

Our Ref: 11867w0004
 Your Ref:
 Date: 27/08/2021

Planning Potential
 13-14 Orchard Street
 Bristol
 BS1 5EH

For the attention of Philip Marsden

Dear Sirs

P/21/0225 - ALDI MERTHYR TYDFIL EXTENSION - RESPONSE TO NRW COMMENTS

Further to comments from Natural Resources Wales regarding the above proposal, contained within their letter report reference CAS-157378-J9X8, we write to respond as follows.

It is accepted that the Development Advice Map (DAM) and TAN15 are the current requirements for assessing flood consequences for the application – as per the original FCS it is aimed to justify the proposed development within DAM Zone C2. The Flood Risk Assessment Wales (FRAW) mapping does however provide useful information as to the probability of flooding and associated levels.

Based on the FRAW map, the 1 in 100-year flood outline (medium risk area) broadly accords to a level of approximately 162.20mAOD, according to topographical survey information (included in appendix B of the original FCS document). The 1 in 1000-year flood outline (low risk area) reaches approximately 163.70mAOD.

The floor level of the building (both existing and proposed extension) is 162.95mAOD. The building is therefore around 750mm above the estimated 1 in 100-year flood level. According to the topographical survey, the lowest point on the site boundary is around 162.45mAOD. Flood water will not enter the site during this event. The building and the site will therefore remain flood free during the threshold event, as defined in TAN15 cl. A1.14.

Beyond this, the entire site is likely to be inundated during the 1 in 1000-year event, since it is within the area shown as being affected on the FRAW map. It is therefore important to review flood volumes during such an event. A level-for-level analysis has therefore been carried out, as shown in sketch 0001 revision C enclosed.

0.1 metre depth "slice"	Flood plain loss (m²)	Flood plain gain (m²)	Difference (m²)
162.20	Approximate 1 in 100-year (1% AEP) flood level		
162.3 - 162.4	53.7	113.7	+60.0
162.4 - 162.5	62.7	130.5	+67.8
162.5 - 162.6	156.4	157.2	+0.8
162.6 - 162.7	284.4	294.6	+10.2
162.7 - 162.8	392.7	480.7	+88.0
162.8 - 162.9	431.8	515.3	+83.5
162.9 - 163.0	438.3	488.6	+50.3
162.95	Building floor level		
163.0 - 163.1	438.3*	478.0	+39.7*
163.1 - 163.2	438.3*	465.9	+27.6*
163.2 - 163.3	438.3*	414.1	-24.2*
163.3 - 163.4	438.3*	326.9	-111.4*
163.4 - 163.5	438.3*	166.6	-271.7*
163.5 - 163.6	438.3*	49.6	-388.7*
163.70	Approximate 1 in 1000-year (0.1% AEP) flood level		
*based on no water entry into building			

It is therefore possible to increase flood volume storage within the site for all flood levels up to the building floor level, and to a depth of 250mm above the floor level.

Beyond this level, without any water entering the building, the proposed development would displace flood volume – this is because there is a decreasing area of the existing site area that can be lowered, to offset the additional building area.

It is therefore proposed not to exclude water from the building for flood events that may exceed the floor level – this is particularly important as since the proposed development is for an extension to an existing building, it will not be practicable to develop a water exclusion strategy for higher level flood events, since the existing structure will not be designed to withstand the higher head of water.

As such floodwater will enter the building and not be displaced by the proposed extension. The anticipated depth of internal flooding during the 1 in 1000-year event is approximately 750mm. The building should therefore be evacuated in the event of a flood warning being issued – as mentioned in the original FCS the store does lie within a Flood Warning Area. A flood warning and evacuation plan should be developed, if one does not currently exist for the store.

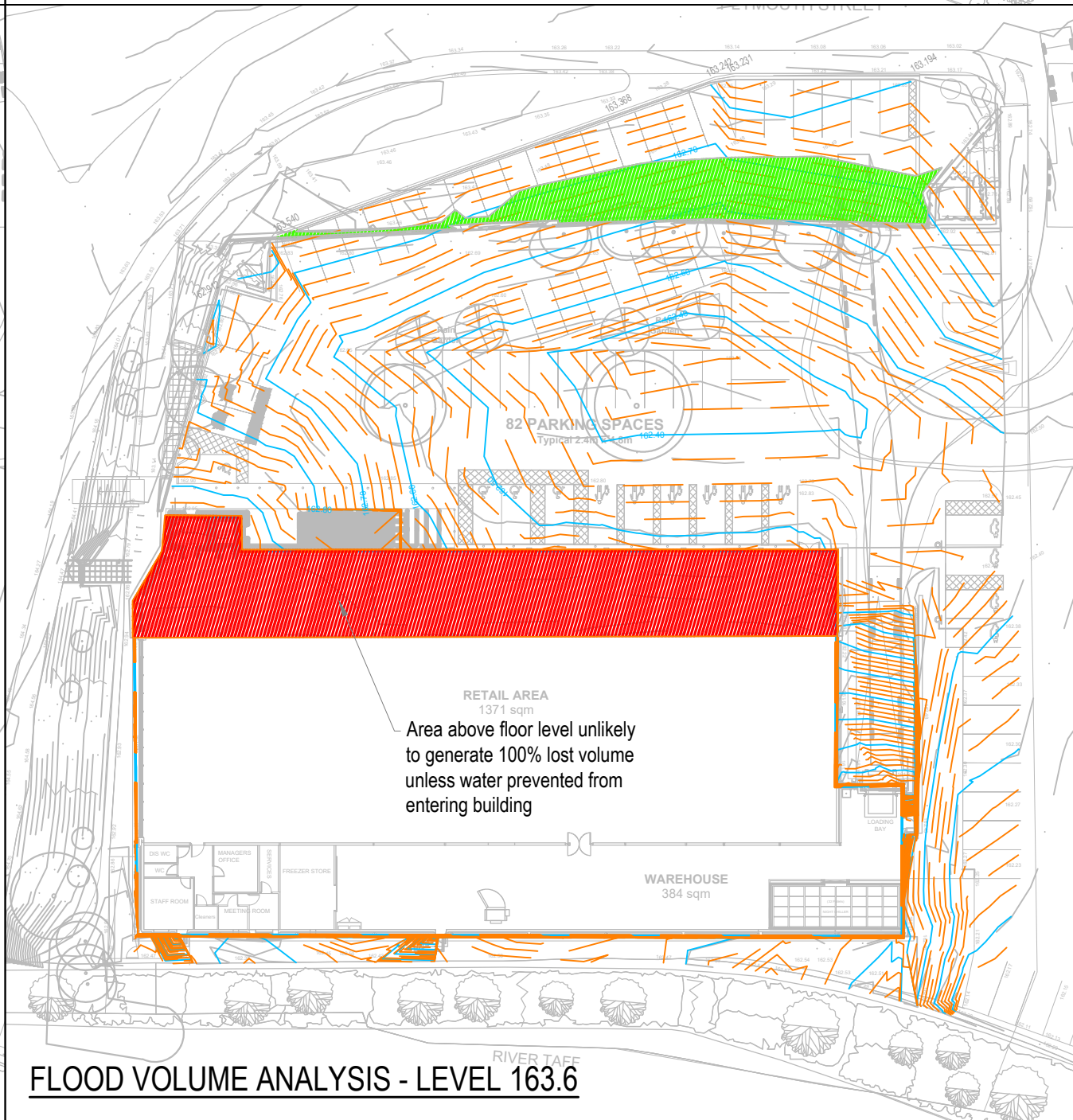
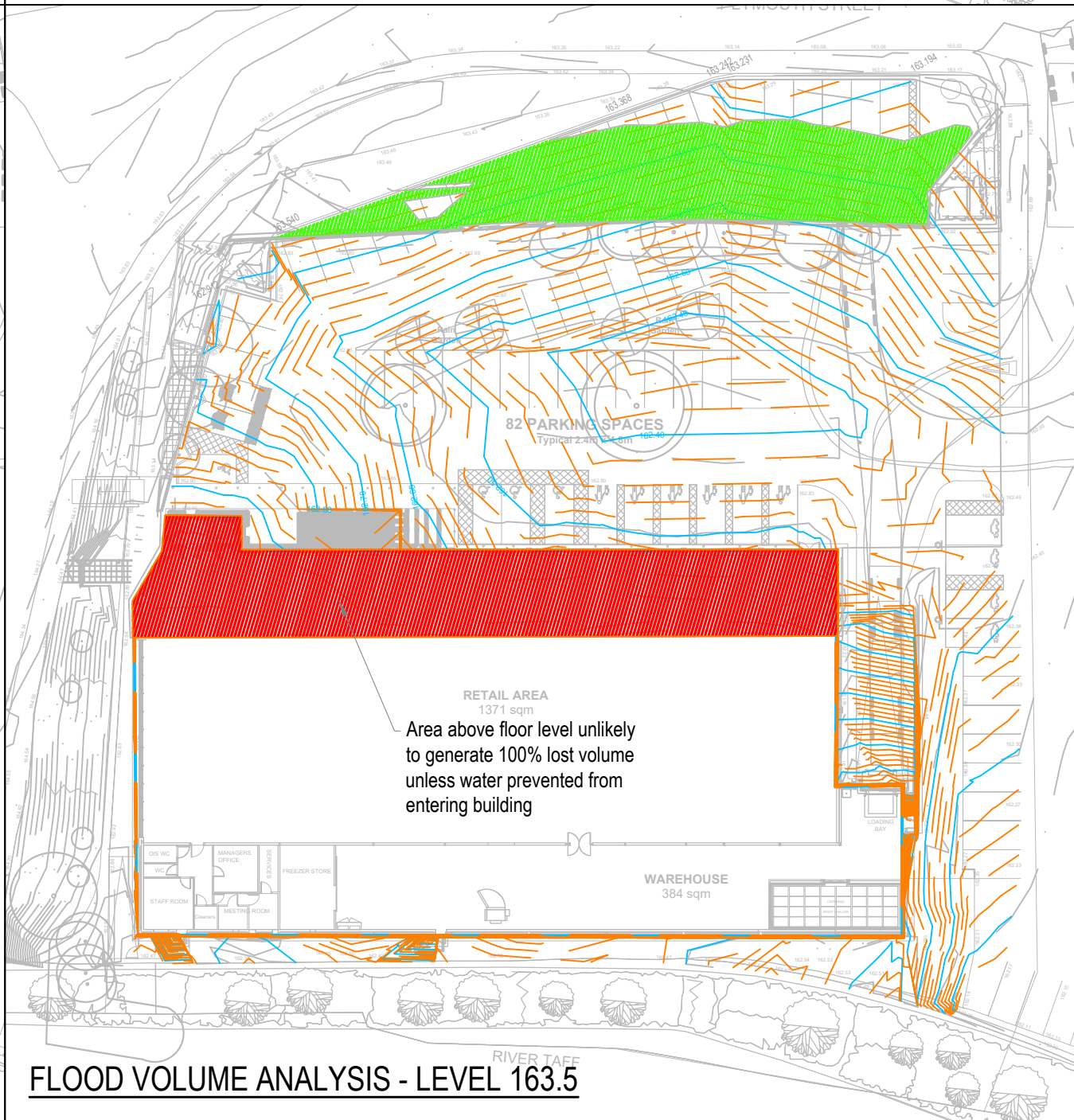
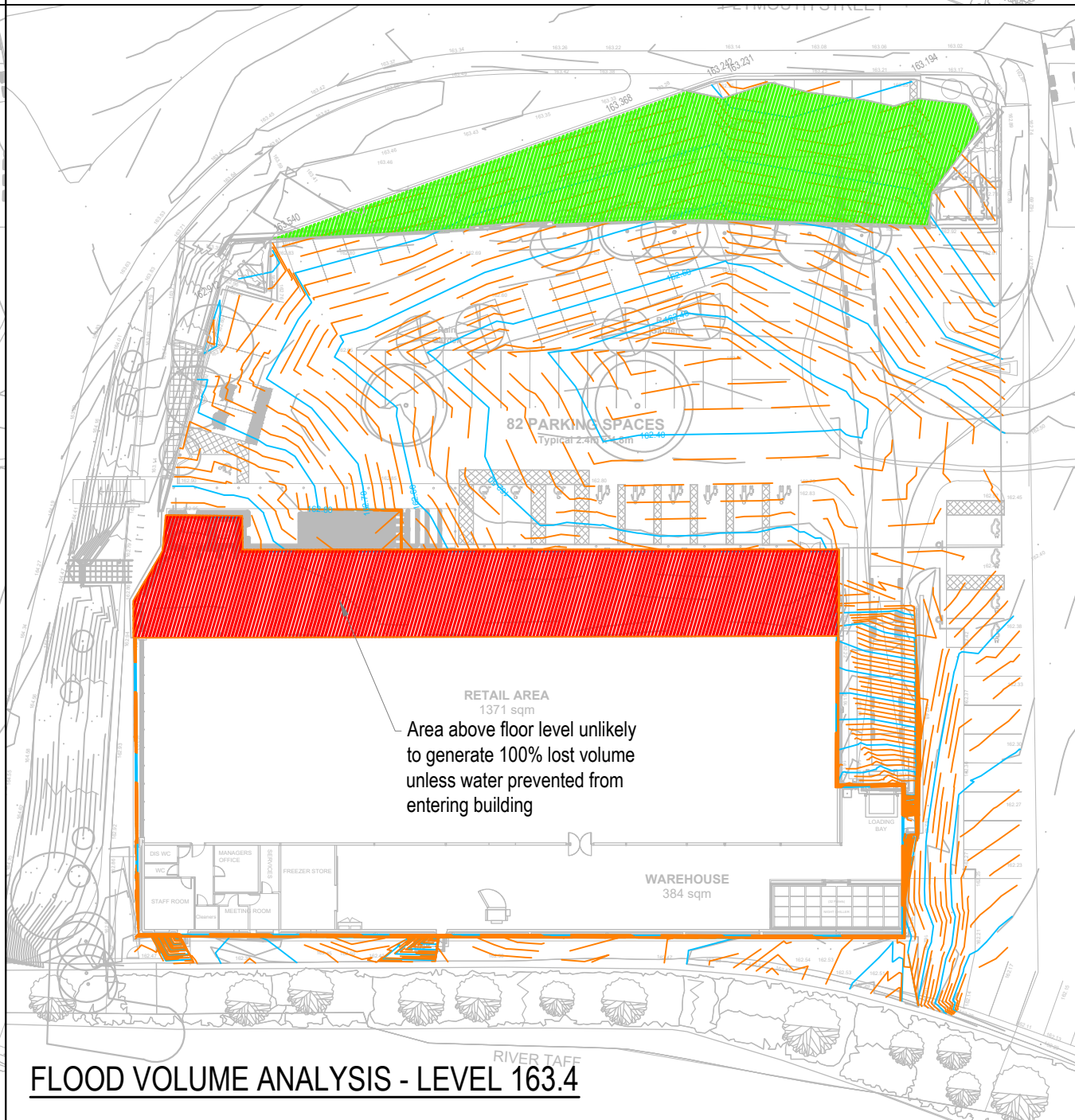
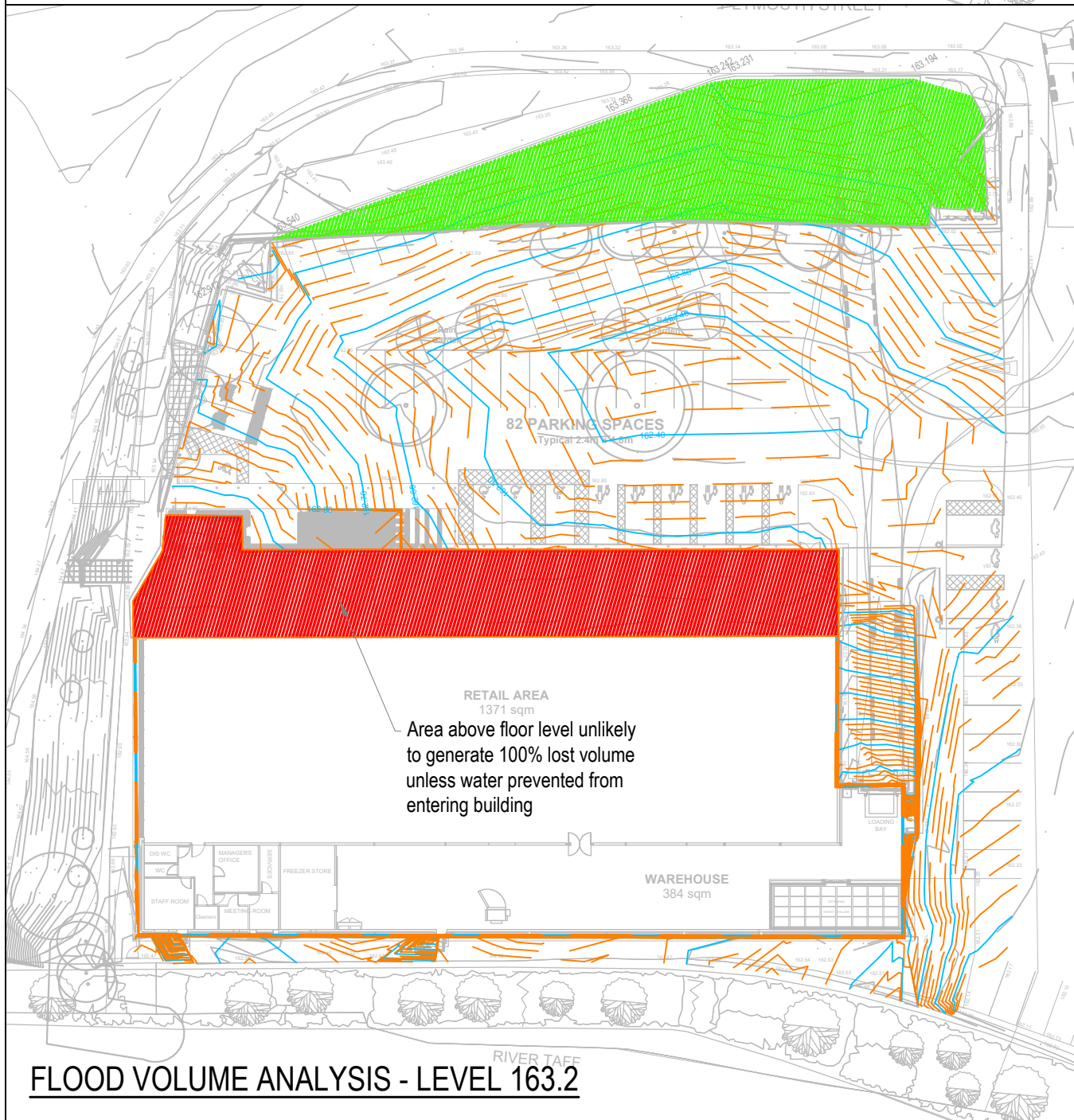
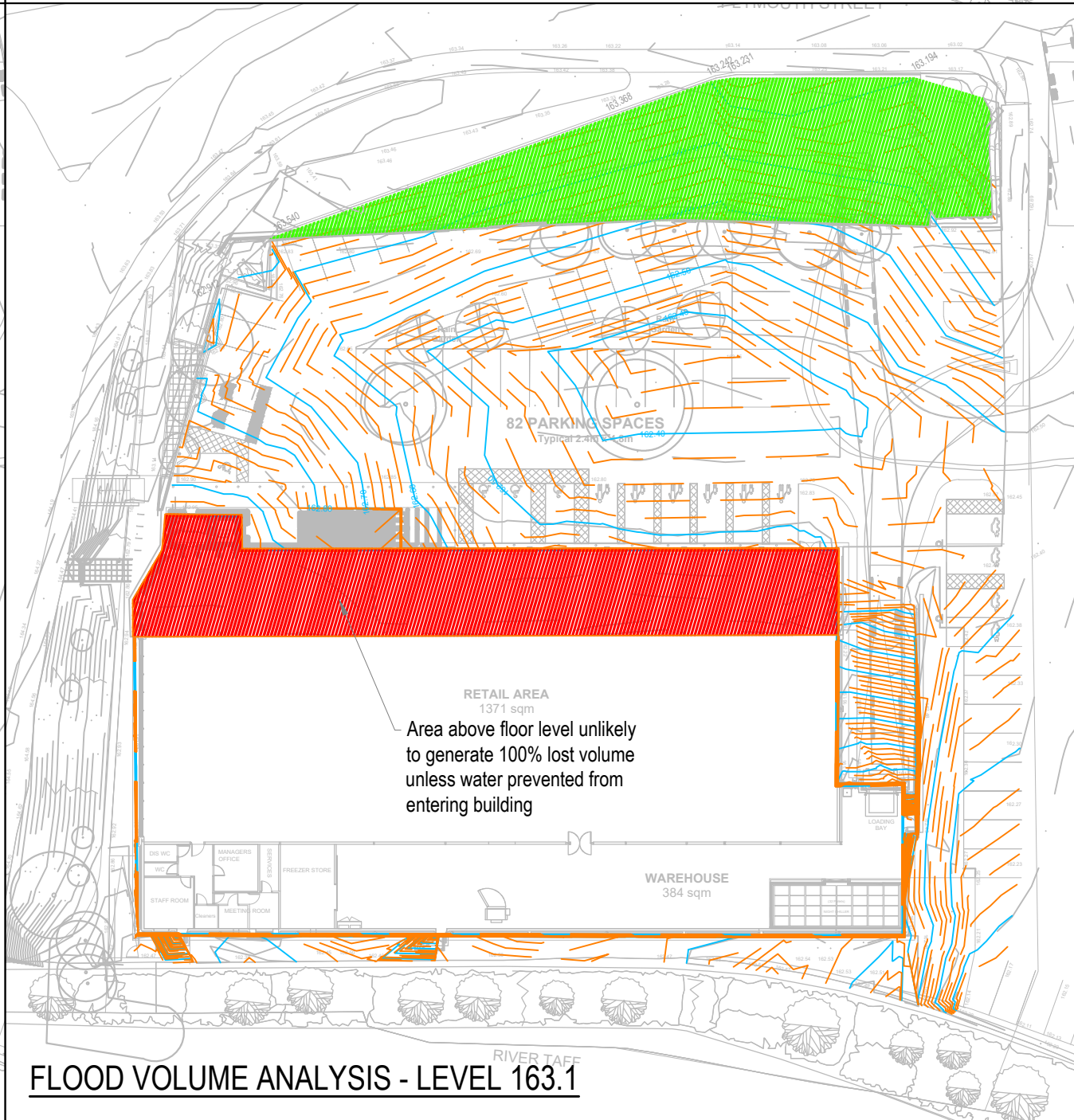
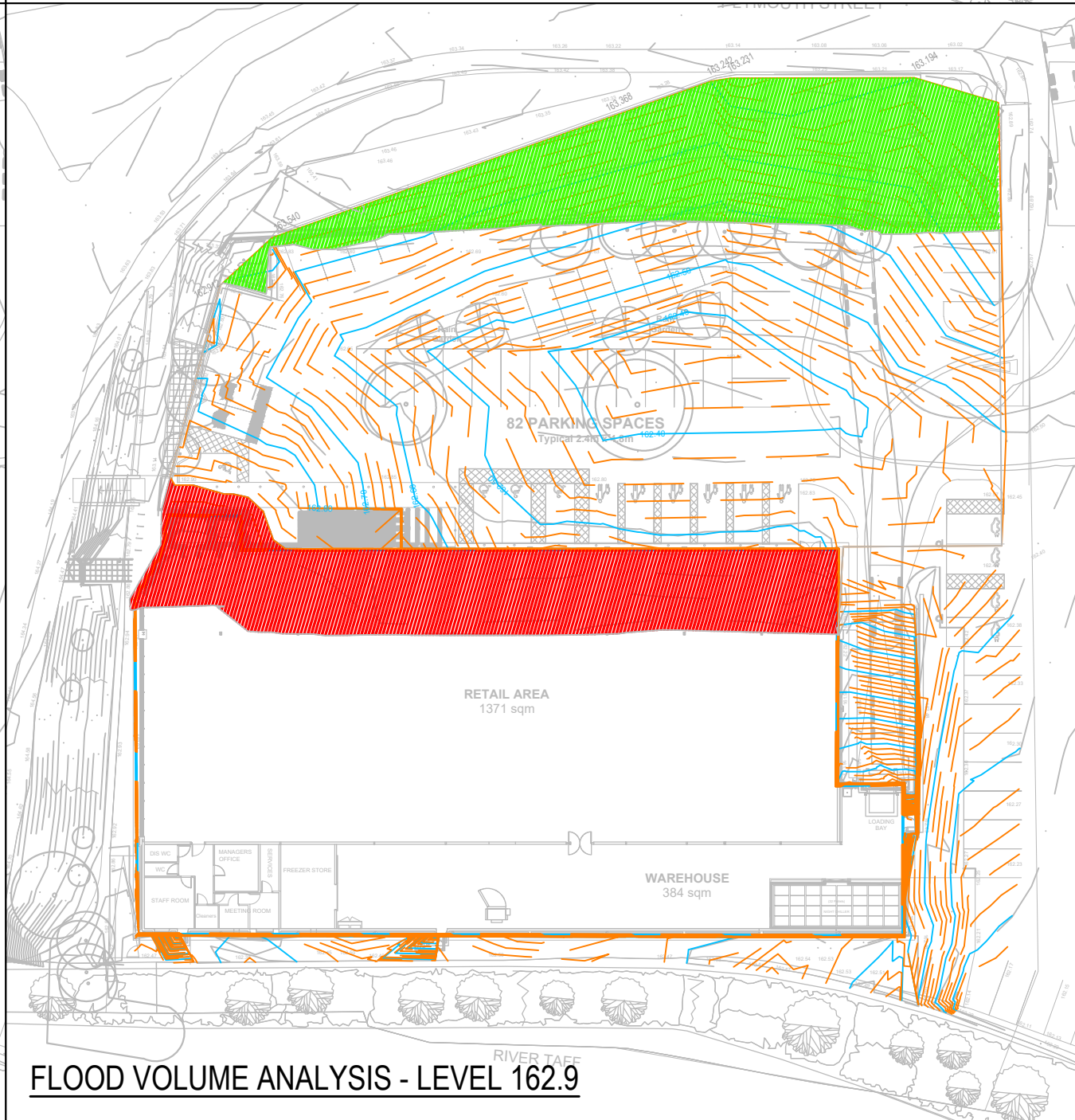
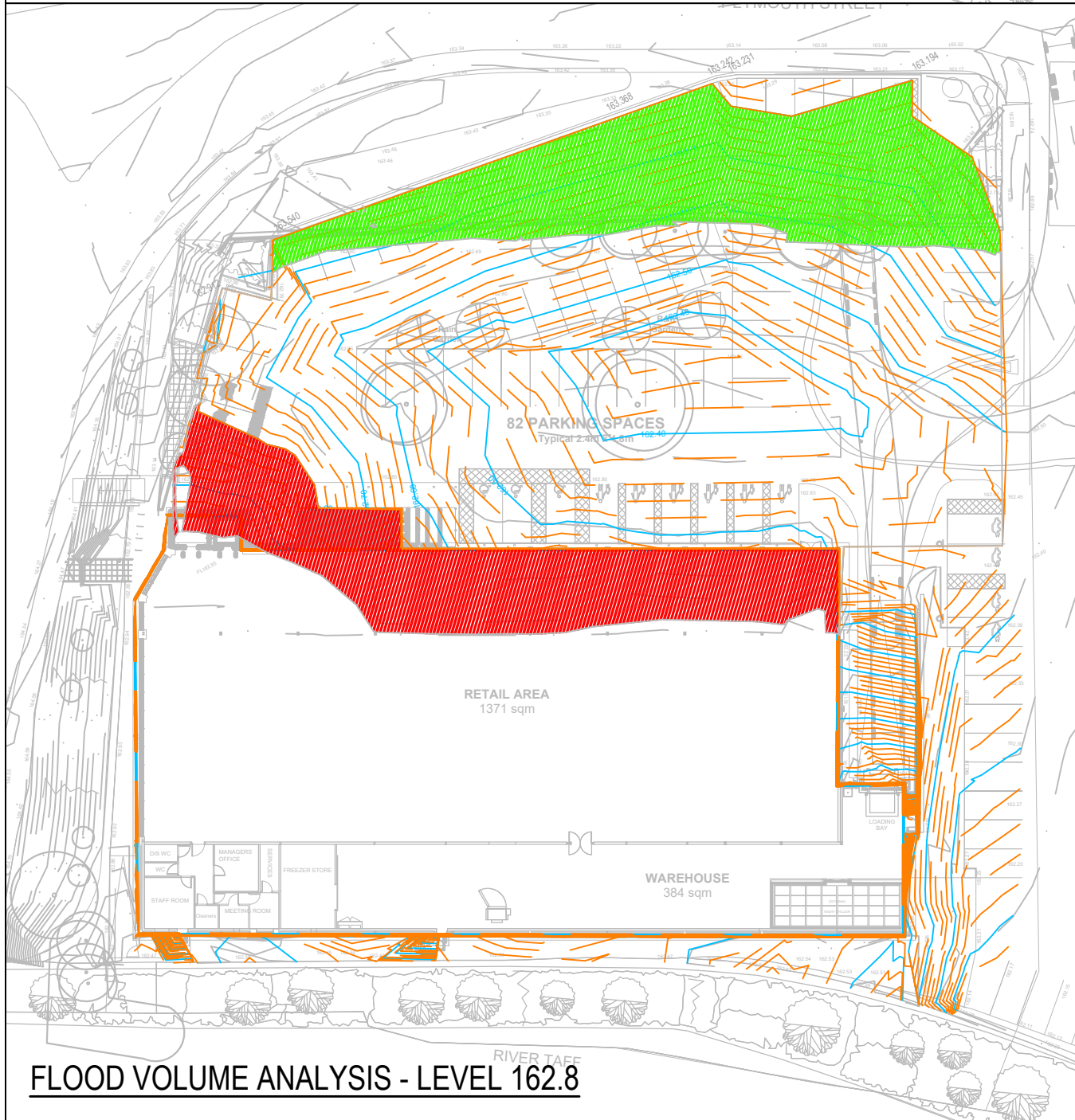
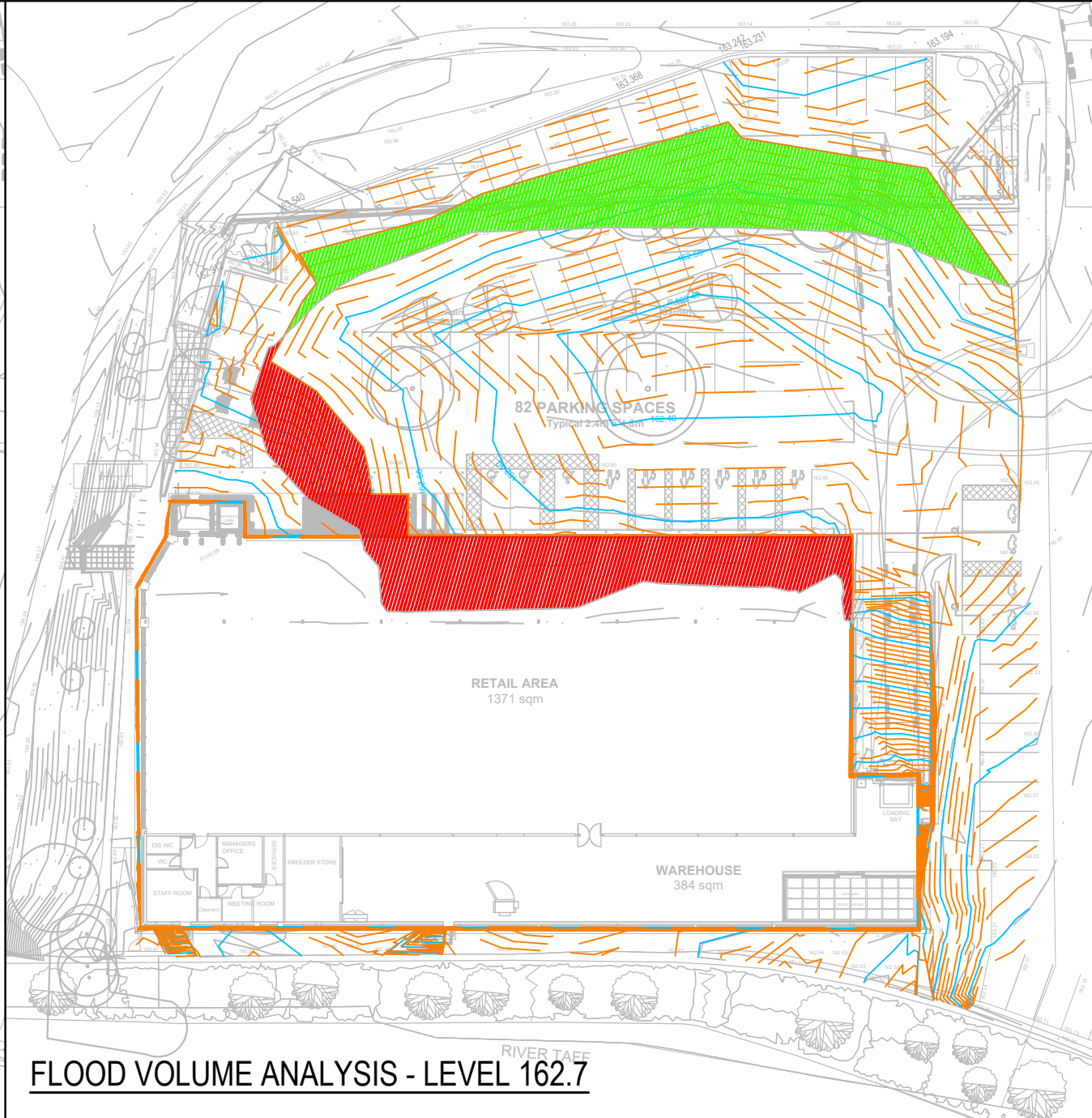
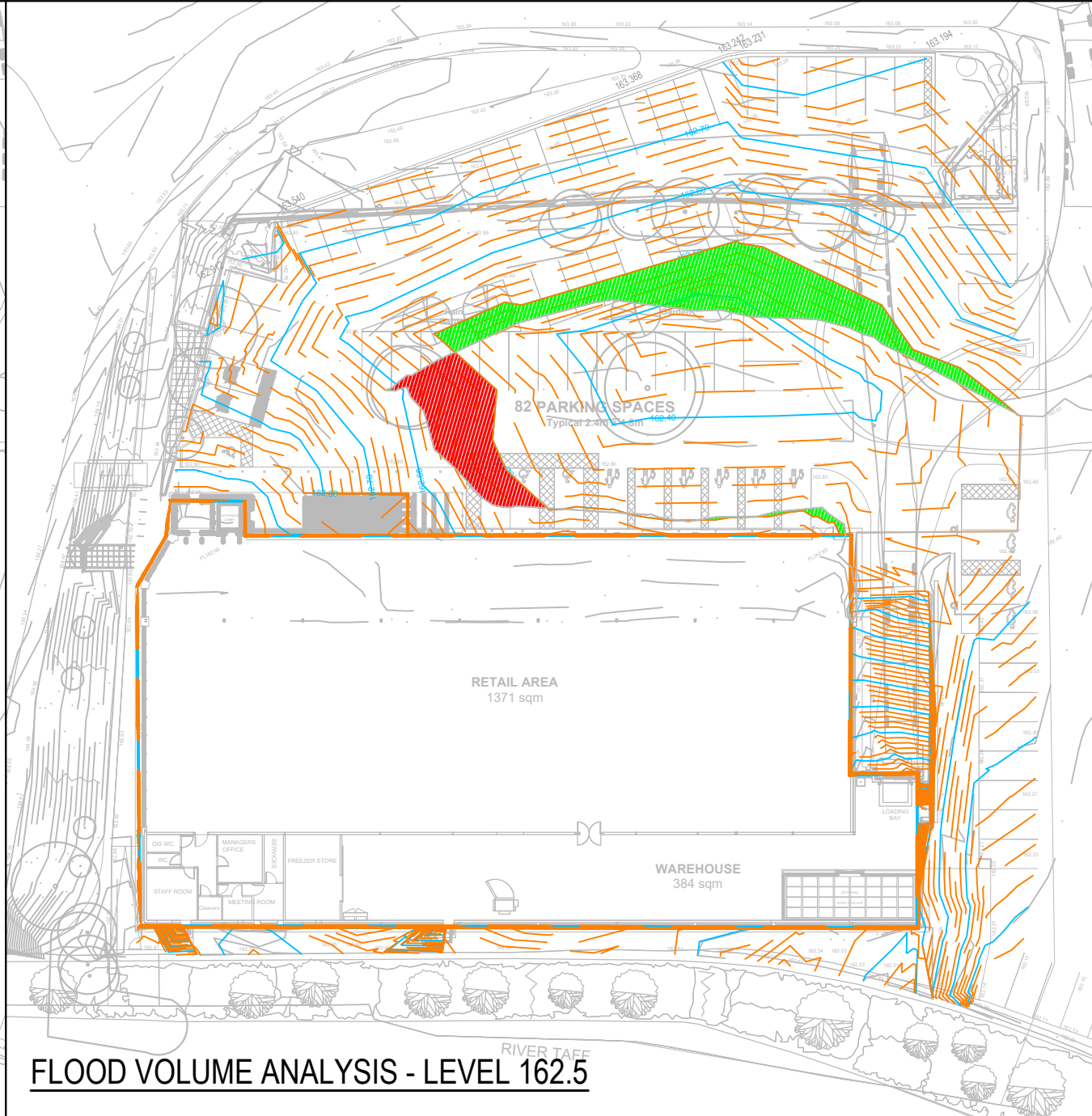
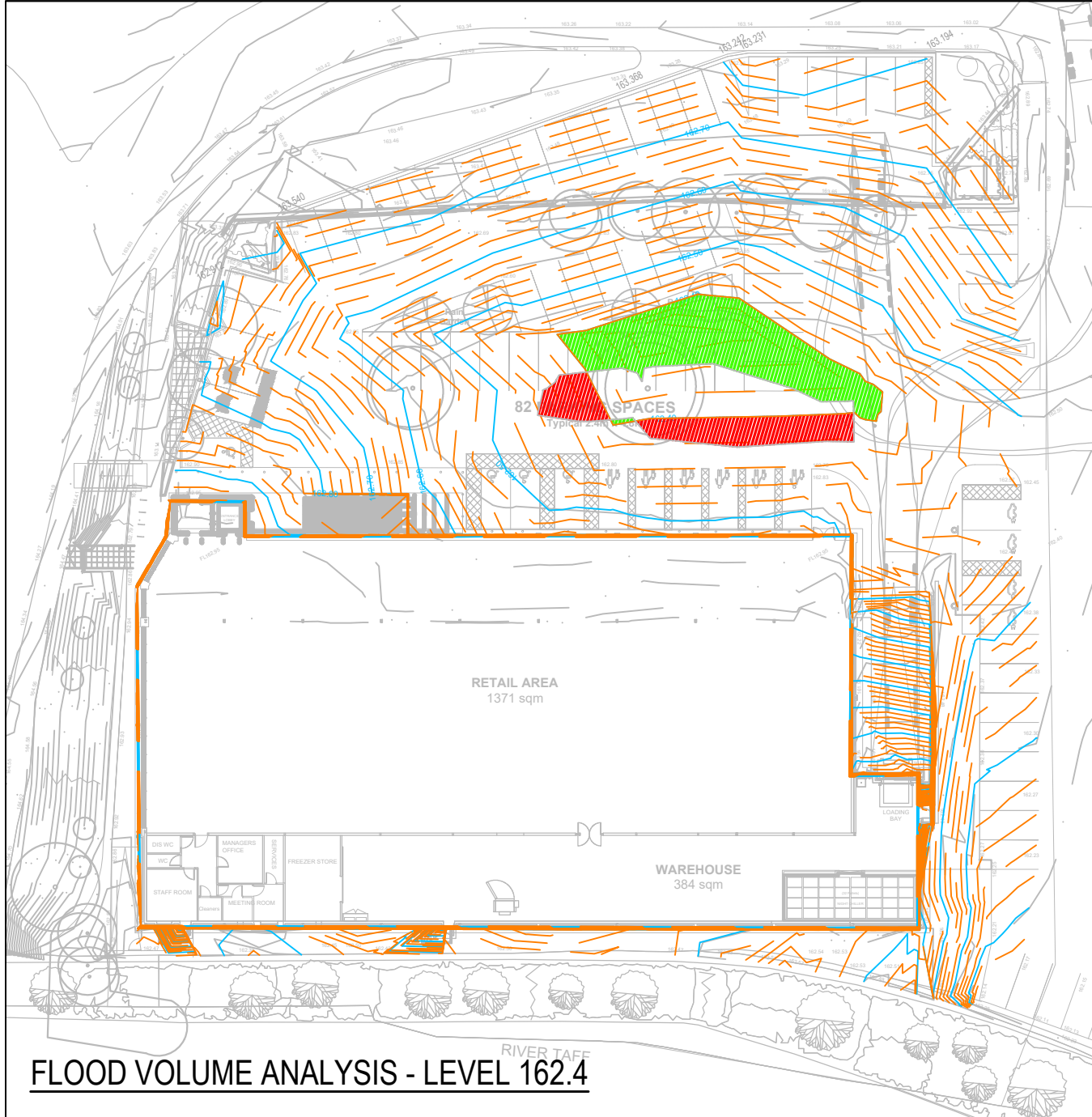
It should be noted that since the proposal is for an extension to an existing building, and no change of use or floor level is proposed, there is effectively no significant change to the situation that would occur on site should an extreme flood event occur.

I trust that the above and attached is sufficient to address NRW's concerns.

Yours faithfully,

Richard Hogarth
Chartered Civil Engineer
MEng (Hons) CEng MICE
Principal Engineer

Enc: 11867sk0001c Proposed Levels Flood Analysis
11867sk0005 Proposed Levels



IF YOU HAVE A QUERY CALL US

SCALING FROM THIS DRAWING OR OBTAINING DIMENSIONS ELECTRONICALLY MAY NOT PROVIDE ACCURATE INFORMATION AND SHOULD BE AVOIDED. WORK ONLY FROM FIGURED DIMENSIONS.

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

SITE LAYOUT: The background layout shown in this drawing is based on KKL's drawing 170620-1503 Revision P3. Please note that this might not be the latest drawing. Reference must be made to the Architect's drawings for current information.

SURVEY: The topographical survey background shown in this drawing is based on BERRY GEOMATICS's drawing 21/20 Revision A.

KEY

162.50 Proposed contours (0.02-0.10m intervals)

162.363 Proposed spot levels & gradients

163.242 Existing spot levels

Flood area added

Flood area lost

0.1 metre depth 'slice'	Flood plan loss (m³)	Flood plan gain (m³)	Difference (m³)
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*based on no water entry into building

C D M : SIGNIFICANT HAZARDS

THE FOLLOWING HEALTH AND SAFETY HAZARDS ARE IDENTIFIED BY THE DESIGNER AS ABNORMAL IN PURSUANCE OF THE CURRENT CONSTRUCTION DESIGN AND MANAGEMENT REGULATIONS.

RISKS DURING CONSTRUCTION:

- No abnormal risks have been identified relating to this design element.

OPERATION / MAINTENANCE RISKS:

- No abnormal risks have been identified relating to this design element.

RISKS DURING DEMOLITION / DECOMMISSIONING / DISMANTLING / ALTERATIONS:

- No abnormal risks have been identified relating to this design element.

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY COMPETENT & ADEQUATELY RESOURCED CONTRACTOR(S) WORKING TO SAFE SYSTEMS OF WORK.

C	LEVELS UPDATED, LEVEL FOR LEVEL ANALYSIS	RJH 27.08.21
B	SITE PLAN UPDATED	RJH 14.06.21
A	FIRST ISSUE	AG 26.03.21
REV	REVISION DETAILS	BY DATE

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PROJECT TITLE

CAR PARK AND STORE EXTENSION
PLYMOUTH STREET
MERTHYR TYDFIL

DRAWING TITLE

PROPOSED LEVELS
FLOOD ANALYSIS

CLIENT

ALDI STORES LTD.

STATUS INFORMATION

SCALE AT A1	DRG SIZE	DRAWN	CHECKED	APPROVED
1:200	A1	AG	RJH	RAG

JOB NO.	DRAWING NUMBER	REV
11867	11867sk0001	C

