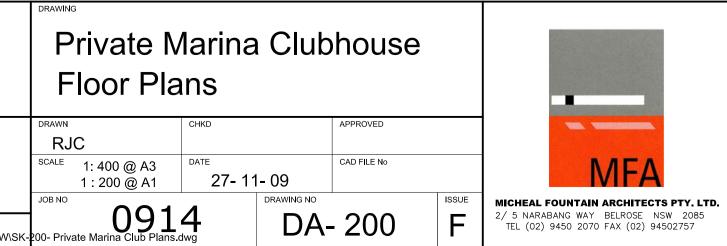
· _ · _

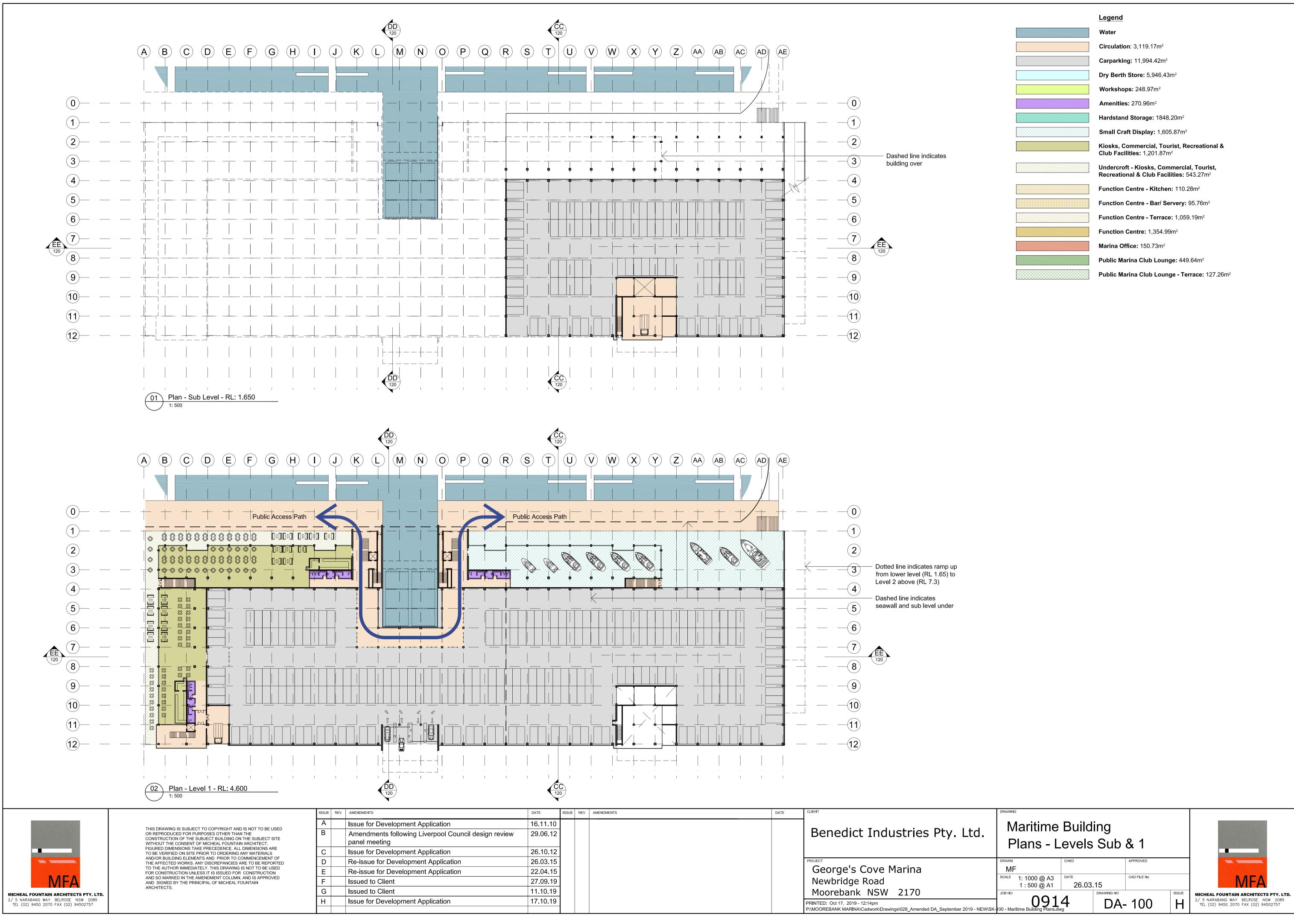
Legend

- Water
- Small Craft Store: 117.30m²
- Small Craft Circulation (& Ramp): 278.11m²

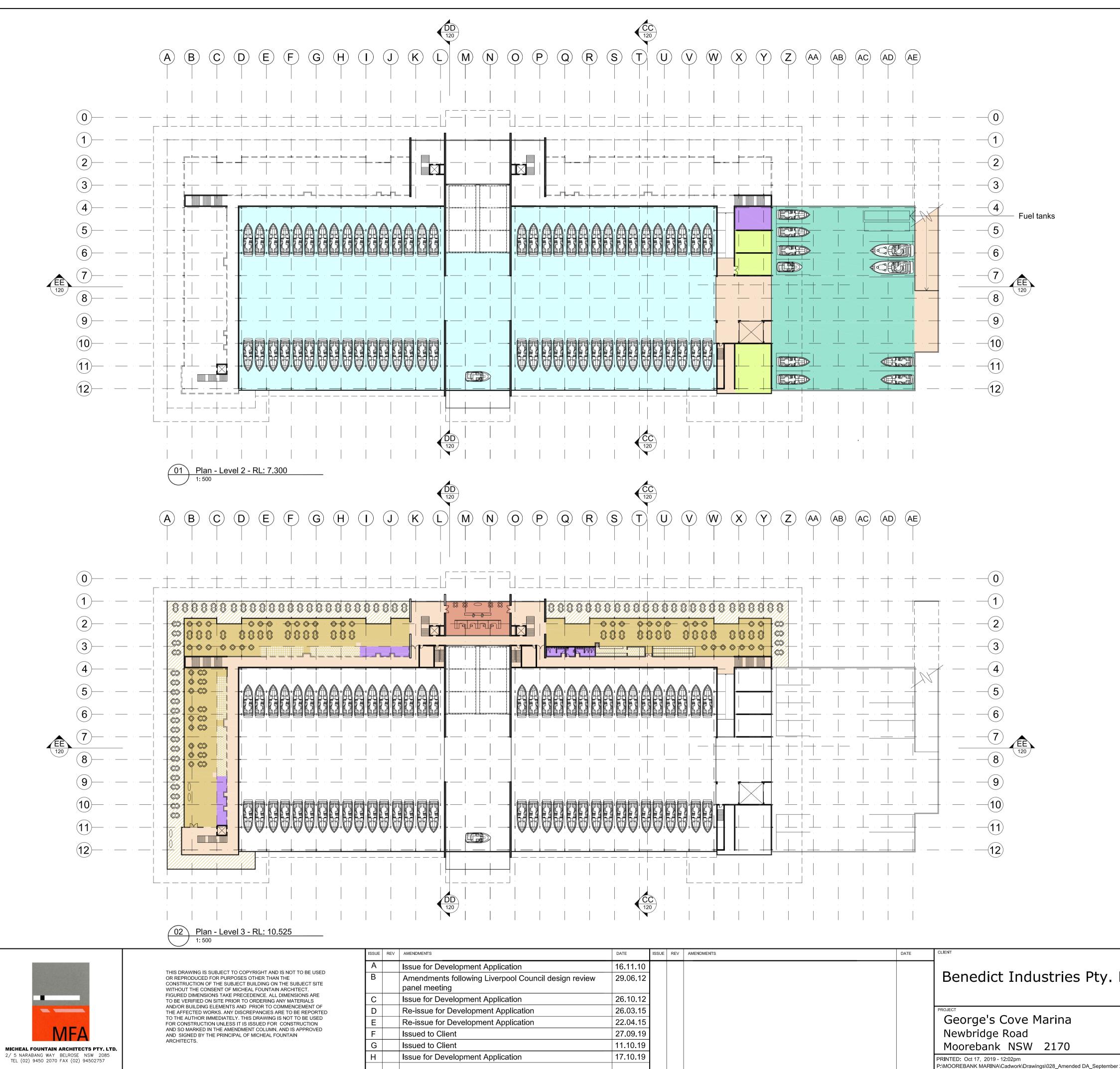
Circulation: 215.93m²

- **Circulation on Pontoons:** 221.16m²
- Barbeque Area: 392.47m²
- Barbeque Terrace
- Amenities: 108.32m²
- Kiosk: 123.38m²
- Kiosk Terrace: 149.71m²
- Brokerage: 72.49m²
- Marina Office: 35.55m²
- Private Marina Clubhouse: 215.64m²
- Private Marina Clubhouse Terrace: 193.72m²



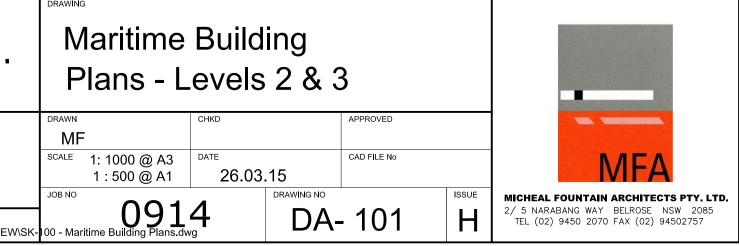


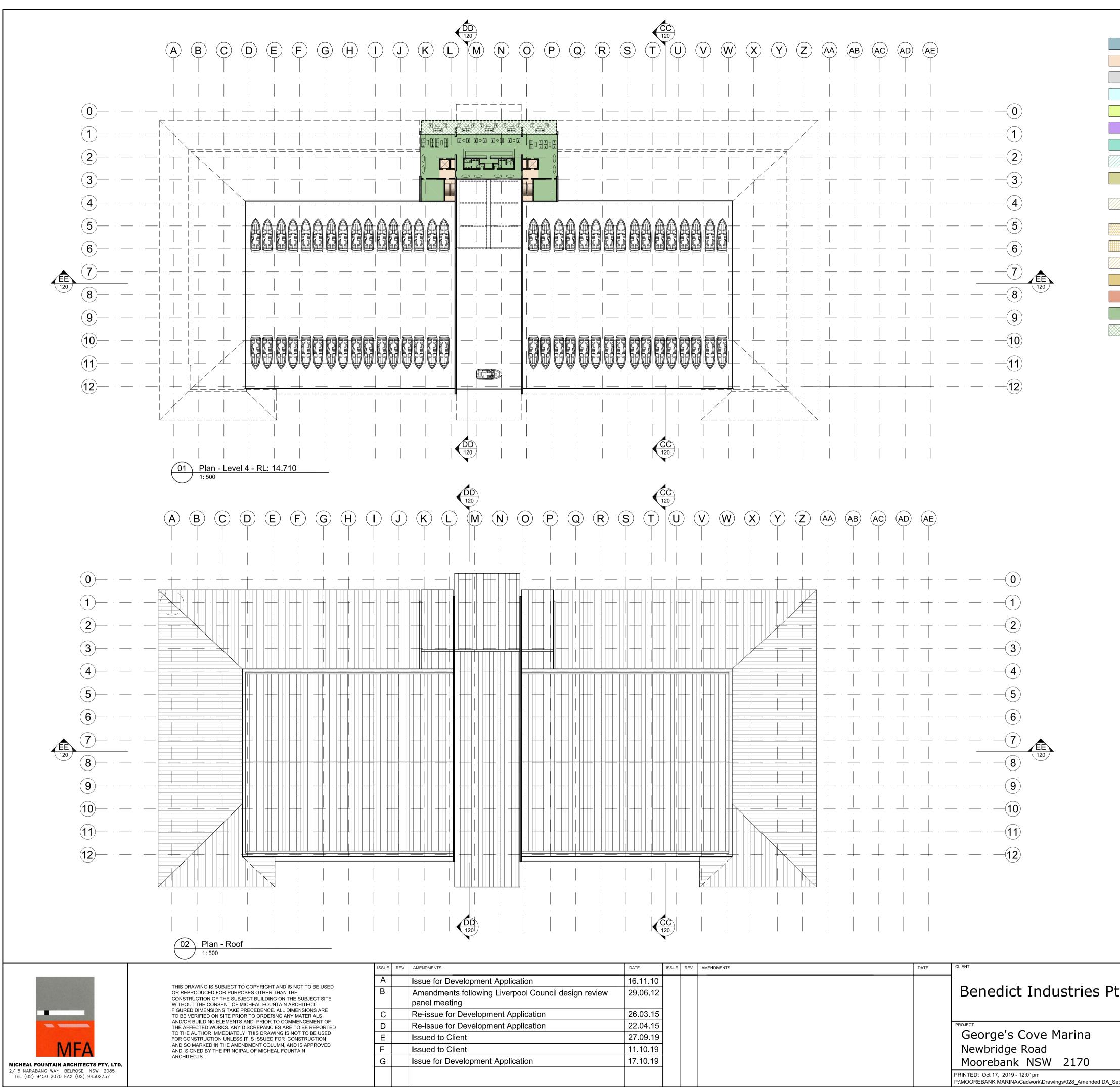
| Legend |
|---|
| Water |
| Circulation: 3,119.17m ² |
| Carparking: 11,994.42m ² |
| Dry Berth Store: 5,946.43m ² |
| Workshops: 248.97m ² |
| Amenities: 270.96m ² |
| Hardstand Storage: 1848.20m ² |
| Small Craft Display: 1,605.87m ² |
| Kiosks, Commercial, Tourist, Recreational & Club Facilities: 1,201.87m ² |
| Undercroft - Kiosks, Commercial, Tourist, Recreational & Club Facilities: 543.27m ² |
| Function Centre - Kitchen: 110.28m ² |
| Function Centre - Bar/ Servery: 95.76m ² |
| Function Centre - Terrace: 1,059.19m ² |
| Function Centre: 1,354.99m ² |
| Marina Office: 150.73m ² |
| Public Marina Club Lounge: 449.64m ² |
| Public Marina Club Lounge - Terrace: 127.26m ² |
| |



| | 16.11.10 | |] |
|---------------|----------|--|--|
| lesign review | 29.06.12 | | Benedict Industries Pty. Ltd. |
| | | | |
| | 26.10.12 | | |
| | 26.03.15 | | PROJECT |
| | 22.04.15 | | George's Cove Marina |
| | 27.09.19 | | Newbridge Road |
| | 11.10.19 | | Moorebank NSW 2170 |
| | 17.10.19 | | PRINTED: Oct 17, 2019 - 12:02pm |
| | | | P:\MOOREBANK MARINA\Cadwork\Drawings\028 Amended DA September 2019 - NEW |

| Legend |
|---|
| Water |
| Circulation: 3,119.17m ² |
| Carparking: 11,994.42m ² |
| Dry Berth Store: 5,946.43m ² |
| Workshops: 248.97m ² |
| Amenities: 270.96m ² |
| Hardstand Storage: 1848.20m ² |
| Small Craft Display: 1,605.87m ² |
| Kiosks, Commercial, Tourist, Recreational & Club Facilities: 1,201.87m ² |
| Undercroft - Kiosks, Commercial, Tourist, Recreational & Club Facilities: 543.27m ² |
| Function Centre - Kitchen: 110.28m ² |
| Function Centre - Bar/ Servery: 95.76m ² |
| Function Centre - Terrace: 1,059.19m ² |
| Function Centre: 1,354.99m ² |
| Marina Office: 150.73m ² |
| Public Marina Club Lounge: 449.64m ² |
| Public Marina Club Lounge - Terrace: 127.26m ² |
| |





| | DATE | ISSUE | REV | AMENDMENTS | DATE | CLIENT |
|---------------|----------|-------|-----|------------|------|---|
| | 16.11.10 | | | | |] |
| lesign review | 29.06.12 | | | | | Benedict Industries Pty. Ltd. |
| | | | | | | |
| | 26.03.15 | | | | | |
| | 22.04.15 | | | | | PROJECT |
| | 27.09.19 | | | | | George's Cove Marina |
| | 11.10.19 | | | | | Newbridge Road |
| | 17.10.19 | | | | | Moorebank NSW 2170 |
| | | | | | | PRINTED: Oct 17, 2019 - 12:01pm P:\MOOREBANK MARINA\Cadwork\Drawings\028_Amended DA_September 2019 - NEW |

Legend

Water Circulation: 3,119.17m² Carparking: 11,994.42m² Dry Berth Store: 5,946.43m² Workshops: 248.97m² Amenities: 270.96m² Hardstand Storage: 1848.20m² Small Craft Display: 1,605.87m² Kiosks, Commercial, Tourist, Recreational & Club Facilities: 1,201.87m² Undercroft - Kiosks, Commercial, Tourist, Recreational & Club Facilities: 543.27m² Function Centre - Kitchen: 110.28m² Function Centre - Bar/ Servery: 95.76m² Function Centre - Terrace: 1,059.19m² Function Centre: 1,354.99m² Marina Office: 150.73m² Public Marina Club Lounge: 449.64m² Public Marina Club Lounge - Terrace: 127.26m²

