Dee Why Bowling Club Flood Study Assessment Report

221 - 223 Fisher Road North

DEE WHY NSW 2099

JN Responsive Engineering

18010198

Revision History

REVISION	DATE	BY	CHECKED	COMMENTS
A	12/07/19	AW	BM	Initial draft Issue
B	01/08/19	AW	BM	Issue for Approval

The recipient of the latest issue as noted above will be responsible for superseding/destroying all previous documents.

JN
Responsive Engineering

Contents

1. Preliminary Information

The primary purpose of this report is to provide a flood assessment for the subject site. This report should be read in conjunction with the associated architectural design drawings and other development application documentation.

1.1. Site Characteristics

The subject site is located on the eastern side of Fisher Rd North, refer Figure 1. The site is currently occupied by 3 bowling greens and various ancillary buildings, including the clubhouse. The subject site comprises Lot 32 DP 868310. The total area occupied by the subject site is approximately 1.15ha. The site is relatively flat with slight fall to the southern corner. Several creeks / watercourses run around the site in a southerly direction towards Cromer Park, The catchment drained by these watercourses is relatively small and forms a part of the wider Dee Why Lagoon catchment.

Figure 1. "Site Location"

1.2. Limitations

All data, observations and opinions contained in this report pertain to hydraulic assessment of flood flows at or in the vicinity of the site. This report neither purports to be nor is an investigation into any other aspect of flooding within the site or surrounding catchment.

This report and the results contained within are only as accurate as the survey information provided. JN takes no responsibility or liability for incorrect survey information. The report is only valid for the development as proposed and detailed in this report and is not valid for any other design, layout or development.

1.3. Datasets

Hydrologic model inputs and all mapping presented in this report were undertaken using the GIS MapInfo & Global Mapper. These programs are geographical database systems that allow detailed cadastral, topological and flood data to be displayed and manipulated. Subarea data and other statistics were generated using inbuilt GIS functions and exported directly to the hydraulic model.

The datasets used to construct the models included:

- 2m contours & cadastre (LPI, Northern Beaches LGA);
- Aerial photography (May 2019, Nearmap);
- Detailed site & surrounds survey & 3D TIN (CMS Surveyors, Jan-Mar 2016);
- 1m ALS DEM (capture date April 2013) from LPI;
- Pipe data from Northern Beaches Council 'Stormwater assets' mapping layer;
- Site inspections, June 2019.

During our June 2019 site inspections, we undertook hand measurements of several of the pipe / culvert systems in the local vicinity, in order to bolster confidence in the data available on Council's mapping layer. In general, our measurements corresponded well with the data on Council's mapping layer.

The MGA56 coordinate system was used for datasets wherever possible.

1.4. Existing Flood Information

Council's adopted flood studies for the Dee Why Lagoon are:

A. Dee Why & Curl Curl Lagoons Flood Study (LACE, 2002);
B. Dee Why & Curl Curl Lagoons Floodplain Risk Management Study and Appendices (LACE, Nov 2005).

The mapping in the floodplain risk management study (FRMS) indicated that the LACE model boundary was limited to Cromer Park, and thus the subject site is excluded from Council's studies.

The FRMS states that "*In the lower reaches of the creeks, water levels are influenced by the storage in the lagoons, initial water levels and the prevailing entrance conditions prior to the commencement of surface runoff. Dee Why and Curl Curl Lagoons are examples of Intermittently Closed and Open Lakes and Lagoons (ICOLLS). On Dee Why Creek, the lagoon and the bridge over Pittwater Road influence flood levels for a distance of about 200 m upstream of Pittwater Road. Upstream of this location, flood levels are controlled by the hydraulic conveyance capacity of the channel and its overbank areas as well as the bed slope of the stream*."

On this basis, we have assumed that water levels at the subject site (over 1km upstream of Pittwater Rd) are governed by the local hydraulic conveyance capacity of the watercourses, as opposed to tidal / lagoon dominated, as would be the case for areas located lower in the catchment.

1.5. Proposed Development

The development as proposed consists of demolition of the existing clubhouse, and construction of a new clubhouse with basement parking, and a seniors living unit block with basement parking, plus other ancillary (e.g. outdoor carparking, drainage, etc) works.

2. Hydrologic Modelling

2.1. Catchment Extents

The subject site is located within the Dee Why Lagoon catchment. The main flowpath in the local vicinity is southwards through the local creeks / watercourses that wrap around the site and drain towards the open channel (rectangular base, concrete lined) that drains along the southern side of the Cromer Park sports fields.

The local catchment extents and subarea boundaries are delineated in Figure 2; catchment statistics are detailed in table A.

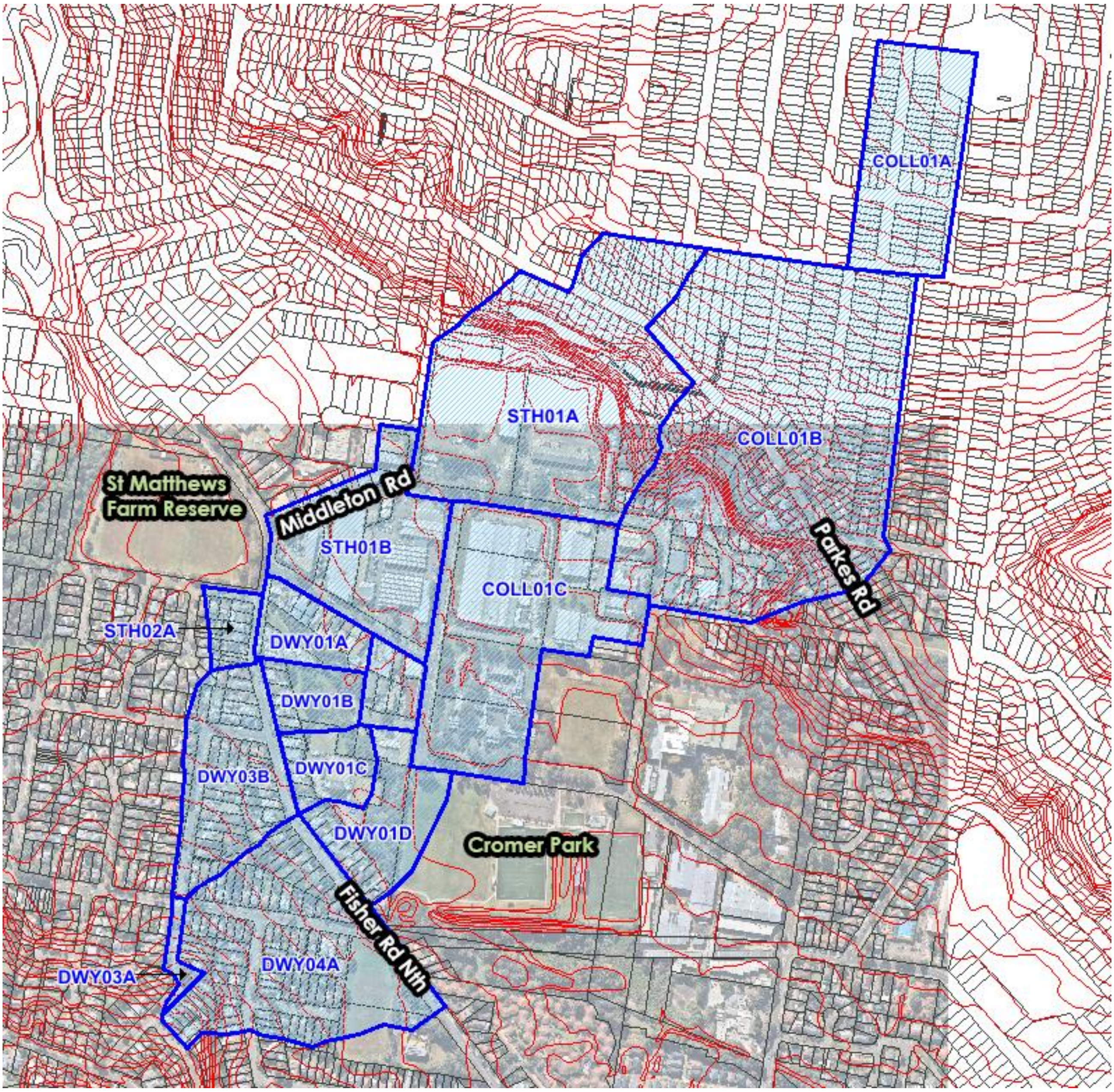
The catchment draining to the intersection of Fisher Rd North and Middleton Rd (Subareas STH 01A, 01B and 02A) has been reviewed during the site inspection and also using the ALS 1m DEM dataset. This review indicated that these 3 subareas are collected via a d1350mm pipe that runs northwards into St Matthews Farm reserve; flows in excess of the pipe capacity will pond in the sag point in Fisher Rd Nth, before spilling into St Matthews Farm reserve. It is unlikely that cross-catchment flow into the top of DWY01A will occur without large ponding depths in the sag point. This also appears to be the conclusion of Council's flood study and FRMS, which exclude this area from the Dee Hwy lagoon catchment (and instead place it within the South Creek catchment).

We have generally delineated subareas using the local pipe network as guidance, which also appears to the methodology in Council's flood study and FRMS; it is possible that roads such as Parkes Rd divert a portion of the upstream flow to other parts of the catchment. However, we have conservatively ignored these diversions, as a detailed analysis and/or catchment-scale 2D model is beyond the scope of this local flood study.

table A: Subarea Statistics

SUBAREA	AREA [HA]	IMPERVIOUS%
COLL01A	5.242	55
COLL01B	19.802	60
COLL01C	9.319	55
STH01A	13.396	60
STH01B	5.742	95
DWY01A	1.707	55
STH02A	0.889	55
DWY02A	1.092	95
DWY01B	1.436	15
DWY03A	0.389	90
DWY03B	4.448	55
DWY01D	3.027	25
DWY01C	1.536	15
DWY04A	9.169	50

Figure 2. "Catchment Extents"



2.2. WBNM Modelling

Hydrological Modeling was undertaken using iWBNM 2013, an updated interface to the WBNM hydrological engine. WBNM ('Watershed Bounded Network Model' Boyd et al, 2007) is an advanced storage-routing model developed in conjunction with the University of Wollongong that allows simulation of complex catchment behaviour.

A summary of the adopted modelling parameters is provided below.

- Lag Parameter: 1.60 (recommended default)
- Stream Routing: N/A (typically performed in TUFLOW)
- Initial Loss: 0.00 [mm] (to account for antecedent conditions)
- Continuing Loss Rate: 0.72 [mm/hr] (as per ARR2016, see note below)
- Raingauges: Dee Why (1 total, ARR2016)

The ARR datahub specifies a loss rate of 1.8 mm/hr for the local area but notes that this may not be applicable in urban areas; without any further information on loss rates we have applied the 0.4 factor (= 0.72) as recommended on the ARR datahub website. Model results are presented in their entirety in the included attachment; table B reproduces the most relevant values.

Australian Rainfall Runoff (ARR) 2016

ARR2016 was released in late-2016, although as of 2019 some final chapters are still missing. We have adopted the ARR2016 procedure for hydrograph estimation for the 100yr ARI (1% AEP) event, noting that ARR2016 specifies that an ensemble of 10 patterns be run for every duration, with the design peak flow taken as the average of the 10 patterns. With respect to input hydrographs, it is recommended that the pattern with a peak flow just above the mean be adopted. ARR2016 data is available on the associated Datahub website; we have adopted loss rates from the datahub as noted above. IFD2016 depth data was also used (taken from the BOM website) for a gauge in Dee Why.

WBNM Results & Critical Duration Analysis

WBNM results are presented in their entirety in the appendices and in summary below. The ARR2016 duration with the highest flowrate for the 1%AEP event was 20 minutes. As a check, the following ARR2016 1%AEP durations were run in a preliminary hydraulic model: 20 / 30 / 60 minutes. These checks indicated the 30-minute durations produced the highest water levels at the subject site. We have therefore adopted the 30-minute duration storm for hydraulic modelling for the 1%AEP event. A full spectrum of durations (run hydraulically in 2D) was not feasible for this small-scale flood study; while it is possible that another duration produces the highest level at the subject site, it is highly unlikely that the resulting flood level would be significantly higher than the levels calculated.

The following pattern numbers were selected as being representative of the 'average' flowrate value; that is, their peak flowrates were at or slightly above the calculated average value for most subareas.

- 1%AEP 20min 4428
- 1%AEP 30min 4504
- 1%AEP 60min 4463

The hydrographs from the above storm patterns were converted to TUFLOW TS1 files and used as direct model input for the TUFLOW hydraulic model.

The PMF 20-minute storm produced the highest flowrates at the subject site in WBNM; we have checked the 20 / 60 / 90 minute storms hydraulically, and the 60-minute produced the highest water level at the subject site, noting that the PMF flood levels are storage-driven, with ponding behind the Cromer Sports field embankments due to the inability of the large flows to escape the fields in an efficient manner. We have therefore adopted the 60-minute PMF storm for analysis purposes.

table B: WBNM Results – Select subareas, Q_{peak} [m^3/s]

SUBAREA	1%AEP 20MIN	1%AEP 30MIN	1%AEP 60MIN
DWY04A	3.817	3.435	2.773
DWY03A	0.228	0.196	0.145
DWY03B	2.200	1.980	1.561
DWY01A	0.854	0.766	0.583
DWY01B	1.307	1.190	0.961
DWY02A	0.611	0.534	0.397
DWY01C	4.193	3.876	3.155

3. Hydraulic Modelling

3.1. TUFLOW Modelling

TUFLOW is a 1D / 2D grid model that performs hydro-dynamic analysis in river and floodplain systems. TUFLOW allows the user to model a range of structures common in urban environments. The 64-bit double precision version of TUFLOW (2013 AC) was used as the hydraulic model for this report.

TUFLOW model parameters were as follows:

- Grid cell size: 0.75m
- 2D Timestep: 0.2s
- 1D Timestep: 1.0s

Additional parameters were generally left at the recommended default values. A downstream outflow boundary was located in the channel adjacent to Cromer Park and TUFLOW was allowed to calculate the water level at this location.

The following cases were modelled:

1. Existing case;
2. Proposed case: incorporating various changes as discussed in Section 3.2.

Material zones and roughness values are summarised in table C. The model extents and material zones are depicted in the figures at the end of this chapter.

table C: Manning's N-values

MATERIAL	N-VALUE
Channel - concrete	0.015
Channel – dense vegetation	0.080
Dense trees / vegetation	0.085
Industrial yards [a]	0.020
Road reserve	0.025
Short grass / sports fields	0.035
Urban yard [a]	0.060
Buildings	Raised

[a] yards exclude buildings, which are separately raised in model

Pit & Pipe network & Blockage parameters

We have modelled 2 of the larger sag pits in Fisher Rd North; in all scenarios these pits were modelled with a 50% inlet blockage factor. We have considered the culverts / pipes within the model to be either all-clear or 50% blocked depending on the scenario analysed. In general, the 50% blocked case only resulted in marginally higher (+100-200mm) water levels in the vicinity of the proposed development at the peak of the 1%AEP event.

3.2. Proposed Model

The proposed model incorporated the following changes:

A. The new building outlines (clubhouse, seniors living unit block) were input as solid obstructions;

B. We have assumed the area behind the retaining wall near Unit#20 of the Seniors Living unit will be filled to RL +10.80.

We highlight that the proposed development outline is almost entirely located outside of the 1%AEP flood extents, and as such, there are no significant conveyance impacts or loss of flood storage during the 1%AEP event or smaller.

3.3. Model Results

Mapping is included in Appendix B. We highlight the following:

A. The subject site is almost entirely flood free in the 1%AEP flood event under both all-clear and 50% blocked scenarios;

B. 1%AEP flood levels vary along the watercourses, from around +10.37 mAHD (north-west site corner) to +10.35 mAHD (entrance to twin d900mm pipes under bowling green) to +10.07 mAHD (southern site corner);

C. 1%AEP flooding is typified by conveyance-controlled flows in the local waterways; the twin d900mm RCP's running beneath the bowling club have sufficient capacity to convey the 1%AEP flows even in the 50% blocked condition;

D. Under 50% blocked scenario, the 1%AEP levels upstream of the site increase by around +150mm, and by around +70mm downstream of the site;

E. 1%AEP flow velocities in the channels and overbanks areas surrounding the site are typically very small, less than 0.5 m/s. The exception to this is the concrete channels in or adjacent to Cromer Park, where velocities are around 2-3 m/s;

F. PMF flooding is typified by ponding behavior in Cromer Park, with insufficient ability for the very large flows to escape the oval embankments;

G. The maximum PMF ponding level at the site is +11.25 mAHD.

Conveyance Impacts

The development is located almost entirely outside of the 1%AEP flood extents, and as such, there are no offsite impacts in the 1%AEP flood event as demonstrated by our modelling.

PMF flooding is typified by ponding at very low velocities, and while the proposed development is a solid obstruction to PMF flows, the model indicated very small (less than 20mm) impacts on the surrounding adjacent lots.

Flood Storage Impacts

The proposed development footprint only extends slightly into the 1%AEP flood extents in an area of shallow ponding (50-100mm flow depth). We estimate a flood storage loss of 5-10m^3 in the 1%AEP event which is insignificant and will have no measurable impact on hydrograph attenuation due to loss of storage routing. This can be readily offset through minor excavation works.

Floor Level Recommendations

With respect to floor levels, we recommend the following:

A. The Clubhouse currently incorporates a ground floor level at RL +12.95 mAHD, well above the flood planning level (FPL, approximately +10.9 mAHD for the subject site, being 500mm above the highest 1%AEP level) and indeed PMF level;

B. There is no requirement for the Clubhouse basement level to be flood protected to any level, based on the Warringah DCP 2011 flood matrix assessed in Section 3.5 following;

C. The Seniors Living Development is a 'vulnerable use' and must be set at the higher of the FPL and the PMF, this equates to RL +11.25 mAHD (PMF) and all habitable floors meet or exceed this requirement;

D. The Seniors Living basement is required to be flood protected to the PMF level (+11.25 mAHD); this can only be achieved through the use of a flood barrier such as Flow Defense that automatically activates when flood levels reach a set trigger level. Further comment is provided in section 3.5.

3.4. Hazard and Risk Assessment

NSW FDM Hazard Assessment

The NSW Floodplain Development Manual (2005) provides guidelines for determining the hydraulic flood hazard at a site. A provisional hazard can be assigned to an area using Figure L2 and the combined impact of flood velocity and flood depth.

In general, an area will be (provisionally) assigned High Hazard if any of the following criteria are satisfied:

- The flood depth (D) is greater than 1.0 m;
- The flood velocity (V) is greater than 2.0 m/s;
- The combination of V and D lie in the dark blue region (mathematically this is approximately where V + 3.33D is greater than 3.33).

Under both existing and proposed conditions, the areas of (provisional) High Hazard in the 1%AEP event are limited to the creek channels themselves, with the remaining overbank areas almost entirely Low Hazard. We note there is no change to these categories under proposed conditions.

ARR2016 Hazard Assessment

ARR2016 provides updated Hazard curves as described in Table 6.7.3 and 6.7.4 of ARR2016 Chapter 6. We have provided mapping of the 6 hazard categories, with the definitions as follows:

H1: Generally safe for vehicles, people and buildings.
H2: Unsafe for small vehicles.
H3: Unsafe for vehicles. children and the elderly.
H4: Unsafe for vehicles and people.
H5: Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.
H6: Unsafe for vehicles and people. All building types considered vulnerable to failure.

Under both existing and proposed conditions creek channels are predominantly H4-H5 category at the peak of the 1%AEP event. The flooded areas upstream of the site outside of the channels themselves are predominantly H1-H2, and the flooded area downstream of the site is mostly H3.

Cromer Park is a combination of H1-H3. We note there is no change to these categories under proposed conditions.

Risk Assessment

As far as we are aware, the Warringah DCP 2011 still applies to the subject site. The Warringah definitions of flood risk are related to the NSW FDM hazard classifications described earlier and are as follows:

> **High Risk:** within 1%AEP flood extents and subject to High Hazard, or within the floodway or subject to significant evacuation difficulties;
> **Medium Risk:** within 1%AEP flood extents and not High Hazard;
> **Low Risk:** not within the 1%AEP flood extents but subject to PMF flooding.

Based on the above, the subject site is almost entirely **Low Flood Risk** with very small / isolated areas of Medium Flood Risk.

3.5. Assessment against DCP / LEP objectives

The proposed development incorporates a Seniors Living development, which falls into Warringah DCP 2011 "vulnerable uses" category. The flood risk category that most applies to the development footprint is Low Risk, and we have assessed the proposal against the relevant column in the Warringah DCP flood matrix, refer also Table D. We have assessed the clubhouse portion of the proposed development separately as 'Business / Commercial'.

table D: Assessment against DCP 2011: Seniors Living Portion of Development

DCP OBJECTIVE	COMMENT
Flood effects: A2 A3 A4 Certification shall be provided in accordance with Northern Beaches Council's Standard Hydraulic Certification Form (Forms A and A1 of Northern Beaches Council's Guidelines for preparing a Flood Management Report) to the effect that the works have been designed and can be constructed to adequately address flood risk management issues. The applicant shall include in their submission, calculations to illustrate that any fill or other structures that reduce the total flood storage are replaced by Compensatory Works. Development (including earthworks and subdivision) shall not be approved unless it can be demonstrated in a Flood Management Report that it been designed and can be constructed so that in a Probable Maximum Flood event: (a) There are no adverse impacts on flood levels and velocities caused by alterations to the flood conveyance; (b) There are no adverse impacts on surrounding properties; and (c) It is sited to minimise exposure to flood hazard.	We believe the flood risk management issues at the subject site can be satisfactorily addressed; certification can be readily provided at the CC stage. There is a nominal loss of flood storage in the 1%AEP flood event of 5-10m^3 and this can be readily offset via compensatory excavation. PMF flooding in the area surrounding the site is characterised by ponding behind the Cromer Park embankments. As such, the proposed hydraulic model indicates that there are limited impacts on offsite properties with respect to water level or velocity increases during a PMF event. Water level increases upstream of the site are no more than +20mm, which we believe is acceptable.
Drainage infrastructure: B1 B2 Flood mitigation works or stormwater devices that modify a major drainage system, stormwater system, natural water course, floodway or flood behaviour within or outside the development site may be	There are currently no instream works or other flood mitigation works proposed.

permitted subject to demonstration through a Flood Management Report that they comply with the Flood Prone Land Design Standard found on Council's webpage. A Section 88B notation under the Conveyancing Act 1919 may be required to be placed on the title describing the location and type of flood mitigation works with a requirement for their retention and maintenance.	
Building Components: C1 C2 C3 All buildings shall be designed and constructed as flood compatible buildings in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006). All structures must be designed and constructed to ensure structural integrity up to the Flood Planning Level, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion. Structural certification shall be provided confirming the above. Where shelter-in-place refuge is to be provided the structural integrity is to be to the Probable Maximum Flood level. All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level. All existing electrical equipment and power points located below the Flood Planning Level must have residual current devices installed that turn off all electricity supply to the property when flood waters are detected.	Structural certification can be readily provided at the CC design stage. The structural integrity should be certified to the PMF level of +11.25 mAHD.
Storage: D1 D2 Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards. Goods, materials or other products which may be highly susceptible to water damage are to be located/stored above the Flood Planning Level.	As far as we are aware, there are no proposed hazardous or polluting goods to be stored as part of the Seniors Living development. All habitable floors will be located well above the Flood Planning Level of +10.9 mAHD.
Flood emergency response: E1 E2 E3 Development shall comply with Council's Flood Emergency Response Planning for Development in Pittwater Policy and the outcomes of any Flood Risk Emergency Assessment Report where it applies to the land. New development must provide an appropriately sized area to safely shelter in place above the Probable Maximum Flood level and appropriate access to this area should be available from all areas within the development.	A flood emergency response plan may be readily prepared as part of the CC documentation. With respect to evacuation, we believe the safest option is for all residents to shelter-in-place, noting that all habitable floor levels will be at or above the PMF flood level. Appropriate signage should be prepared advising residents to remain within their dwellings during a flood event, and await for the SES or other emergency personnel to give direction. This signage should be placed in the ground floor lobbies and at the ground

Adequate Warning Systems, Signage and Exits shall be installed to allow safe and orderly evacuation without reliance upon the SES or other authorised emergency services personnel.	floor exits. We do not believe that offsite flood evacuation should be undertaken in any circumstance, unless directed by the SES.
Floor Levels: F2 F3 F7 All development structures must be designed and constructed so as not to impede the floodway or flood conveyance on the site, as well as ensuring no loss of flood storage in a 1% AEP Event. Where the dwelling is located over a flow path it must be elevated on suspended pier/pile footings such that the level of the underside of all floors including balconies and decks within the flood affected area are at or above, or raised to the Flood Planning Level to allow clear passage of the floodwaters under the building. The development must comply with the Flood Prone Land Design Standard. Where the lowest floor has been elevated to allow the passage of flood waters, a restriction shall be imposed on the title of the land, pursuant to S88B of the Conveyancing Act confirming that the undercroft area is not to be enclosed. All floor levels within the development shall be at or above the Probable Maximum Flood level or Flood Planning Level whichever is higher.	The development as proposed is almost entirely located in an area that is flood free in the 1%AEP event, and as such the development does not impede flood flows or affect the conveyance capacity of the local waterways during this event. There is currently no proposal to elevate any portion of the Seniors Living unit to allow floodwaters through or beneath the building. There is a nominal loss of flood storage in the 1%AEP flood event of 5-10m^3 and this can be readily offset via compensatory excavation. All habitable floor levels of the Seniors Living unit will be at or above the PMF level of +11.25 mAHD, noting this is higher than the FPL (+10.9 mAHD).
Car Parking: G2 G6 G7 G9 G10 The lowest floor level of open carparks and carports (unroofed or with open sides) shall be constructed no lower than the natural ground levels Carports must comply with the Flood Prone Land Design Standard Where a driveway is required to be raised it must be demonstrated that there is no loss to flood stage in the 1% AEP flood event and no impact on flood conveyance through the site. All enclosed car parks must be protected from inundation up to the Probable Maximum Flood level or Flood Planning Level whichever is higher. For example, basement carparks must be provided with a crest at the entrance, the crest of which is at the relevant Probable Maximum Flood level or Flood Planning Level whichever is higher. All access, ventilation and any other potential water entry points to any enclosed car parking shall be above the relevant Probable Maximum Flood level or Flood Planning Level whichever is higher. Enclosed Garages must be located at or above the Probable Maximum Flood Level or Flood Planning Level whichever is higher.	There are no proposed carports or enclosed garages as part of the Seniors Living development. Several visitor car spaces will be located as depicted on the architectural plans, and these will be set at natural (existing) ground levels. The enclosed basement garage for the Seniors Living development has an access ramp that matches in to existing ground levels around RL +10.5 mAHD. Given a PMF level of +11.25, it is clear that a crest will be not be feasible solution for basement protection. However, we note that flood gates have been adopted in several Sydney LGAs as a solution to the ingress of floodwaters. We note that the Flow Defence (or similar flood barrier) are automatically activated using water pressure from the incoming floodwaters and do not require electronics. Maintenance requirements are minimal. We believe this is a robust and suitable solution to offer PMF flood protection to the basement level carpark.
Fencing: H1 Fencing, including pool fencing, shall be designed so as not to impede the flow of flood waters and not to	We recommend that all proposed fencing be flood compatible.

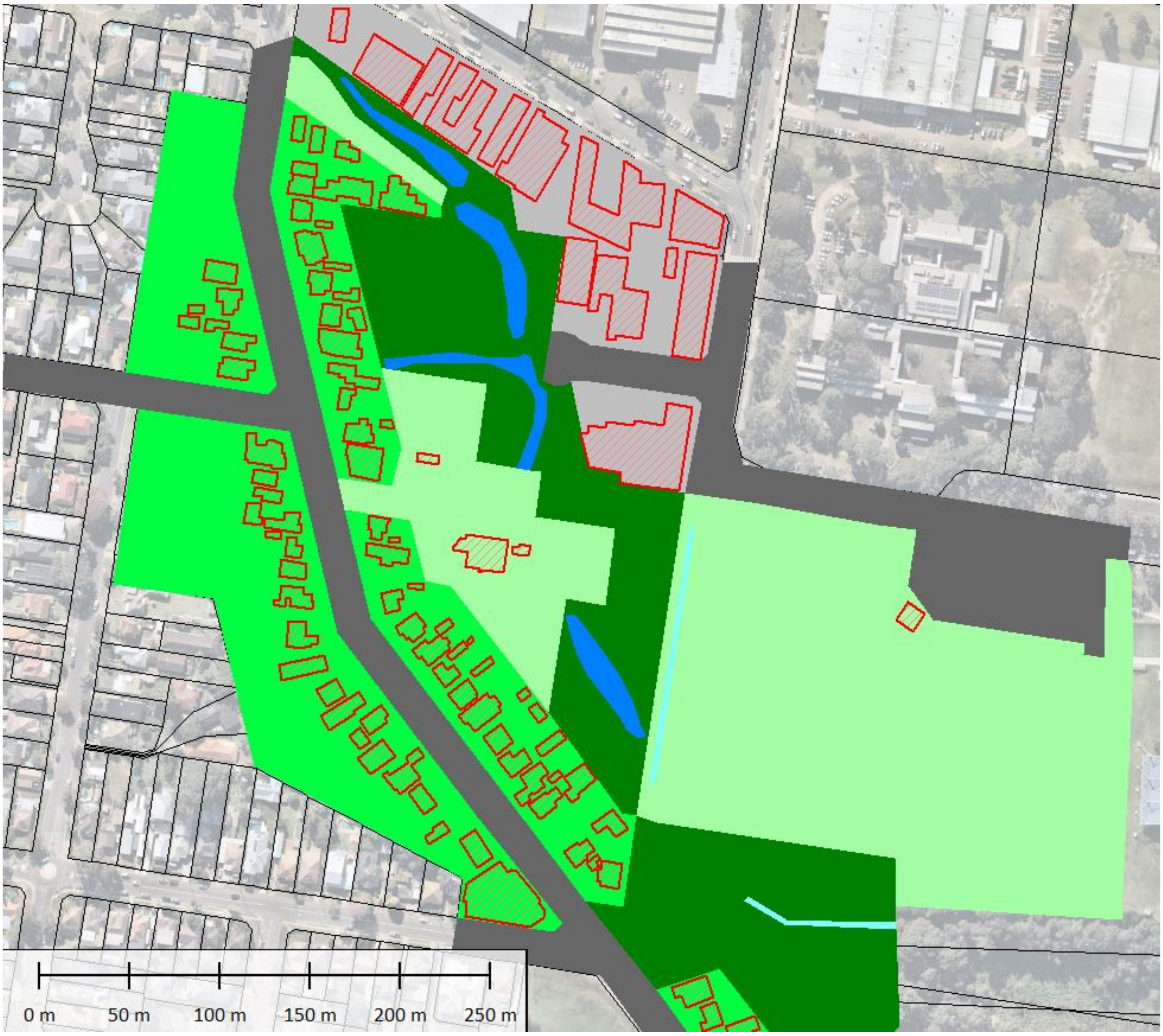
increase flood affectation on surrounding land. Appropriate fencing must comply with the Flood Prone Land Design Standard in addition to other regulatory requirements of pool fencing.	
Pools: I1 Pools located within the 1% AEP flood extent are to be in-ground, with coping flush with natural ground level. Where it is not possible to have pool coping flush with natural ground level, it must be demonstrated that the development will result in no net loss of flood storage and no impact on flood conveyance on or from the site. All electrical equipment associated with the pool (including pool pumps) is to be waterproofed and/or located at or above the Flood Planning Level. All chemicals associated with the pool are to be stored at or above the flood planning level.	Not applicable: there are no pools proposed.

table E: Assessment against DCP 2011: Clubhouse Portion of Development

DCP OBJECTIVE	COMMENT
Floor Levels F1 F3 F8 New floor levels within the development shall be at or above, the Flood Planning Level. A reduced Flood Planning Level may be considered only where it is permitted in this Development Control Plan. The structure must be flood proofed (wet or dry) to the Flood Planning Level. This control cannot be applied to critical or vulnerable uses. Where the lowest floor has been elevated to allow the passage of flood waters, a restriction shall be imposed on the title of the land, pursuant to S88B of the Conveyancing Act confirming that the undercroft area is not to be enclosed. The minimum floor level of any first-floor additions shall be at or above the Probable Maximum Flood Level.	The current proposed ground floor level at RL +12.95 mAHD is well above the FPL and PMF flood level. There are currently no areas of the clubhouse proposed to be elevated above floodwaters. There are no first-floor additions proposed as part of the clubhouse works.

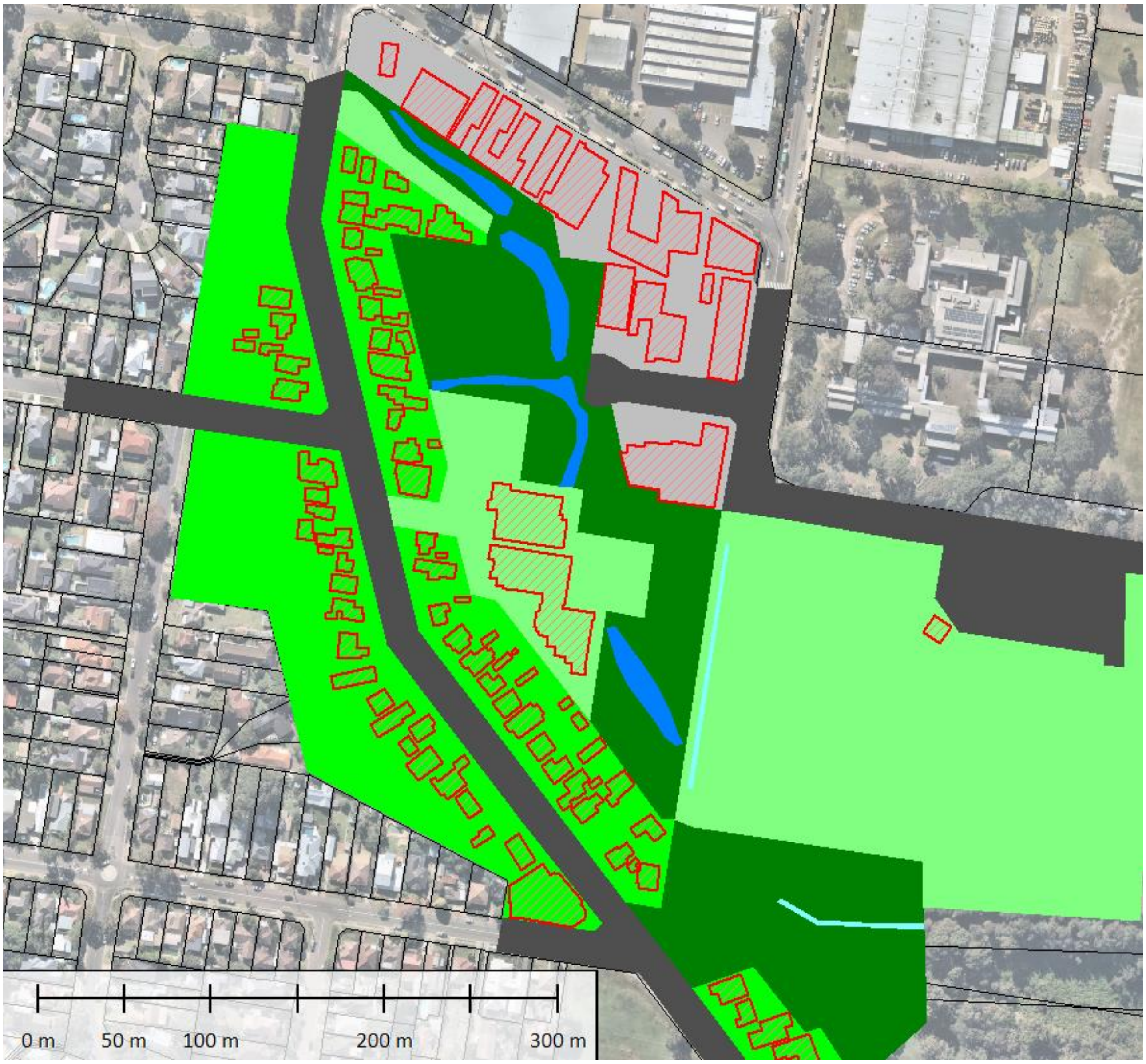
Figure 3. "Model Extents"

Figure 4. Existing Material Zones



[light grey = industrial yards, dark grey = roads, light green = short grass, bright green = urban yards, dark green = dense vegetation, light blue = channel – conc, dark blue =channel – veg, red hatch = buildings]

Figure 5. Proposed Material Zones



[light grey = industrial yards, dark grey = roads, light green = short grass, bright green = urban yards, dark green = dense vegetation, light blue = channel – conc, dark blue =channel – veg, red hatch = buildings]

4. Conclusions & Recommendations

4.1. Conclusions

We conclude that:

A. The subject site is located in the Dee Why Lagoon floodplain. The site itself is almost entirely flood free in the 1%AEP flood event. Following from this, the development as proposed is situated almost entirely outside of the 1%AEP flood extents and there are no modelled conveyance impacts and only a very minimal loss of flood storage for this event;

B. The flooded area surrounding the site is High Hydraulic hazard in the channel areas, and otherwise Low Hazard. The most appropriate category for the site as a whole is Low Flood Risk;

C. It is advised that all the floor levels that are at RL +10.8 be raised to the PMF flood level of +11.25

D. We believe the flood risk for the proposed development can be satisfactorily managed as noted in Section 3.5 of this report.

For and on behalf of JN,

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Appendix 1

Supplementary Information

CROMER PARK: 33.7375, 151.2875

Annual Exceedance Probability (AEP)

Duration	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	2.45	2.74	3.67	4.32	4.97	5.86	6.56
2 min	4.09	4.51	5.87	6.81	7.71	8.96	9.94
3 min	5.65	6.26	8.18	9.52	10.8	12.6	14.0
4 min	7.07	7.85	10.4	12.1	13.8	16.2	18.0
5 min	8.36	9.30	12.3	14.5	16.6	19.5	21.8
10 min	13.3	14.8	20.0	23.6	27.2	32.2	36.1
15 min	16.6	18.6	25.1	29.7	34.3	40.5	45.4
20 min	19.1	21.4	28.8	34.0	39.3	46.4	52.0
25 min	21.1	23.7	31.7	37.4	43.1	50.9	57.0
30 min	22.8	25.5	34.1	40.1	46.2	54.4	60.9
45 min	26.6	29.6	39.3	46.1	52.9	62.1	69.4
1 hour	29.4	32.6	43.0	50.3	57.6	67.6	75.4
1.5 hour	33.5	37.1	48.5	56.6	64.6	75.7	84.5
2 hour	36.8	40.6	52.9	61.5	70.3	82.4	92.0
3 hour	41.9	46.1	59.9	69.8	79.8	93.7	105
4.5 hour	48.1	52.9	68.8	80.3	92.1	109	122
6 hour	53.2	58.6	76.5	89.6	103	122	138
9 hour	61.9	68.4	90.1	106	123	146	166
12 hour	69.3	76.8	102	121	141	168	191
18 hour	81.6	91.0	123	146	171	206	234
24 hour	91.7	103	140	168	197	237	270
30 hour	100	113	155	187	220	264	300
36 hour	108	122	168	203	239	287	326
48 hour	120	136	190	229	270	324	366
72 hour	137	156	219	265	311	372	419
96 hour	148	169	237	286	335	399	447
120 hour	156	178	248	297	347	412	462
144 hour	161	183	253	302	353	418	468
168 hour	164	185	255	303	354	419	469

Results - ARR Data Hub
[STARTTXT]

Input Data Information
[INPUTDATA]
Latitude,-33.739000
Longitude,151.284000
[END_INPUTDATA]

River Region
[RIVREG]
Division,South East Coast (NSW)
River Number,13
River Name,Sydney Coast-Georges River
[RIVREG_META]
Time Accessed,29 May 2019 01:22PM
Version,2016_v1
[END_RIVREG]

ARF Parameters
[LONGARF]
Zone,SE Coast
a,0.06
b,0.361
c,0.0
d,0.317
e,8.11e-05
f,0.651
g,0.0
h,0.0
i,0.0
[LONGARF_META]
Time Accessed,29 May 2019 01:22PM
Version,2016_v1
[END_LONGARF]

Storm Losses
[LOSSES]
ID,29835.0
Storm Initial Losses (mm),41.0
Storm Continuing Losses (mm/h),1.8
[LOSSES_META]
Time Accessed,29 May 2019 01:22PM
Version,2016_v1
[END_LOSSES]

Temporal Patterns
[TP]
code,ECsouth
Label,East Coast South

[TP_META]
Time Accessed,29 May 2019 01:22PM
Version,2016_v2
[END_TP]

Areal Temporal Patterns
[ATP]
code,ECsouth
arealabel,East Coast South
[ATP_META]
Time Accessed,29 May 2019 01:22PM
Version,2016_v2
[END_ATP]

Median Preburst Depths and Ratios
[PREBURST]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),7.0 (0.214),7.7 (0.179),5.6 (0.111),3.5 (0.061),2.1 (0.031),1.0 (0.013)
90 (1.5),13.2 (0.355),9.5 (0.195),6.5 (0.114),3.6 (0.056),2.1 (0.028),1.0 (0.012)
120 (2.0),12.8 (0.316),7.7 (0.145),6.6 (0.108),5.6 (0.080),4.2 (0.051),3.2 (0.034)
180 (3.0),5.3 (0.116),6.5 (0.109),6.3 (0.091),6.2 (0.077),6.9 (0.074),7.4 (0.071)
360 (6.0),7.3 (0.124),11.0 (0.143),13.4 (0.149),15.7 (0.152),18.9 (0.155),13.0 (0.095)
720 (12.0),6.2 (0.081),11.0 (0.107),14.1 (0.116),17.1 (0.121),26.1 (0.155),30.3 (0.159)
1080 (18.0),1.8 (0.020),9.3 (0.076),14.3 (0.098),19.1 (0.111),22.2 (0.108),28.3 (0.121)
1440 (24.0),1.8 (0.017),5.6 (0.040),8.1 (0.048),10.5 (0.053),21.1 (0.089),26.9 (0.100)
2160 (36.0),0.0 (0.000),1.8 (0.010),2.9 (0.014),4.0 (0.017),9.4 (0.033),11.5 (0.035)
2880 (48.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),1.0 (0.003),1.7 (0.005)
4320 (72.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),1.2 (0.003),2.2 (0.005)
[PREBURST_META]
Time Accessed,29 May 2019 01:22PM
Version,2018_v1
Note,Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.
[END_PREBURST]

10% Preburst Depths
[PREBURST10]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
90 (1.5),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
120 (2.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
180 (3.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
360 (6.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
720 (12.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
1080 (18.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
1440 (24.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)

2160 (36.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
2880 (48.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
4320 (72.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
[PREBURST10_META]
Time Accessed,29 May 2019 01:22PM
Version,2018_v1
Note,Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.
[END_PREBURST10]

25% Preburst Depths
[PREBURST25]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),0.0 (0.000),0.2 (0.005),0.1 (0.002),0.0 (0.000),0.0 (0.000),0.0 (0.000)
90 (1.5),0.0 (0.001),0.5 (0.010),0.2 (0.004),0.0 (0.000),0.0 (0.000),0.0 (0.000)
120 (2.0),0.1 (0.003),0.1 (0.001),0.0 (0.001),0.0 (0.000),0.0 (0.000),0.0 (0.000)
180 (3.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
360 (6.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.4 (0.003),0.0 (0.000)
720 (12.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
1080 (18.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),1.2 (0.006),2.2 (0.009)
1440 (24.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.4 (0.002),0.7 (0.003)
2160 (36.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
2880 (48.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
4320 (72.0),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000),0.0 (0.000)
[PREBURST25_META]
Time Accessed,29 May 2019 01:22PM
Version,2018_v1
Note,Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.
[END_PREBURST25]

75% Preburst Depths
[PREBURST75]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),40.6 (1.247),37.9 (0.882),36.4 (0.723),34.9 (0.607),28.4 (0.420),23.5 (0.311)
90 (1.5),36.7 (0.989),39.7 (0.819),35.1 (0.620),30.6 (0.474),27.8 (0.367),25.7 (0.304)
120 (2.0),53.4 (1.316),37.7 (0.713),34.8 (0.565),32.0 (0.455),35.9 (0.435),38.7 (0.421)
180 (3.0),33.4 (0.724),45.5 (0.760),43.8 (0.628),42.2 (0.529),57.0 (0.608),68.1 (0.649)
360 (6.0),45.2 (0.771),54.8 (0.716),61.1 (0.682),67.2 (0.651),86.5 (0.708),90.0 (0.654)
720 (12.0),30.1 (0.392),43.5 (0.426),52.3 (0.433),60.8 (0.432),67.0 (0.398),76.8 (0.403)
1080 (18.0),22.9 (0.251),34.7 (0.282),42.5 (0.290),50.0 (0.292),71.4 (0.347),82.2 (0.352)
1440 (24.0),24.9 (0.243),31.9 (0.227),36.4 (0.217),40.8 (0.207),67.1 (0.283),74.8 (0.278)

2160 (36.0),5.0 (0.041),15.4 (0.091),22.3 (0.110),28.9 (0.121),51.5 (0.179),60.1 (0.184)
2880 (48.0),12.3 (0.090),12.5 (0.066),12.7 (0.055),12.8 (0.048),22.7 (0.070),30.2 (0.082)
4320 (72.0),0.0 (0.000),0.3 (0.001),0.5 (0.002),0.7 (0.002),20.9 (0.056),33.8 (0.081)
[PREBURST75_META]
Time Accessed,29 May 2019 01:22PM
Version,2018_v1
Note,Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.
[END_PREBURST75]

90% Preburst Depths
[PREBURST90]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),95.5 (2.929),94.8 (2.203),96.9 (1.926),98.9 (1.718),103.6 (1.533),107.1 (1.420)
90 (1.5),72.3 (1.949),105.2 (2.168),103.3 (1.825),101.4 (1.568),113.6 (1.500),122.8 (1.453)
120 (2.0),88.3 (2.178),94.6 (1.790),98.1 (1.595),101.5 (1.444),108.2 (1.314),113.2 (1.231)
180 (3.0),86.3 (1.871),102.2 (1.706),108.8 (1.559),115.1 (1.442),126.6 (1.351),135.2 (1.289)
360 (6.0),78.0 (1.331),89.9 (1.175),97.7 (1.091),105.2 (1.020),158.1 (1.295),175.3 (1.275)
720 (12.0),62.3 (0.811),86.2 (0.844),102.0 (0.844),117.2 (0.833),133.6 (0.794),148.3 (0.778)
1080 (18.0),47.4 (0.521),64.9 (0.529),76.5 (0.522),87.6 (0.511),138.3 (0.672),153.9 (0.659)
1440 (24.0),58.2 (0.566),70.3 (0.501),78.3 (0.466),86.1 (0.436),118.4 (0.499),130.7 (0.485)
2160 (36.0),32.3 (0.266),44.7 (0.266),52.9 (0.261),60.7 (0.254),100.0 (0.348),115.6 (0.355)
2880 (48.0),26.6 (0.195),39.1 (0.206),47.5 (0.207),55.4 (0.206),76.8 (0.237),92.7 (0.253)
4320 (72.0),10.1 (0.065),23.0 (0.105),31.5 (0.119),39.6 (0.127),62.7 (0.169),82.0 (0.196)
[PREBURST90_META]
Time Accessed,29 May 2019 01:22PM
Version,2018_v1
Note,Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.
[END_PREBURST90]

Interim Climate Change Factors
[CCF]
,RCP 4.5,RCP6,RCP 8.5
2030,0.869 (4.3%),0.783 (3.9%),0.983 (4.9%)
2040,1.057 (5.3%),1.014 (5.1%),1.349 (6.8%)

2050,1.272 (6.4%),1.236 (6.2%),1.773 (9.0%)
2060,1.488 (7.5%),1.458 (7.4%),2.237 (11.5%)
2070,1.676 (8.5%),1.691 (8.6%),2.722 (14.2%)
2080,1.810 (9.2%),1.944 (9.9%),3.209 (16.9%)
2090,1.862 (9.5%),2.227 (11.5%),3.679 (19.7%)

[CCF_META]
Time Accessed,29 May 2019 01:22PM
Version,2019_v1
Note,ARR recommends the use of RCP4.5 and RCP 8.5 values. These have been updated to the values that can be found on the climate change in Australia website.
[END_CCF]

Probability Neutral Burst Initial Loss
[BURSTIL]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),12.3,8.1,9.0,8.7,8.6,6.6
90 (1.5),11.8,8.1,9.5,9.7,9.5,7.0
120 (2.0),13.4,9.0,10.2,10.0,10.1,6.0
180 (3.0),13.8,9.3,10.6,10.1,8.9,4.3
360 (6.0),13.2,8.6,8.8,8.1,9.1,3.7
720 (12.0),17.6,12.2,12.2,10.6,11.9,3.1
1080 (18.0),18.3,13.5,14.6,12.0,13.3,3.8
1440 (24.0),21.5,15.5,15.8,13.8,14.6,4.4
2160 (36.0),24.2,18.4,18.4,15.9,16.6,6.9
2880 (48.0),27.2,22.0,21.1,22.9,19.4,9.5
4320 (72.0),29.4,25.5,25.5,25.7,21.8,10.5
[BURSTIL_META]
Time Accessed,29 May 2019 01:22PM
Version,2018_v1
Note,As this point is in NSW the advice provided on losses and pre-burst on the NSW Specific Tab of the ARR Data Hub is to be considered. In NSW losses are derived considering a hierarchy of approaches depending on the available loss information. Probability neutral burst initial loss values for NSW are to be used in place of the standard initial loss and pre-burst as per the losses hierarchy.
[END_BURSTIL]Transformational Pre-burst Rainfall
[PREBURST_TRANS]
min (h)\AEP(%),50,20,10,5,2,1
60 (1.0),28.7,32.9,32.0,32.3,32.4,34.4
90 (1.5),29.2,32.9,31.5,31.3,31.5,34.0
120 (2.0),27.6,32.0,30.8,31.0,30.9,35.0
180 (3.0),27.2,31.7,30.4,30.9,32.1,36.7
360 (6.0),27.8,32.4,32.2,32.9,31.9,37.3
720 (12.0),23.4,28.8,28.8,30.4,29.1,37.9
1080 (18.0),22.7,27.5,26.4,29.0,27.7,37.2
1440 (24.0),19.5,25.5,25.2,27.2,26.4,36.6
2160 (36.0),16.8,22.6,22.6,25.1,24.4,34.1
2880 (48.0),13.8,19.0,19.9,18.1,21.6,31.5
4320 (72.0),11.6,15.5,15.5,15.3,19.2,30.5

[PREBURST_TRANS_META]
The tranformational pre-burst is intended for software suppliers in the NSW area and is simply the Initial Loss - Burst Initial Loss. It is not appropriate to use these values if considering a calibrated initial loss.
[END_PREBURST_TRANS]

[ENDTXT]

ARI / ID	Storm	Duration	DWY04A	DWY03A	DWY03B	DWY01A	DWY01B	DWY02A	DWY01C	DWY01D	STH02A	STH01A	STH01B	COLL01A	COLL01B	COLL01C	OUT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Storm
REC ARR16_Aep1_10min_4354	4354	10	3.488	0.251	2.043	0.821	1.189	0.644	3.719	3.339	0.473	5.194	7.061	2.193	8.395	9.809	23.801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4354
REC ARR16_Aep1_10min_4355	4355	10	3.469	0.254	2.029	0.83	1.186	0.651	3.719	3.339	0.479	5.166	7.047	2.179	8.363	9.805	23.764	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4355
REC ARR16_Aep1_10min_4356	4356	10	3.788	0.228	2.238	0.885	1.236	0.626	3.799	3.35	0.485	5.617	7.279	2.411	8.882	9.872	24.346	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4356
REC ARR16_Aep1_10min_4357	4357	10	3.833	0.233	2.267	0.9	1.243	0.638	3.812	3.352	0.494	5.681	7.311	2.444	8.954	9.88	24.426	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4357
REC ARR16_Aep1_10min_4361	4361	10	4.014	0.255	2.385	0.961	1.27	0.689	3.86	3.359	0.532	5.936	7.438	2.575	9.247	9.939	24.749	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4361
REC ARR16_Aep1_10min_4363	4363	10	3.562	0.241	2.091	0.81	1.2	0.619	3.734	3.343	0.453	5.298	7.116	2.247	8.515	9.825	23.936	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4363
REC ARR16_Aep1_10min_4364	4364	10	3.83	0.233	2.266	0.899	1.243	0.637	3.811	3.352	0.494	5.677	7.309	2.442	8.95	9.88	24.422	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4364
REC ARR16_Aep1_10min_4365	4365	10	3.541	0.244	2.077	0.803	1.197	0.626	3.728	3.342	0.459	5.268	7.1	2.232	8.48	9.821	23.897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4365
REC ARR16_Aep1_10min_4366	4366	10	4.301	0.289	2.572	1.057	1.313	0.77	3.933	3.388	0.592	6.344	7.635	2.784	9.715	10.087	25.251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4366
REC ARR16_Aep1_10min_4368	4368	10	4.064	0.261	2.418	0.978	1.278	0.703	3.873	3.364	0.542	6.008	7.474	2.612	9.33	9.966	24.838	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4368
REC ARR16_Aep1_15min_4358	4358	15	3.969	0.216	2.301	0.88	1.377	0.598	4.344	4.193	0.474	5.87	8.023	2.472	9.704	11.753	28.276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4358
REC ARR16_Aep1_15min_4392	4392	15	3.582	0.227	2.108	0.823	1.203	0.581	3.97	4.169	0.448	5.323	7.15	2.268	8.499	10.898	25.445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4392
REC ARR16_Aep1_15min_4393	4393	15	3.461	0.246	2.028	0.803	1.182	0.631	3.901	4.151	0.463	5.153	7.036	2.178	8.315	10.743	25.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4393
REC ARR16_Aep1_15min_4396	4396	15	3.287	0.264	1.993	0.866	1.163	0.677	3.812	4.059	0.499	4.852	6.837	2.184	8.258	10.676	25.157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4396
REC ARR16_Aep1_15min_4397	4397	15	3.526	0.213	2.085	0.826	1.235	0.586	4.085	4.161	0.453	5.235	7.278	2.247	8.619	11.19	26.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4397
REC ARR16_Aep1_15min_4398	4398	15	3.454	0.215	1.973	0.733	1.237	0.55	4.022	4.101	0.4	5.12	7.258	2.117	8.724	11.094	26.282	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4398
REC ARR16_Aep1_15min_4400	4400	15	3.791	0.221	2.186	0.823	1.342	0.594	4.306	4.2	0.455	5.619	7.854	2.345	9.406	11.663	27.849	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4400
REC ARR16_Aep1_15min_4401	4401	15	3.584	0.224	2.125	0.85	1.262	0.608	4.157	4.179	0.469	5.314	7.431	2.293	8.796	11.333	26.752	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4401
REC ARR16_Aep1_15min_4403	4403	15	4.689	0.292	2.768	1.108	1.523	0.783	4.643	4.27	0.613	6.897	8.743	2.987	10.937	12.177	30.105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4403
REC ARR16_Aep1_15min_4407	4407	15	4.477	0.276	2.634	1.049	1.464	0.738	4.475	4.188	0.579	6.586	8.412	2.842	10.528	11.894	29.262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4407
REC ARR16_Aep1_20min_4359	4359	20	4.112	0.215	2.36	0.89	1.446	0.597	4.626	4.701	0.476	6.067	8.394	2.535	10.233	12.754	30.411	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4359
REC ARR16_Aep1_20min_4367	4367	20	4.089	0.276	2.445	1.006	1.268	0.734	4.142	4.5	0.563	6.035	7.537	2.648	9.233	11.065	25.887	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4367
REC ARR16_Aep1_20min_4371	4371	20	3.49	0.235	1.985	0.766	1.155	0.604	3.592	4.091	0.442	5.11	6.693	2.148	8.658	10.609	25.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4371
REC ARR16_Aep1_20min_4399	4399	20	3.526	0.219	1.988	0.776	1.277	0.579	4.216	4.636	0.437	5.214	7.486	2.134	9.092	11.899	27.929	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4399
REC ARR16_Aep1_20min_4404	4404	20	3.887	0.221	2.232	0.864	1.302	0.594	4.042	4.264	0.47	5.702	7.517	2.41	9.53	11.522	27.66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4404
REC ARR16_Aep1_20min_4427	4427	20	3.388	0.181	1.943	0.74	1.232	0.503	4.084	4.542	0.398	5.008	7.227	2.088	8.784	11.58	27.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4427
REC ARR16_Aep1_20min_4428	4428	20	3.495	0.223	2.028	0.789	1.262	0.59	4.203	4.663	0.445	5.192	7.408	2.175	8.946	11.866	27.739	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4428
REC ARR16_Aep1_20min_4429	4429	20	3.611	0.186	2.048	0.758	1.287	0.509	4.194	4.51	0.402	5.331	7.517	2.2	9.191	11.799	27.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4429
REC ARR16_Aep1_20min_4432	4432	20	4.967	0.32	2.923	1.182	1.572	0.842	4.756	4.52	0.658	7.259	8.92	3.163	11.534	12.715	31.511	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4432
REC ARR16_Aep1_20min_4433	4433	20	3.605	0.208	2.044	0.765	1.264	0.558	4.072	4.482	0.425	5.311	7.358	2.2	9.13	11.612	27.466	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4433
REC ARR16_Aep1_25min_4394	4394	25	3.507	0.218	2.062	0.822	1.242	0.583	4.093	4.619	0.454	5.174	7.28	2.227	8.746	11.377	26.717	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4394
REC ARR16_Aep1_25min_4456	4456	25	3.24	0.206	1.924	0.774	1.088	0.559	3.606	4.1	0.429	4.81	6.451	2.079	7.566	9.909	23.084	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4456
REC ARR16_Aep1_25min_4458	4458	25	3.507	0.247	2.104	0.876	1.25	0.651	4.067	4.405	0.494	5.191	7.368	2.284	8.693	10.942	25.815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4458
REC ARR16_Aep1_25min_4459	4459	25	3.446	0.229	2.056	0.84	1.176	0.614	3.866	4.155	0.469	5.104	6.95	2.226	8.168	10.438	24.687	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4459
REC ARR16_Aep1_25min_4460	4460	25	3.803	0.198	2.173	0.816	1.337	0.546	4.297	4.66	0.436	5.609	7.781	2.336	9.527	11.959	28.421	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4460
REC ARR16_Aep1_25min_4461	4461	25	3.356	0.162	1.873	0.683	1.196	0.45	3.944	4.541	0.36	4.939	7.016	2.015	8.71	11.448	26.721	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4461
REC ARR16_Aep1_25min_4462	4462	25	3.545	0.19	2.024	0.752	1.269	0.523	4.161	4.801	0.407	5.248	7.421	2.172	8.954	11.667	27.136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4462
REC ARR16_Aep1_25min_4464	4464	25	3.12	0.153	1.743	0.645	1.124	0.427	3.747	4.45	0.342	4.594	6.615	1.873	8.219	11.007	25.517	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4464
REC ARR16_Aep1_25min_4466	4466	25	4.187	0.242	2.407	0.937	1.382	0.649	4.275	4.429	0.512	6.126	7.96	2.601	10.182	12.138	29.224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4466
REC ARR16_Aep1_25min_4467	4467	25	3.876	0.227	2.262	0.886	1.399	0.616	4.625	5.027	0.484	5.712	8.182	2.438	9.919	12.972	30.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4467
REC ARR16_Aep1_30min_4402	4402	30	3.776	0.216	2.203	0.856	1.306	0.591	4.336	4.867	0.465	5.575	7.651	2.37	9.159	12.175	28.442	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4402
REC ARR16_Aep1_30min_4457	4457	30	2.893	0.185	1.719	0.693	0.969	0.503	3.205	3.854	0.384	4.303	5.761	1.858	7.134	9.539	21.939	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4457
REC ARR16_Aep1_30min_4495	4495	30	3.118	0.194	1.848	0.738	1.12	0.529	3.672	3.935	0.406	4.635	6.615	1.994	7.839	10.016	23.686	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4495
REC ARR16_Aep1_30min_4497	4497	30	3.23	0.187	1.855	0.712	1.152	0.512	3.772	4.257	0.392	4.798	6.783	1.989	8.099	10.449	24.343	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4497
REC ARR16_Aep1_30min_4498	4498	30	3.165	0.183	1.802	0.706	1.139	0.497	3.735	4.29	0.387	4.689	6.68	1.933	8.045	10.43	24.368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4498
REC ARR16_Aep1_30min_4500	4500	30	2.952	0.145	1.63	0.599	1.014	0.398	3.31	4.015	0.318	4.323	5.981	1.761	7.685	10.044	23.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4500
REC ARR16_Aep1_30min_4502	4502	30	4.348	0.253	2.526	0.986	1.459	0.682	4.608	4.901	0.538	6.39	8.393	2.723	10.481	12.549	30.042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4502
REC ARR16_Aep1_30min_4503	4503	30	2.886	0.152	1.634	0.605	1.033	0.418	3.394	4.057	0.328	4.269	6.066	1.754	7.391	9.785	22.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4503
REC ARR16_Aep1_30min_4504	**4504**	**30**	**3.657**	**0.203**	**2.096**	**0.804**	**1.239**	0.551	4.085	4.727	0.436	5.37	7.248	2.26	9.016	11.738	27.125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4504
REC ARR16_Aep1_30min_4505	4505	30	4.321	0.242	2.49	0.961	1.464	0.658	4.64	4.977	0.521	6.342	8.427	2.684	10.553	12.806	30.632	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4505
REC ARR16_Aep1_45min_4362	4362	45	3.075	0.181	1.803	0.707	1.064	0.495	3.546	4.244	0.386	4.558	6.269	1.942	7.642	10.349	23.949	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4362
REC ARR16_Aep1_45min_4496	4496	45	3.196	0.183	1.866	0.725	1.123	0.503	3.733	4.128	0.394	4.733	6.599	2.009	7.934	10.452	24.478	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4496
REC ARR16_Aep1_45min_4525	4525	45	3.28	0.17	1.88	0.707	1.154	0.474	3.742	4.183	0.378	4.853	6.746	2.02	8.208	10.365	24.443	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4525
REC ARR16_Aep1_45min_4526	4526	45	2.947	0.15	1.684	0.63	1.042	0.421	3.416	3.949	0.335	4.363	6.113	1.809	7.422	9.64	22.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4526
REC ARR16_Aep1_45min_4527	4527	45	2.824	0.136	1.558	0.57	0.981	0.376	3.287	4.062	0.301	4.139	5.835	1.682	7.386	10.038	22.954	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4527
REC ARR16_Aep1_45min_4528	4528	45	2.888	0.135	1.594	0.578	1.017	0.378	3.365	4.038	0.304	4.241	6.004	1.718	7.578	10.048	23.281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4528
REC ARR16_Aep1_45min_4531	4531	45	2.572	0.128	1.422	0.526	0.874	0.352	2.867	3.456	0.28	3.766	5.171	1.538	6.657	8.646	20.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4531
REC ARR16_Aep1_45min_4533	4533	45	2.927	0.152	1.626	0.607	0.991	0.41	3.321	4.031	0.325	4.28	5.915	1.759	7.503	10.093	23.094	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4533
REC ARR16_Aep1_45min_4534	4534	45	3.075	0.174	1.72	0.665	1.075	0.464	3.552	4.051	0.363	4.517	6.394	1.866	8.018	10.531	24.375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4534
REC ARR16_Aep1_45min_4535	4535	45	3.509	0.183	1.991	0.75	1.202	0.507	3.904	4.477	0.402	5.156	7.03	2.146	8.785	11.134	25.947	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4535
REC ARR16_Aep1_60min_4360	4360	60	3.965	0.207	2.276	0.859	1.393	0.577	4.473	4.825	0.46	5.853	8.094	2.446	9.864	12.286	29.281	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4360
REC ARR16_Aep1_60min_4405	4405	60	2.561	0.139	1.438	0.546	0.846	0.375	2.706	3.103	0.295	3.749	4.967	1.557	6.456	8.039	18.959	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4405
REC ARR16_Aep1_60min_4463	4463	60	2.814	0.141	1.555	0.572	0.985	0.39	3.255	3.853	0.307	4.14	5.867	1.675	7.342	9.655	22.331	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4463
REC ARR16_Aep1_60min_4555	4555	60	2.229	0.129	1.296	0.496	0.8	0.347	2.653	3.202	0.267	3.327	4.729	1.393	5.886	7.913	18.066	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4555
REC ARR16_Aep1_60min_4556	4556	60	3.145	0.175	1.826	0.703	1.071	0.484	3.491	3.85	0.38	4.654	6.281	1.965	7.658	9.648	22.475	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4556
REC ARR16_Aep1_60min_4557	4557	60	2.81	0.131	1.536	0.552	0.991	0.361	3.304	4.019	0.289	4.124	5.885	1.656	7.449	9.992	22.995	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4557
REC ARR16_Aep1_60min_4558	4558	60	2.264	0.124	1.246	0.464	0.753	0.324	2.479	3.039	0.248	3.308	4.467	1.351	5.863	7.612	17.556	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4558
REC ARR16_Aep1_60min_4559	4559	60	2.58	0.129	1.42	0.518	0.899	0.351	2.976	3.535	0.278	3.788	5.355	1.531	6.759	8.92	20.616	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4559
REC ARR16_Aep1_60min_4560	4560	60	2.271	0.111	1.265	0.465	0.792	0.308	2.605	3.113	0.246	3.34	4.67	1.364	5.888	7.695	17.892	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4560
REC ARR16_Aep1_60min_4561	4561	60	3.094	0.168	1.753	0.655	1.083	0.45	3.612	4.229	0.349	4.563	6.4	1.887	7.858	10.58	24.441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4561
REC ARR16_Aep1_90min_4395	4395	90	2.375	0.132	1.33	0.51	0.785	0.355	2.626	3.044	0.277	3.477	4.721	1.443	5.952	7.901	18.116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4395
REC ARR16_Aep1_90min_4430	4430	90	2.46	0.126	1.385	0.512	0.887	0.345	2.961	3.509	0.271	3.625	5.232	1.488	6.491	8.702	20.158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4430
REC ARR16_Aep1_90min_4465	4465	90	1.979	0.095	1.106	0.406	0.707	0.266	2.371	2.896	0.213	2.92	4.191	1.19	5.256	7.098	16.354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4465
REC ARR16_Aep1_90min_4501	4501	90	1.692	0.085	0.916	0.337	0.566	0.228	1.866	2.278	0.179	2.475	3.373	0.995	4.441	5.779	13.233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4501
REC ARR16_Aep1_90min_4532	4532	90	1.702	0.083	0.929	0.341	0.568	0.227	1.871	2.279	0.181	2.491	3.415	1.007	4.456	5.811	13.384	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4532
REC ARR16_Aep1_90min_4562	4562	90	2.668	0.144	1.499	0.559	0.921	0.386	3.079	3.597	0.298	3.935	5.502	1.616	6.78	9.134	21.009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4562
REC ARR16_Aep1_90min_4584	4584	90	3.739	0.219	2.138	0.802	1.311	0.579	4.215	4.27	0.445	5.517	7.66	2.297	9.336	11.654	27.712	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4584
REC ARR16_Aep1_90min_4585	4585	90	2.397	0.158	1.346	0.541	0.827	0.416	2.682	2.921	0.307	3.545	4.949	1.451	6.122	7.787	18.233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4585
REC ARR16_Aep1_90min_4586	4586	90	2.151	0.113	1.187	0.447	0.693	0.308	2.233	2.619	0.241	3.149	4.185	1.288	5.491	6.878	15.981	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4586
REC ARR16_Aep1_90min_4588	4588	90	2.005	0.097	1.114	0.407	0.703	0.268	2.314	2.678	0.215	2.954	4.173	1.2	5.217	6.826	15.874	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4588
REC ARR16_Aep1_120min_4431	4431	120	2.339	0.119	1.316	0.486	0.842	0.327	2.814	3.343	0.257	3.447	4.974	1.414	6.179	8.29	19.189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4431
REC ARR16_Aep1_120min_4499	4499	120	2.186	0.12	1.238	0.472	0.772	0.326	2.559	2.987	0.255	3.226	4.609	1.338	5.721	7.535	17.454	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4499
REC ARR16_Aep1_120min_4571	4571	120	1.463	0.086	0.855	0.333	0.501	0.236	1.661	1.964	0.182	2.192	2.999	0.922	3.695	4.987	11.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4571
REC ARR16_Aep1_120min_4611	4611	120	3.21	0.172	1.827	0.694	1.091	0.473	3.621	4.186	0.374	4.722	6.457	1.97	7.988	10.546	24.327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4611
REC ARR16_Aep1_120min_4613	4613	120	3.09	0.198	1.834	0.74	0.994	0.534	3.284	3.374	0.41	4.583	5.933	1.983	7.144	8.944	20.957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4613
REC ARR16_Aep1_120min_4614	4614	120	2.363	0.123	1.304	0.481	0.834	0.333	2.794	3.388	0.26	3.473	4.989	1.407	6.304	8.493	19.461	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4614
REC ARR16_Aep1_120min_4615	4615	120	1.429	0.08	0.784	0.29	0.477	0.219	1.58	1.884	0.161	2.104	2.909	0.848	3.723	4.839	11.073	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4615
REC ARR16_Aep1_120min_4617	4617	120	2.117	0.142	1.223	0.503	0.741	0.379	2.48	3.042	0.282	3.108	4.443	1.329	5.661	7.629	17.446	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4617
REC ARR16_Aep1_120min_4618	4618	120	2.107	0.125	1.181	0.461	0.643	0.33	2.044	2.302	0.253	3.075	3.844	1.287	5.208	6.21	14.637	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4618
REC ARR16_Aep1_120min_4619	4619	120	1.993	0.11	1.095	0.414	0.699	0.298	2.328	2.852	0.227	2.929	4.172	1.18	5.303	7.111	16.331	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4619
REC ARR16_Aep1_180min_4469	4469	180	1.773	0.097	1.03	0.394	0.603	0.272	1.947	2.115	0.212	2.652	3.635	1.107	4.358	5.313	12.527	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4469
REC ARR16_Aep1_180min_4599	4599	180	1.636	0.076	0.898	0.325	0.573	0.213	1.906	2.32	0.171	2.412	3.435	0.968	4.33	5.767	13.252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4599
REC ARR16_Aep1_180min_4612	4612	180	2.54	0.123	1.416	0.521	0.886	0.345	2.901	3.247	0.276	3.742	5.256	1.526	6.559	8.499	19.817	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4612
REC ARR16_Aep1_180min_4647	4647	180	2.453	0.125	1.394	0.521	0.855	0.35	2.775	3.08	0.278	3.629	5.052	1.499	6.197	7.818	18.457	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4647
REC ARR16_Aep1_180min_4648	4648	180	1.031	0.047	0.564	0.202	0.364	0.133	1.22	1.503	0.106	1.517	2.176	0.608	2.753	3.712	8.528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4648
REC ARR16_Aep1_180min_4649	4649	180	1.571	0.076	0.869	0.319	0.539	0.213	1.766	1.982	0.169	2.32	3.252	0.938	4.09	5.301	12.274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4649
REC ARR16_Aep1_180min_4651	4651	180	1.875	0.087	1.032	0.374	0.655	0.245	2.173	2.566	0.197	2.759	3.915	1.112	4.935	6.537	15.089	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4651
REC ARR16_Aep1_180min_4652	4652	180	1.592	0.072	0.862	0.31	0.55	0.202	1.837	2.236	0.163	2.338	3.323	0.932	4.248	5.695	13.009	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4652
REC ARR16_Aep1_180min_4653	4653	180	1.307	0.062	0.715	0.261	0.445	0.174	1.486	1.811	0.138	1.92	2.718	0.772	3.5	4.685	10.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4653
REC ARR16_Aep1_180min_4656	4656	180	1.543	0.071	0.823	0.298	0.529	0.198	1.779	2.241	0.157	2.26	3.22	0.891	4.177	5.676	12.833	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4656
REC ARR16_Aep1_270min_4616	4616	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4616
REC ARR16_Aep1_270min_4620	4620	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4620
REC ARR16_Aep1_270min_4650	4650	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4650
REC ARR16_Aep1_270min_4682	4682	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4682
REC ARR16_Aep1_270min_4683	4683	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4683
REC ARR16_Aep1_270min_4684	4684	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4684
REC ARR16_Aep1_270min_4685	4685	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4685
REC ARR16_Aep1_270min_4686	4686	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4686
REC ARR16_Aep1_270min_4692	4692	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4692
REC ARR16_Aep1_270min_4693	4693	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4693
REC ARR16_Aep1_360min_4406	4406	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4406
REC ARR16_Aep1_360min_4529	4529	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4529
REC ARR16_Aep1_360min_4587	4587	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4587
REC ARR16_Aep1_360min_4596	4596	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4596
REC ARR16_Aep1_360min_4694	4694	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4694
REC ARR16_Aep1_360min_4719	4719	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4719
REC ARR16_Aep1_360min_4720	4720	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4720
REC ARR16_Aep1_360min_4721	4721	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4721
REC ARR16_Aep1_360min_4722	4722	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4722
REC ARR16_Aep1_360min_4723	4723	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4723
REC ARR16_Aep1_540min_4442	4442	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4442
REC ARR16_Aep1_540min_4530	4530	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4530
REC ARR16_Aep1_540min_4601	4601	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4601
REC ARR16_Aep1_540min_4657	4657	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4657
REC ARR16_Aep1_540min_4743	4743	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4743
REC ARR16_Aep1_540min_4744	4744	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4744
REC ARR16_Aep1_540min_4745	4745	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4745
REC ARR16_Aep1_540min_4746	4746	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4746
REC ARR16_Aep1_540min_4750	4750	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4750
REC ARR16_Aep1_540min_4754	4754	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4754
REC ARR16_Aep1_720min_4443	4443	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4443
REC ARR16_Aep1_720min_4654	4654	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4654
REC ARR16_Aep1_720min_4724	4724	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4724
REC ARR16_Aep1_720min_4747	4747	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4747
REC ARR16_Aep1_720min_4751	4751	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4751
REC ARR16_Aep1_720min_4758	4758	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4758
REC ARR16_Aep1_720min_4777	4777	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4777
REC ARR16_Aep1_720min_4785	4785	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4785
REC ARR16_Aep1_720min_4786	4786	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4786
REC ARR16_Aep1_720min_4787	4787	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4787

Appendix 2

WBNM Results

DeeWhyBC_01.wbn

```
#####START_PREAMBLE_BLOCK##########|############|############|########
###|
Project Number:
Project Description:







#####END_PREAMBLE_BLOCK############|############|############|########
###|


#####START_STATUS_BLOCK############|############|############|########
###|
D:\Projects\2019 JN Projects\Dee Why BC [Flood]\WBNM
last edited on 13/06/2019 3:07:20 PM
by Andy Wiersma
2017_000
#####END_STATUS_BLOCK##############|############|############|########
###|


#####START_DISPLAY_BLOCK###########|############|############|########
###|
        0.00        0.00        0.00        0.00
        none
        0.00        0.00        0.00        0.00        0.00
0.00
#####END_DISPLAY_BLOCK#############|############|############|########
###|


#####START_TOPOLOGY_BLOCK##########|############|############|########
###|
          15
DWY04A              0.00        0.00        0.00        0.00 OUT
```

```
DWY03A              0.00        0.00        0.00        0.00 DWY03B
DWY03B              0.00        0.00        0.00        0.00 DWY01C
DWY01A              0.00        0.00        0.00        0.00 DWY01B
DWY01B              0.00        0.00        0.00        0.00 DWY01C
DWY02A              0.00        0.00        0.00        0.00 DWY01C
DWY01C              0.00        0.00        0.00        0.00 DWY01D
DWY01D              0.00        0.00        0.00        0.00 OUT
STH02A              0.00        0.00        0.00        0.00 OUT
STH01A              0.00        0.00        0.00        0.00 STH01B
STH01B              0.00        0.00        0.00        0.00 OUT
COLL01A             0.00        0.00        0.00        0.00 COLL01B
COLL01B             0.00        0.00        0.00        0.00 COLL01C
COLL01C             0.00        0.00        0.00        0.00 OUT
OUT                 0.00        0.00        0.00        0.00 SINK
#####END_TOPOLOGY_BLOCK############|###########|###########|########
###|


#####START_SURFACES_BLOCK##########|###########|###########|########
###|
        0.77
      -99.90
DWY04A             9.169        50.0        1.60        0.10
DWY03A             0.389        90.0        1.60        0.10
DWY03B             4.448        55.0        1.60        0.10
DWY01A             1.707        55.0        1.60        0.10
DWY01B             1.436        15.0        1.60        0.10
DWY02A             1.092        95.0        1.60        0.10
DWY01C             1.536        15.0        1.60        0.10
DWY01D             3.027        25.0        1.60        0.10
STH02A             0.889        55.0        1.60        0.10
STH01A            13.396        60.0        1.60        0.10
STH01B             5.742        95.0        1.60        0.10
COLL01A            5.242        55.0        1.60        0.10
COLL01B           19.802        60.0        1.60        0.10
COLL01C            9.319        55.0        1.60        0.10
OUT                0.000         0.0        1.60        0.10
#####END_SURFACES_BLOCK############|###########|###########|########
```

```
###|


#####START_FLOWPATHS_BLOCK#########|###########|###########|########
###|
           15
DWY04A
#####ROUTING
        0.50
DWY03A
#####ROUTING
        0.50
DWY03B
#####ROUTING
        0.50
DWY01A
#####ROUTING
        1.00
DWY01B
#####ROUTING
        1.00
DWY02A
#####ROUTING
        0.50
DWY01C
#####ROUTING
        1.00
DWY01D
#####ROUTING
        1.00
STH02A
#####ROUTING
        0.50
STH01A
#####ROUTING
        0.50
STH01B
#####ROUTING
```

```
        0.50
COLL01A
#####ROUTING
        0.50
COLL01B
#####ROUTING
        0.50
COLL01C
#####ROUTING
        0.50
OUT
#####ROUTING
        0.50
#####END_FLOWPATHS_BLOCK###########|###########|###########|########
###|


#####START_LOCAL_STRUCTURES_BLOCK##|###########|###########|########
###|
           0
#####END_LOCAL_STRUCTURES_BLOCK####|###########|###########|########
###|


#####START_OUTLET_STRUCTURES_BLOCK#|###########|###########|########
###|
           0
#####END_OUTLET_STRUCTURES_BLOCK###|###########|###########|########
###|


#####START_STORM_BLOCK#############|###########|###########|########
###|
           100
#####START_STORM#1
REC1 REC1
        1.00
        1.00
```

```
#####START_RECORDED_RAIN
ARR16_Aep1_10min_4354

           2        5.00
PERCENT
           1
DEEWHY
        0.00        0.00       36.10
       60.56
       39.44
#####END_RECORDED_RAIN
#####START_CALC_RAINGAUGE_WEIGHTS
#####END_CALC_RAINGAUGE_WEIGHTS
#####START_LOSS_RATES
DWY04A              0.00        0.72        0.00
DWY03A              0.00        0.72        0.00
DWY03B              0.00        0.72        0.00
DWY01A              0.00        0.72        0.00
DWY01B              0.00        0.72        0.00
DWY02A              0.00        0.72        0.00
DWY01C              0.00        0.72        0.00
DWY01D              0.00        0.72        0.00
STH02A              0.00        0.72        0.00
STH01A              0.00        0.72        0.00
STH01B              0.00        0.72        0.00
COLL01A             0.00        0.72        0.00
COLL01B             0.00        0.72        0.00
COLL01C             0.00        0.72        0.00
OUT                 0.00        0.72        0.00
#####END_LOSS_RATES
#####START_RECORDED_HYDROGRAPHS
           0
#####END_RECORDED_HYDROGRAPHS
#####START_IMPORTED_HYDROGRAPHS
           0
#####END_IMPORTED_HYDROGRAPHS
#####END_STORM#1
#####START_STORM#2
```

Results | OUTLET-Outflow | PEAK_Flows | VOLUMES | TIMES | Structures | CLEAR | LOAD | D:\Projects\2019 JN Projects\Dee Why BC [Flood]\WBNM\DeeWhyBC_01_Meta.out

	1-1(REC)	2-1(REC)	3-1(REC)	4-1(REC)	5-1(REC)	6-1(REC)	7-1(REC)	8-1(REC)	9-1(REC)	10-1(REC)	11-1(REC)	12-1(REC)	13-1(REC)
	REC ARR16_Aep1_10min_4354	EC ARR16_Aep1_10min_435	EC ARR16_Aep1_10min_435	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_10min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4
REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC
DESCRIPTION	REC1 REC1	REC2 REC2	REC3 REC3	REC4 REC4	REC5 REC5	REC6 REC6	REC7 REC7	REC8 REC8	REC9 REC9	REC10 REC10	REC11 REC11	REC12 REC12	REC13 REC13
Catch_area_ha	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19
Impervious%	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56
Rainfall_depth_mm	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	36.1	45.4	45.4	45.4
Excess_depth_mm	36.05	36.05	36.05	36.05	36.05	36.05	36.05	36.05	36.05	36.05	45.32	45.32	45.32
Calc_runoff_mm	36.02	36.02	36.02	36.02	36.02	36.02	36.02	36.02	36.02	36.02	45.29	45.28	45.28
VOLUMES_Outlet_m3													
DWY04A	3303	3303	3303	3303	3303	3303	3303	3303	3303	3303	4153	4152	4152
DWY03A	140	140	140	140	140	140	140	140	140	140	176	176	176
DWY03B	1740	1739	1740	1740	1740	1740	1740	1740	1740	1740	2188	2189	2189
DWY01A	614	614	614	614	614	614	614	614	614	614	772	772	772
DWY01B	1127	1127	1127	1127	1127	1127	1127	1127	1128	1127	1418	1419	1419
DWY02A	394	394	394	394	394	394	394	394	394	394	495	495	495
DWY01C	3811	3811	3812	3812	3811	3811	3812	3811	3812	3811	4793	4795	4795
DWY01D	4899	4899	4899	4899	4899	4899	4900	4899	4900	4899	6161	6164	6163
STH02A	319	319	319	319	319	319	319	319	319	319	402	402	402
STH01A	4829	4829	4829	4829	4829	4829	4829	4829	4829	4829	6071	6070	6070
STH01B	6901	6901	6901	6901	6900	6901	6901	6901	6901	6900	8676	8676	8676
COLL01A	1887	1887	1887	1887	1887	1887	1887	1887	1887	1887	2373	2374	2373
COLL01B	9025	9025	9025	9025	9025	9025	9025	9026	9026	9025	11346	11345	11345
COLL01C	12384	12384	12383	12383	12382	12384	12383	12384	12384	12382	15566	15564	15565
OUT	27806	27807	27805	27805	27804	27807	27805	27807	27807	27804	34958	34957	34957
PEAK_FLOWRATES_m3/s													
PEAK_Stream-Top													
DWY04A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY03A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY03B	0.251	0.254	0.228	0.233	0.255	0.241	0.233	0.244	0.289	0.261	0.216	0.227	0.246
DWY01A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01B	0.821	0.83	0.885	0.9	0.961	0.81	0.899	0.803	1.057	0.978	0.88	0.823	0.803
DWY02A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01C	3.773	3.751	4.1	4.148	4.344	3.854	4.146	3.83	4.655	4.399	4.276	3.875	3.743
DWY01D	3.719	3.719	3.799	3.812	3.86	3.734	3.811	3.728	3.933	3.873	4.344	3.97	3.901
STH02A	0	0	0	0	0	0	0	0	0	0	0	0	0
STH01A	0	0	0	0	0	0	0	0	0	0	0	0	0
STH01B	5.194	5.166	5.617	5.681	5.936	5.298	5.677	5.268	6.344	6.008	5.87	5.323	5.153
COLL01A	0	0	0	0	0	0	0	0	0	0	0	0	0
COLL01B	2.193	2.179	2.411	2.444	2.575	2.247	2.442	2.232	2.784	2.612	2.472	2.268	2.178
COLL01C	8.395	8.363	8.882	8.954	9.247	8.515	8.95	8.48	9.715	9.33	9.704	8.499	8.315
OUT	23.801	23.764	24.346	24.426	24.749	23.936	24.422	23.897	25.251	24.838	28.276	25.445	25.05
PEAK_Stream-Bottom													
DWY04A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY03A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY03B	0.152	0.151	0.157	0.157	0.16	0.153	0.157	0.153	0.165	0.161	0.172	0.157	0.155
DWY01A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01B	0.631	0.631	0.643	0.645	0.651	0.634	0.645	0.633	0.671	0.654	0.728	0.665	0.653
DWY02A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01C	3.211	3.208	3.254	3.26	3.306	3.222	3.26	3.219	3.395	3.322	3.725	3.416	3.352
DWY01D	2.776	2.775	2.781	2.784	2.801	2.778	2.784	2.778	2.827	2.805	3.446	3.348	3.321
STH02A	0	0	0	0	0	0	0	0	0	0	0	0	0
STH01A	0	0	0	0	0	0	0	0	0	0	0	0	0
STH01B	4.458	4.454	4.51	4.519	4.578	4.471	4.519	4.468	4.695	4.598	5.141	4.735	4.653
COLL01A	0	0	0	0	0	0	0	0	0	0	0	0	0
COLL01B	1.251	1.251	1.256	1.257	1.263	1.253	1.256	1.252	1.276	1.266	1.553	1.506	1.493
COLL01C	6.696	6.694	6.721	6.73	6.787	6.702	6.729	6.701	6.882	6.804	8.049	7.677	7.581
OUT	23.801	23.764	24.346	24.426	24.749	23.936	24.422	23.897	25.251	24.838	28.276	25.445	25.05
PEAK_Local-Perv													
DWY04A	1.285	1.281	1.34	1.348	1.381	1.298	1.347	1.294	1.432	1.39	1.557	1.358	1.339
DWY03A	0.025	0.025	0.023	0.023	0.026	0.024	0.023	0.024	0.029	0.026	0.022	0.023	0.025
DWY03B	0.692	0.689	0.733	0.74	0.764	0.702	0.739	0.699	0.803	0.771	0.816	0.7	0.685
DWY01A	0.319	0.317	0.346	0.35	0.367	0.326	0.35	0.324	0.393	0.371	0.365	0.327	0.316
DWY01B	0.468	0.465	0.502	0.507	0.527	0.476	0.506	0.474	0.559	0.533	0.543	0.476	0.463
DWY02A	0.034	0.034	0.032	0.032	0.036	0.032	0.032	0.033	0.04	0.036	0.03	0.03	0.033
DWY01C	0.494	0.491	0.529	0.534	0.555	0.502	0.534	0.5	0.588	0.561	0.574	0.503	0.489
DWY01D	0.762	0.759	0.806	0.812	0.838	0.773	0.812	0.77	0.879	0.845	0.903	0.771	0.754
STH02A	0.181	0.179	0.2	0.203	0.215	0.185	0.203	0.184	0.234	0.218	0.203	0.187	0.18
STH01A	1.437	1.433	1.494	1.503	1.537	1.451	1.502	1.447	1.591	1.547	1.75	1.539	1.518
STH01B	0.134	0.133	0.15	0.152	0.162	0.138	0.152	0.136	0.178	0.165	0.15	0.14	0.133
COLL01A	0.785	0.782	0.829	0.836	0.862	0.796	0.835	0.793	0.903	0.869	0.931	0.793	0.777
COLL01B	1.889	1.885	1.954	1.963	2.002	1.905	1.963	1.901	2.062	2.013	2.329	2.085	2.06
COLL01C	1.205	1.201	1.258	1.266	1.298	1.218	1.265	1.214	1.348	1.307	1.456	1.264	1.245
OUT	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK_Local-Imp													
DWY04A	2.262	2.286	2.448	2.485	2.633	2.264	2.483	2.246	2.87	2.675	2.411	2.293	2.214
DWY03A	0.226	0.229	0.205	0.21	0.229	0.217	0.21	0.22	0.26	0.235	0.194	0.204	0.221
DWY03B	1.309	1.323	1.354	1.377	1.47	1.257	1.376	1.272	1.618	1.496	1.315	1.259	1.281
DWY01A	0.558	0.564	0.539	0.55	0.594	0.536	0.549	0.542	0.664	0.606	0.515	0.504	0.546
DWY01B	0.144	0.145	0.127	0.13	0.143	0.138	0.13	0.14	0.163	0.146	0.12	0.13	0.141
DWY02A	0.61	0.617	0.594	0.606	0.653	0.586	0.605	0.593	0.729	0.667	0.568	0.551	0.597
DWY01C	0.153	0.155	0.136	0.139	0.152	0.147	0.139	0.149	0.174	0.156	0.128	0.138	0.15
DWY01D	0.459	0.464	0.437	0.446	0.483	0.441	0.446	0.446	0.542	0.493	0.416	0.414	0.449
STH02A	0.308	0.311	0.285	0.291	0.317	0.296	0.291	0.299	0.358	0.324	0.27	0.278	0.301
STH01A	3.757	3.733	4.123	4.178	4.399	3.847	4.175	3.821	4.753	4.461	4.12	3.884	3.734
STH01B	2.628	2.656	2.88	2.921	3.089	2.67	2.919	2.651	3.357	3.136	2.848	2.702	2.587
COLL01A	1.511	1.527	1.582	1.608	1.713	1.452	1.607	1.469	1.881	1.743	1.542	1.475	1.48
COLL01B	5.418	5.386	5.898	5.97	6.26	5.536	5.966	5.502	6.724	6.342	5.958	5.576	5.381
COLL01C	2.491	2.517	2.717	2.757	2.918	2.517	2.755	2.498	3.174	2.962	2.684	2.548	2.438
OUT	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK_Directed-to-Btm													
DWY04A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY03A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY03B	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01B	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY02A	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01C	0	0	0	0	0	0	0	0	0	0	0	0	0
DWY01D	0	0	0	0	0	0	0	0	0	0	0	0	0
STH02A	0	0	0	0	0	0	0	0	0	0	0	0	0
STH01A	0	0	0	0	0	0	0	0	0	0	0	0	0
STH01B	0	0	0	0	0	0	0	0	0	0	0	0	0
COLL01A	0	0	0	0	0	0	0	0	0	0	0	0	0
COLL01B	0	0	0	0	0	0	0	0	0	0	0	0	0
COLL01C	0	0	0	0	0	0	0	0	0	0	0	0	0
OUT	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK_OUTLET-Inflow													
DWY04A	3.488	3.469	3.788	3.833	4.014	3.562	3.83	3.541	4.301	4.064	3.969	3.582	3.461
DWY03A	0.251	0.254	0.228	0.233	0.255	0.241	0.233	0.244	0.289	0.261	0.216	0.227	0.246
DWY03B	2.043	2.029	2.238	2.267	2.385	2.091	2.266	2.077	2.572	2.418	2.301	2.108	2.028
DWY01A	0.821	0.83	0.885	0.9	0.961	0.81	0.899	0.803	1.057	0.978	0.88	0.823	0.803
DWY01B	1.189	1.186	1.236	1.243	1.27	1.2	1.243	1.197	1.313	1.278	1.377	1.203	1.182
DWY02A	0.644	0.651	0.626	0.638	0.689	0.619	0.637	0.626	0.77	0.703	0.598	0.581	0.631
DWY01C	3.719	3.719	3.799	3.812	3.86	3.734	3.811	3.728	3.933	3.873	4.344	3.97	3.901
DWY01D	3.339	3.339	3.35	3.352	3.359	3.343	3.352	3.342	3.388	3.364	4.193	4.169	4.151
STH02A	0.473	0.479	0.485	0.494	0.532	0.453	0.494	0.459	0.592	0.542	0.474	0.448	0.463
STH01A	5.194	5.166	5.617	5.681	5.936	5.298	5.677	5.268	6.344	6.008	5.87	5.323	5.153
STH01B	7.061	7.047	7.279	7.311	7.438	7.116	7.309	7.1	7.635	7.474	8.023	7.15	7.036
COLL01A	2.193	2.179	2.411	2.444	2.575	2.247	2.442	2.232	2.784	2.612	2.472	2.268	2.178
COLL01B	8.395	8.363	8.882	8.954	9.247	8.515	8.95	8.48	9.715	9.33	9.704	8.499	8.315
COLL01C	9.809	9.805	9.872	9.88	9.939	9.825	9.88	9.821	10.087	9.966	11.753	10.898	10.743
OUT	23.801	23.764	24.346	24.426	24.749	23.936	24.422	23.897	25.251	24.838	28.276	25.445	25.05
PEAK_OUTLET-Outflow													
DWY04A	3.488	3.469	3.788	3.833	4.014	3.562	3.83	3.541	4.301	4.064	3.969	3.582	3.461
DWY03A	0.251	0.254	0.228	0.233	0.255	0.241	0.233	0.244	0.289	0.261	0.216	0.227	0.246
DWY03B	2.043	2.029	2.238	2.267	2.385	2.091	2.266	2.077	2.572	2.418	2.301	2.108	2.028
DWY01A	0.821	0.83	0.885	0.9	0.961	0.81	0.899	0.803	1.057	0.978	0.88	0.823	0.803
DWY01B	1.189	1.186	1.236	1.243	1.27	1.2	1.243	1.197	1.313	1.278	1.377	1.203	1.182
DWY02A	0.644	0.651	0.626	0.638	0.689	0.619	0.637	0.626	0.77	0.703	0.598	0.581	0.631
DWY01C	3.719	3.719	3.799	3.812	3.86	3.734	3.811	3.728	3.933	3.873	4.344	3.97	3.901
DWY01D	3.339	3.339	3.35	3.352	3.359	3.343	3.352	3.342	3.388	3.364	4.193	4.169	4.151
STH02A	0.473	0.479	0.485	0.494	0.532	0.453	0.494	0.459	0.592	0.542	0.474	0.448	0.463
STH01A	5.194	5.166	5.617	5.681	5.936	5.298	5.677	5.268	6.344	6.008	5.87	5.323	5.153
STH01B	7.061	7.047	7.279	7.311	7.438	7.116	7.309	7.1	7.635	7.474	8.023	7.15	7.036
COLL01A	2.193	2.179	2.411	2.444	2.575	2.247	2.442	2.232	2.784	2.612	2.472	2.268	2.178
COLL01B	8.395	8.363	8.882	8.954	9.247	8.515	8.95	8.48	9.715	9.33	9.704	8.499	8.315
COLL01C	9.809	9.805	9.872	9.88	9.939	9.825	9.88	9.821	10.087	9.966	11.753	10.898	10.743
OUT	23.801	23.764	24.346	24.426	24.749	23.936	24.422	23.897	25.251	24.838	28.276	25.445	25.05

	14-1(REC)	15-1(REC)	16-1(REC)	17-1(REC)	18-1(REC)	19-1(REC)	20-1(REC)	21-1(REC)	22-1(REC)	23-1(REC)	24-1(REC)	25-1(REC)
	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_15min_4	REC ARR16_Aep1_20min_4	REC ARR16_Aep1_20min_4	REC ARR16_Aep1_20min_4	REC ARR16_Aep1_20min_4	REC ARR16_Aep1_20min_4	REC ARR16_Aep1_20min_4
REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC
DESCRIPTION	REC14 REC14	REC15 REC15	REC16 REC16	REC17 REC17	REC18 REC18	REC19 REC19	REC20 REC20	REC21 REC21	REC22 REC22	REC23 REC23	REC24 REC24	REC25 REC25
Catch_area_ha	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19
Impervious%	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56
Rainfall_depth_mm	45.4	45.4	45.4	45.4	45.4	45.4	45.4	52	52	52	52	52
Excess_depth_mm	45.32	45.32	45.32	45.32	45.32	45.32	45.32	51.9	51.9	51.9	51.9	51.9
Calc_runoff_mm	45.27	45.28	45.28	45.28	45.28	45.29	45.28	51.85	51.87	51.87	51.84	51.84
VOLUMES_Outlet_m3												
DWY04A	4151	4152	4152	4152	4152	4153	4152	4754	4756	4757	4753	4753
DWY03A	176	176	176	176	176	176	176	202	202	202	202	202
DWY03B	2188	2188	2188	2188	2188	2188	2188	2506	2507	2506	2505	2506
DWY01A	772	772	772	772	772	772	772	884	884	884	884	884
DWY01B	1418	1418	1418	1418	1418	1419	1418	1624	1626	1625	1624	1624
DWY02A	495	495	495	495	495	495	495	567	567	567	567	567
DWY01C	4793	4793	4792	4792	4794	4794	4794	5488	5494	5491	5488	5489
DWY01D	6159	6160	6160	6159	6161	6162	6161	7053	7061	7056	7053	7054
STH02A	402	402	402	402	402	402	402	460	460	460	460	460
STH01A	6069	6070	6070	6071	6070	6071	6071	6951	6952	6954	6950	6950
STH01B	8674	8675	8674	8675	8675	8676	8676	9933	9936	9938	9933	9933
COLL01A	2372	2373	2373	2373	2373	2373	2373	2717	2719	2718	2717	2717
COLL01B	11342	11343	11344	11346	11343	11345	11345	12990	12991	12993	12987	12988
COLL01C	15560	15563	15564	15567	15562	15567	15566	17822	17827	17828	17817	17817
OUT	34945	34952	34951	34955	34951	34959	34957	40023	40040	40039	40016	40017
PEAK_FLOWRATES_m3/s												
PEAK_Stream-Top												
DWY04A	0	0	0	0	0	0	0	0	0	0	0	0
DWY03A	0	0	0	0	0	0	0	0	0	0	0	0
DWY03B	0.264	0.213	0.215	0.221	0.224	0.292	0.276	0.215	0.276	0.235	0.219	0.221
DWY01A	0	0	0	0	0	0	0	0	0	0	0	0
DWY01B	0.866	0.826	0.733	0.823	0.85	1.108	1.049	0.89	1.006	0.766	0.776	0.864
DWY02A	0	0	0	0	0	0	0	0	0	0	0	0
DWY01C	3.505	3.813	3.696	4.08	3.875	5.074	4.835	4.402	4.422	3.668	3.74	4.129
DWY01D	3.812	4.085	4.022	4.306	4.157	4.643	4.475	4.626	4.142	3.592	4.216	4.042
STH02A	0	0	0	0	0	0	0	0	0	0	0	0
STH01A	0	0	0	0	0	0	0	0	0	0	0	0
STH01B	4.852	5.235	5.12	5.619	5.314	6.897	6.586	6.067	6.035	5.11	5.214	5.702
COLL01A	0	0	0	0	0	0	0	0	0	0	0	0
COLL01B	2.184	2.247	2.117	2.345	2.293	2.987	2.842	2.535	2.648	2.148	2.134	2.41
COLL01C	8.258	8.619	8.724	9.406	8.796	10.937	10.528	10.233	9.233	8.658	9.092	9.53
OUT	25.157	26.35	26.282	27.849	26.752	30.105	29.262	30.411	25.887	25.3	27.929	27.66
PEAK_Stream-Bottom												
DWY04A	0	0	0	0	0	0	0	0	0	0	0	0
DWY03A	0	0	0	0	0	0	0	0	0	0	0	0
DWY03B	0.147	0.159	0.156	0.169	0.162	0.189	0.181	0.18	0.167	0.14	0.161	0.159
DWY01A	0	0	0	0	0	0	0	0	0	0	0	0
DWY01B	0.629	0.68	0.664	0.715	0.692	0.781	0.752	0.766	0.698	0.594	0.695	0.674
DWY02A	0	0	0	0	0	0	0	0	0	0	0	0
DWY01C	3.244	3.495	3.414	3.671	3.551	3.959	3.821	3.941	3.568	3.083	3.596	3.475
DWY01D	3.243	3.376	3.322	3.438	3.402	3.533	3.457	3.808	3.567	3.174	3.663	3.416
STH02A	0	0	0	0	0	0	0	0	0	0	0	0
STH01A	0	0	0	0	0	0	0	0	0	0	0	0
STH01B	4.512	4.84	4.736	5.074	4.914	5.438	5.257	5.445	4.928	4.322	4.993	4.827
COLL01A	0	0	0	0	0	0	0	0	0	0	0	0
COLL01B	1.463	1.518	1.501	1.552	1.53	1.595	1.565	1.732	1.591	1.484	1.663	1.583
COLL01C	7.446	7.804	7.687	8.003	7.883	8.325	8.135	8.781	7.905	7.301	8.335	7.914
OUT	25.157	26.35	26.282	27.849	26.752	30.105	29.262	30.411	25.887	25.3	27.929	27.66
PEAK_Local-Perv												
DWY04A	1.367	1.418	1.43	1.519	1.441	1.711	1.658	1.688	1.369	1.452	1.533	1.575
DWY03A	0.027	0.021	0.021	0.022	0.022	0.03	0.028	0.021	0.028	0.023	0.022	0.022
DWY03B	0.689	0.72	0.73	0.789	0.736	0.926	0.89	0.863	0.759	0.723	0.762	0.802
DWY01A	0.293	0.321	0.315	0.348	0.326	0.434	0.413	0.376	0.372	0.31	0.319	0.351
DWY01B	0.447	0.469	0.477	0.521	0.48	0.63	0.603	0.566	0.529	0.469	0.49	0.526
DWY02A	0.036	0.03	0.029	0.031	0.031	0.041	0.039	0.03	0.039	0.032	0.03	0.031
DWY01C	0.474	0.497	0.506	0.552	0.509	0.665	0.636	0.6	0.556	0.498	0.521	0.558
DWY01D	0.767	0.801	0.811	0.874	0.818	1.019	0.981	0.959	0.83	0.806	0.85	0.89
STH02A	0.175	0.186	0.172	0.192	0.19	0.251	0.237	0.207	0.222	0.172	0.171	0.196
STH01A	1.546	1.602	1.614	1.71	1.627	1.912	1.856	1.904	1.545	1.648	1.739	1.781
STH01B	0.137	0.139	0.125	0.14	0.143	0.188	0.177	0.151	0.168	0.127	0.128	0.145
COLL01A	0.792	0.827	0.837	0.902	0.844	1.049	1.01	0.99	0.853	0.833	0.878	0.919
COLL01B	2.091	2.158	2.171	2.285	2.187	2.514	2.45	2.562	2.109	2.248	2.366	2.407
COLL01C	1.272	1.322	1.333	1.419	1.344	1.604	1.554	1.574	1.276	1.35	1.425	1.468
OUT	0	0	0	0	0	0	0	0	0	0	0	0
PEAK_Local-Imp												
DWY04A	2.378	2.292	2.024	2.272	2.35	2.979	2.819	2.425	2.737	2.12	2.142	2.311
DWY03A	0.238	0.192	0.193	0.198	0.201	0.262	0.248	0.193	0.248	0.212	0.197	0.199
DWY03B	1.376	1.267	1.119	1.265	1.306	1.663	1.571	1.316	1.544	1.227	1.212	1.276
DWY01A	0.586	0.505	0.477	0.513	0.524	0.675	0.636	0.514	0.633	0.523	0.5	0.512
DWY01B	0.151	0.119	0.123	0.124	0.125	0.164	0.155	0.119	0.155	0.135	0.124	0.124
DWY02A	0.642	0.556	0.522	0.564	0.577	0.742	0.7	0.567	0.696	0.572	0.549	0.564
DWY01C	0.161	0.127	0.131	0.132	0.133	0.175	0.165	0.127	0.166	0.143	0.132	0.132
DWY01D	0.482	0.409	0.392	0.417	0.426	0.55	0.518	0.415	0.517	0.43	0.409	0.417
STH02A	0.324	0.267	0.263	0.274	0.279	0.362	0.341	0.269	0.342	0.289	0.271	0.274
STH01A	3.849	3.858	3.506	3.909	3.939	4.984	4.73	4.162	4.534	3.463	3.537	3.921
STH01B	2.762	2.695	2.401	2.689	2.76	3.496	3.311	2.868	3.203	2.463	2.504	2.723
COLL01A	1.589	1.481	1.292	1.474	1.524	1.938	1.831	1.545	1.795	1.417	1.408	1.491
COLL01B	5.362	5.518	5.121	5.678	5.619	7.108	6.758	6.042	6.414	5.007	5.102	5.655
COLL01C	2.618	2.543	2.258	2.532	2.605	3.301	3.126	2.701	3.028	2.335	2.368	2.568
OUT	0	0	0	0	0	0	0	0	0	0	0	0
PEAK_Directed-to-Btm												
DWY04A	0	0	0	0	0	0	0	0	0	0	0	0
DWY03A	0	0	0	0	0	0	0	0	0	0	0	0
DWY03B	0	0	0	0	0	0	0	0	0	0	0	0
DWY01A	0	0	0	0	0	0	0	0	0	0	0	0
DWY01B	0	0	0	0	0	0	0	0	0	0	0	0
DWY02A	0	0	0	0	0	0	0	0	0	0	0	0
DWY01C	0	0	0	0	0	0	0	0	0	0	0	0
DWY01D	0	0	0	0	0	0	0	0	0	0	0	0
STH02A	0	0	0	0	0	0	0	0	0	0	0	0
STH01A	0	0	0	0	0	0	0	0	0	0	0	0
STH01B	0	0	0	0	0	0	0	0	0	0	0	0
COLL01A	0	0	0	0	0	0	0	0	0	0	0	0
COLL01B	0	0	0	0	0	0	0	0	0	0	0	0
COLL01C	0	0	0	0	0	0	0	0	0	0	0	0
OUT	0	0	0	0	0	0	0	0	0	0	0	0
PEAK_OUTLET-Inflow												
DWY04A	3.287	3.526	3.454	3.791	3.584	4.689	4.477	4.112	4.089	3.49	3.526	3.887
DWY03A	0.264	0.213	0.215	0.221	0.224	0.292	0.276	0.215	0.276	0.235	0.219	0.221
DWY03B	1.993	2.085	1.973	2.186	2.125	2.768	2.634	2.36	2.445	1.985	1.988	2.232
DWY01A	0.866	0.826	0.733	0.823	0.85	1.108	1.049	0.89	1.006	0.766	0.776	0.864
DWY01B	1.163	1.235	1.237	1.342	1.262	1.523	1.464	1.446	1.268	1.155	1.277	1.302
DWY02A	0.677	0.586	0.55	0.594	0.608	0.783	0.738	0.597	0.734	0.604	0.579	0.594
DWY01C	3.812	4.085	4.022	4.306	4.157	4.643	4.475	4.626	4.142	3.592	4.216	4.042
DWY01D	4.059	4.161	4.101	4.2	4.179	4.27	4.188	4.701	4.5	4.091	4.636	4.264
STH02A	0.499	0.453	0.4	0.455	0.469	0.613	0.579	0.476	0.563	0.442	0.437	0.47
STH01A	4.852	5.235	5.12	5.619	5.314	6.897	6.586	6.067	6.035	5.11	5.214	5.702
STH01B	6.837	7.278	7.258	7.854	7.431	8.743	8.412	8.394	7.537	6.693	7.486	7.517
COLL01A	2.184	2.247	2.117	2.345	2.293	2.987	2.842	2.535	2.648	2.148	2.134	2.41
COLL01B	8.258	8.619	8.724	9.406	8.796	10.937	10.528	10.233	9.233	8.658	9.092	9.53
COLL01C	10.676	11.19	11.094	11.663	11.333	12.177	11.894	12.754	11.065	10.609	11.899	11.522
OUT	25.157	26.35	26.282	27.849	26.752	30.105	29.262	30.411	25.887	25.3	27.929	27.66
PEAK_OUTLET-Outflow												
DWY04A	3.287	3.526	3.454	3.791	3.584	4.689	4.477	4.112	4.089	3.49	3.526	3.887
DWY03A	0.264	0.213	0.215	0.221	0.224	0.292	0.276	0.215	0.276	0.235	0.219	0.221
DWY03B	1.993	2.085	1.973	2.186	2.125	2.768	2.634	2.36	2.445	1.985	1.988	2.232
DWY01A	0.866	0.826	0.733	0.823	0.85	1.108	1.049	0.89	1.006	0.766	0.776	0.864
DWY01B	1.163	1.235	1.237	1.342	1.262	1.523	1.464	1.446	1.268	1.155	1.277	1.302
DWY02A	0.677	0.586	0.55	0.594	0.608	0.783	0.738	0.597	0.734	0.604	0.579	0.594
DWY01C	3.812	4.085	4.022	4.306	4.157	4.643	4.475	4.626	4.142	3.592	4.216	4.042
DWY01D	4.059	4.161	4.101	4.2	4.179	4.27	4.188	4.701	4.5	4.091	4.636	4.264
STH02A	0.499	0.453	0.4	0.455	0.469	0.613	0.579	0.476	0.563	0.442	0.437	0.47
STH01A	4.852	5.235	5.12	5.619	5.314	6.897	6.586	6.067	6.035	5.11	5.214	5.702
STH01B	6.837	7.278	7.258	7.854	7.431	8.743	8.412	8.394	7.537	6.693	7.486	7.517
COLL01A	2.184	2.247	2.117	2.345	2.293	2.987	2.842	2.535	2.648	2.148	2.134	2.41
COLL01B	8.258	8.619	8.724	9.406	8.796	10.937	10.528	10.233	9.233	8.658	9.092	9.53
COLL01C	10.676	11.19	11.094	11.663	11.333	12.177	11.894	12.754	11.065	10.609	11.899	11.522
OUT	25.157	26.35	26.282	27.849	26.752	30.105	29.262	30.411	25.887	25.3	27.929	27.66

REC ARR16_Aep1_20min_4 REC REC26 REC26 26-1(REC)	REC ARR16_Aep1_20min_4 REC REC27 REC27 27-1(REC)	REC ARR16_Aep1_20min_4 REC REC28 REC28 28-1(REC)	REC ARR16_Aep1_20min_4 REC REC29 REC29 29-1(REC)	REC ARR16_Aep1_25min_4 REC REC30 REC30 30-1(REC)	REC ARR16_Aep1_25min_4 REC REC31 REC31 31-1(REC)	REC ARR16_Aep1_25min_4 REC REC32 REC32 32-1(REC)	REC ARR16_Aep1_25min_4 REC REC33 REC33 33-1(REC)	REC ARR16_Aep1_25min_4 REC REC34 REC34 34-1(REC)	REC ARR16_Aep1_25min_4 REC REC35 REC35 35-1(REC)	REC ARR16_Aep1_25min_4 REC REC36 REC36 36-1(REC)	REC ARR16_Aep1_25min_4 REC REC37 REC37 37-1(REC)	REC ARR16_Aep1_25min_4 REC REC38 REC38 38-1(REC)	REC ARR16_Aep1_25min_4 REC REC39 REC39 39-1(REC)	REC ARR16_Aep1_30min_4 REC REC40 REC40 40-1(REC)	REC ARR16_Aep1_30min_4 REC REC41 REC41 41-1(REC)	REC ARR16_Aep1_30min_4 REC REC42 REC42 42-1(REC)	REC ARR16_Aep1_30min_4 REC REC43 REC43 43-1(REC)	REC ARR16_Aep1_30min_4 REC REC44 REC44 44-1(REC)	REC ARR16_Aep1_30min_4 REC REC45 REC45 45-1(REC)	REC ARR16_Aep1_30min_4 REC REC46 REC46 46-1(REC)	REC ARR16_Aep1_30min_4 REC REC47 REC47 47-1(REC)	REC ARR16_Aep1_30min_4 REC REC48 REC48 48-1(REC)	REC ARR16_Aep1_30min_4 REC REC49 REC49 49-1(REC)	REC ARR16_Aep1_45min_4 REC REC50 REC50 50-1(REC)	REC ARR16_Aep1_45min_4 REC REC51 REC51 51-1(REC)
77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19
57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56
52	52	52	52	52	57	57	57	57	57	57	57	57	57	57	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	60.9	69.4
51.9	51.9	51.9	51.9	51.9	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87	56.87	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	60.75	69.17
51.84	51.84	51.84	51.86	51.84	56.83	56.82	56.85	56.83	56.83	56.8	56.81	56.79	56.8	56.81	60.7	60.68	60.71	60.7	60.69	60.66	60.73	60.68	60.68	60.71	69.15
4754	4754	4753	4756	4753	5211	5209	5213	5209	5211	5208	5209	5208	5209	5209	5566	5564	5565	5564	5565	5561	5569	5564	5564	5567	6339
202	202	202	202	202	221	221	221	221	221	221	221	221	221	221	236	236	236	236	236	236	236	236	236	236	269
2505	2505	2506	2507	2505	2747	2746	2747	2747	2746	2746	2747	2745	2746	2746	2935	2933	2934	2934	2935	2933	2935	2933	2934	2934	3342
884	884	884	884	884	969	969	969	969	969	969	969	969	969	969	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1179
1624	1624	1624	1625	1624	1781	1781	1782	1781	1780	1779	1780	1779	1779	1780	1903	1902	1902	1902	1902	1901	1902	1901	1901	1902	2167
567	567	567	567	567	622	622	622	622	622	622	622	622	622	622	664	664	664	664	664	664	664	664	664	664	757
5487	5488	5489	5491	5488	6018	6019	6021	6019	6017	6013	6018	6012	6014	6015	6430	6427	6430	6428	6429	6425	6429	6426	6427	6428	7325
7053	7053	7054	7056	7053	7733	7733	7738	7735	7732	7727	7733	7725	7728	7730	8263	8256	8264	8261	8262	8255	8263	8256	8258	8260	9412
460	460	460	460	460	504	504	504	504	504	504	504	504	504	504	539	539	539	539	539	539	539	539	539	539	614
6950	6950	6950	6952	6950	7619	7617	7622	7617	7618	7615	7616	7615	7616	7615	8137	8135	8137	8134	8135	8132	8141	8135	8135	8138	9268
9933	9933	9933	9935	9932	10889	10888	10893	10888	10889	10883	10886	10883	10885	10885	11630	11629	11632	11629	11630	11624	11636	11629	11627	11632	13252
2717	2716	2717	2718	2717	2978	2978	2979	2978	2978	2977	2978	2977	2977	2978	3181	3180	3181	3181	3182	3180	3182	3180	3182	3182	3622
12988	12988	12988	12993	12988	14234	14233	14238	14236	14237	14231	14231	14229	14232	14231	15205	15200	15207	15204	15200	15197	15212	15198	15200	15207	17318
17818	17819	17818	17826	17817	19529	19527	19539	19534	19533	19521	19524	19520	19522	19522	20860	20853	20865	20862	20856	20844	20874	20851	20854	20865	23763
40017	40018	40017	40034	40015	43866	43862	43887	43871	43870	43843	43857	43841	43849	43851	46857	46840	46865	46854	46852	46822	46880	46838	46842	46862	53380
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.181	0.223	0.186	0.32	0.208	0.218	0.206	0.247	0.229	0.198	0.162	0.19	0.153	0.242	0.227	0.216	0.185	0.194	0.187	0.183	0.145	0.253	0.152	0.203	0.242	0.181
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.74	0.789	0.758	1.182	0.765	0.822	0.774	0.876	0.84	0.816	0.683	0.752	0.645	0.937	0.886	0.856	0.693	0.738	0.712	0.706	0.599	0.986	0.605	0.804	0.961	0.707
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.611	3.772	3.836	5.336	3.819	3.779	3.498	3.778	3.719	4.056	3.516	3.791	3.264	4.438	4.172	4.07	3.118	3.366	3.47	3.38	3.041	4.667	3.063	3.882	4.612	3.316
4.084	4.203	4.194	4.756	4.072	4.093	3.606	4.067	3.866	4.297	3.944	4.161	3.747	4.275	4.625	4.336	3.205	3.672	3.772	3.735	3.31	4.608	3.394	4.085	4.64	3.546
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.008	5.192	5.331	7.259	5.311	5.174	4.81	5.191	5.104	5.609	4.939	5.248	4.594	6.126	5.712	5.575	4.303	4.635	4.798	4.689	4.323	6.39	4.269	5.37	6.342	4.558
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.088	2.175	2.2	3.163	2.2	2.227	2.079	2.284	2.226	2.336	2.015	2.172	1.873	2.601	2.438	2.37	1.858	1.994	1.989	1.933	1.761	2.723	1.754	2.26	2.684	1.942
8.784	8.946	9.191	11.534	9.13	8.746	7.566	8.693	8.168	9.527	8.71	8.954	8.219	10.182	9.919	9.159	7.134	7.839	8.099	8.045	7.685	10.481	7.391	9.016	10.553	7.642
27.1	27.739	27.84	31.511	27.466	26.717	23.084	25.815	24.687	28.421	26.721	27.136	25.517	29.224	30.45	28.442	21.939	23.686	24.343	24.368	23.31	30.042	22.48	27.125	30.632	23.949
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.156	0.161	0.161	0.193	0.155	0.159	0.141	0.161	0.152	0.168	0.15	0.161	0.141	0.169	0.178	0.168	0.126	0.144	0.147	0.145	0.124	0.182	0.131	0.158	0.182	0.137
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.674	0.695	0.69	0.794	0.667	0.679	0.601	0.682	0.645	0.716	0.646	0.691	0.614	0.712	0.764	0.719	0.535	0.611	0.628	0.621	0.534	0.769	0.562	0.676	0.77	0.587
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.49	3.6	3.558	4.06	3.458	3.508	3.088	3.495	3.314	3.694	3.357	3.57	3.204	3.666	3.949	3.72	2.746	3.148	3.239	3.204	2.801	3.954	2.909	3.501	3.966	3.041
3.584	3.689	3.589	3.72	3.533	3.664	3.163	3.51	3.299	3.742	3.545	3.777	3.465	3.575	3.987	3.886	2.974	3.152	3.361	3.392	3.085	3.933	3.156	3.707	3.994	3.327
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.851	5	4.936	5.587	4.815	4.864	4.286	4.832	4.591	5.115	4.695	4.952	4.498	5.094	5.466	5.155	3.821	4.369	4.495	4.446	3.985	5.457	4.054	4.889	5.489	4.244
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.63	1.669	1.635	1.709	1.615	1.656	1.471	1.563	1.484	1.693	1.641	1.71	1.602	1.671	1.817	1.751	1.42	1.407	1.516	1.541	1.472	1.771	1.474	1.714	1.817	1.519
8.133	8.349	8.216	8.719	8.066	8.131	7.03	7.8	7.393	8.433	8.049	8.396	7.794	8.341	9.084	8.647	6.777	7.083	7.507	7.481	7.073	8.859	7.029	8.383	9.031	7.391
27.1	27.739	27.84	31.511	27.466	26.717	23.084	25.815	24.687	28.421	26.721	27.136	25.517	29.224	30.45	28.442	21.939	23.686	24.343	24.368	23.31	30.042	22.48	27.125	30.632	23.949
1.489	1.515	1.541	1.843	1.532	1.46	1.305	1.39	1.322	1.58	1.498	1.476	1.428	1.689	1.68	1.556	1.263	1.273	1.309	1.329	1.342	1.7	1.284	1.509	1.742	1.33
0.018	0.022	0.019	0.033	0.021	0.022	0.021	0.025	0.023	0.02	0.016	0.019	0.015	0.024	0.023	0.022	0.018	0.019	0.019	0.018	0.014	0.026	0.015	0.02	0.024	0.018
0.735	0.748	0.771	0.982	0.765	0.733	0.629	0.725	0.681	0.801	0.727	0.751	0.683	0.858	0.833	0.767	0.586	0.653	0.675	0.673	0.634	0.888	0.617	0.757	0.893	0.636
0.307	0.321	0.327	0.456	0.325	0.319	0.292	0.321	0.31	0.346	0.299	0.324	0.278	0.377	0.355	0.346	0.259	0.283	0.296	0.288	0.257	0.399	0.261	0.33	0.394	0.28
0.471	0.479	0.499	0.664	0.496	0.474	0.419	0.48	0.447	0.523	0.462	0.49	0.431	0.564	0.535	0.511	0.37	0.428	0.445	0.438	0.399	0.591	0.398	0.495	0.589	0.41
0.025	0.031	0.026	0.045	0.029	0.03	0.029	0.034	0.032	0.027	0.023	0.026	0.021	0.034	0.032	0.03	0.026	0.027	0.026	0.025	0.02	0.035	0.021	0.028	0.034	0.025
0.501	0.51	0.53	0.701	0.526	0.504	0.441	0.508	0.474	0.554	0.492	0.52	0.459	0.597	0.569	0.54	0.39	0.454	0.471	0.465	0.425	0.625	0.423	0.525	0.624	0.432
0.821	0.835	0.859	1.083	0.853	0.817	0.699	0.803	0.756	0.89	0.813	0.835	0.766	0.953	0.93	0.857	0.66	0.725	0.749	0.749	0.712	0.982	0.688	0.841	0.991	0.713
0.171	0.179	0.177	0.264	0.177	0.184	0.172	0.189	0.184	0.19	0.16	0.176	0.15	0.212	0.201	0.196	0.153	0.164	0.162	0.159	0.137	0.225	0.141	0.183	0.22	0.16
1.691	1.719	1.747	2.067	1.736	1.653	1.498	1.563	1.49	1.786	1.707	1.686	1.632	1.911	1.907	1.767	1.453	1.435	1.492	1.503	1.54	1.912	1.477	1.725	1.967	1.519
0.126	0.131	0.129	0.199	0.129	0.138	0.13	0.145	0.14	0.138	0.116	0.128	0.109	0.157	0.15	0.145	0.115	0.124	0.119	0.119	0.1	0.167	0.102	0.135	0.162	0.119
0.849	0.864	0.888	1.116	0.881	0.844	0.722	0.828	0.78	0.92	0.842	0.862	0.793	0.984	0.961	0.886	0.684	0.749	0.773	0.773	0.737	1.013	0.71	0.868	1.023	0.738
2.308	2.344	2.373	2.741	2.36	2.24	2.095	2.083	2.055	2.414	2.353	2.333	2.262	2.59	2.599	2.412	2.048	1.926	2.053	2.098	2.157	2.552	2.083	2.394	2.648	2.103
1.384	1.408	1.434	1.725	1.425	1.359	1.206	1.299	1.234	1.472	1.388	1.376	1.322	1.573	1.562	1.445	1.165	1.188	1.221	1.238	1.24	1.588	1.184	1.397	1.624	1.231
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.041	2.175	2.07	3.125	2.108	2.231	2.148	2.399	2.313	2.224	1.858	2.069	1.764	2.498	2.398	2.334	1.933	2.055	1.989	1.942	1.61	2.648	1.669	2.164	2.579	1.947
0.163	0.201	0.168	0.287	0.187	0.196	0.185	0.222	0.206	0.178	0.146	0.171	0.138	0.217	0.204	0.194	0.167	0.174	0.169	0.164	0.13	0.227	0.137	0.182	0.218	0.163
1.109	1.232	1.115	1.761	1.183	1.242	1.196	1.36	1.299	1.206	0.997	1.138	0.95	1.386	1.325	1.284	1.076	1.14	1.103	1.073	0.872	1.464	0.912	1.19	1.421	1.073
0.433	0.509	0.439	0.726	0.482	0.503	0.482	0.562	0.53	0.47	0.387	0.451	0.368	0.56	0.53	0.509	0.434	0.456	0.441	0.429	0.342	0.587	0.36	0.475	0.567	0.427
0.1	0.126	0.104	0.181	0.117	0.122	0.115	0.139	0.129	0.111	0.09	0.106	0.085	0.136	0.127	0.12	0.104	0.108	0.104	0.102	0.081	0.142	0.085	0.114	0.136	0.101
0.478	0.559	0.483	0.797	0.529	0.553	0.53	0.617	0.582	0.519	0.427	0.497	0.406	0.615	0.584	0.561	0.477	0.502	0.486	0.472	0.377	0.646	0.397	0.523	0.625	0.47
0.107	0.135	0.111	0.193	0.125	0.131	0.123	0.149	0.138	0.119	0.097	0.113	0.091	0.145	0.135	0.128	0.111	0.116	0.112	0.109	0.086	0.151	0.091	0.121	0.145	0.108
0.35	0.416	0.356	0.594	0.392	0.41	0.392	0.46	0.432	0.38	0.313	0.365	0.297	0.456	0.431	0.413	0.352	0.37	0.358	0.348	0.277	0.478	0.292	0.385	0.461	0.346
0.227	0.276	0.232	0.394	0.258	0.27	0.257	0.305	0.284	0.246	0.203	0.238	0.192	0.3	0.282	0.269	0.231	0.242	0.234	0.228	0.181	0.314	0.19	0.252	0.302	0.226
3.496	3.666	3.584	5.192	3.575	3.746	3.595	3.956	3.845	3.823	3.232	3.58	3.057	4.215	4.053	3.957	3.234	3.452	3.341	3.28	2.783	4.479	2.87	3.681	4.376	3.297
2.412	2.542	2.455	3.658	2.47	2.62	2.521	2.803	2.71	2.631	2.206	2.453	2.092	2.938	2.823	2.75	2.268	2.415	2.337	2.286	1.907	3.117	1.97	2.552	3.039	2.294
1.302	1.431	1.312	2.047	1.377	1.448	1.396	1.579	1.512	1.416	1.174	1.332	1.117	1.617	1.549	1.502	1.256	1.331	1.288	1.254	1.024	1.71	1.069	1.392	1.661	1.255
5.066	5.313	5.235	7.375	5.212	5.357	5.121	5.581	5.453	5.557	4.743	5.225	4.472	6.057	5.82	5.694	4.608	4.929	4.846	4.707	4.073	6.439	4.204	5.317	6.306	4.738
2.272	2.404	2.31	3.458	2.334	2.474	2.381	2.651	2.56	2.477	2.075	2.308	1.968	2.772	2.663	2.593	2.142	2.28	2.206	2.156	1.795	2.941	1.856	2.406	2.866	2.163
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.388	3.495	3.611	4.967	3.605	3.507	3.24	3.507	3.446	3.803	3.356	3.545	3.12	4.187	3.876	3.776	2.893	3.118	3.23	3.165	2.952	4.348	2.886	3.657	4.321	3.075
0.181	0.223	0.186	0.32	0.208	0.218	0.206	0.247	0.229	0.198	0.162	0.19	0.153	0.242	0.227	0.216	0.185	0.194	0.187	0.183	0.145	0.253	0.152	0.203	0.242	0.181
1.943	2.028	2.048	2.923	2.044	2.062	1.924	2.104	2.056	2.173	1.873	2.024	1.743	2.407	2.262	2.203	1.719	1.848	1.855	1.802	1.63	2.526	1.634	2.096	2.49	1.803
0.74	0.789	0.758	1.182	0.765	0.822	0.774	0.876	0.84	0.816	0.683	0.752	0.645	0.937	0.886	0.856	0.693	0.738	0.712	0.706	0.599	0.986	0.605	0.804	0.961	0.707
1.232	1.262	1.287	1.572	1.264	1.242	1.088	1.25	1.176	1.337	1.196	1.269	1.124	1.382	1.399	1.306	0.969	1.12	1.152	1.139	1.014	1.459	1.033	1.239	1.464	1.064
0.503	0.59	0.509	0.842	0.558	0.583	0.559	0.651	0.614	0.546	0.45	0.523	0.427	0.649	0.616	0.591	0.503	0.529	0.512	0.497	0.398	0.682	0.418	0.551	0.658	0.495
4.084	4.203	4.194	4.756	4.072	4.093	3.606	4.067	3.866	4.297	3.944	4.161	3.747	4.275	4.625	4.336	3.205	3.672	3.772	3.735	3.31	4.608	3.394	4.085	4.64	3.546
4.542	4.663	4.51	4.52	4.482	4.619	4.1	4.405	4.155	4.66	4.541	4.801	4.45	4.429	5.027	4.867	3.854	3.935	4.257	4.29	4.015	4.901	4.057	4.727	4.977	4.244
0.398	0.445	0.402	0.658	0.425	0.454	0.429	0.494	0.469	0.436	0.36	0.407	0.342	0.512	0.484	0.465	0.384	0.406	0.392	0.387	0.318	0.538	0.328	0.436	0.521	0.386
5.008	5.192	5.331	7.259	5.311	5.174	4.81	5.191	5.104	5.609	4.939	5.248	4.594	6.126	5.712	5.575	4.303	4.635	4.798	4.689	4.323	6.39	4.269	5.37	6.342	4.558
7.227	7.408	7.517	8.92	7.358	7.28	6.451	7.368	6.95	7.781	7.016	7.421	6.615	7.96	8.182	7.651	5.761	6.615	6.783	6.68	5.981	8.393	6.066	7.248	8.427	6.269
2.088	2.175	2.2	3.163	2.2	2.227	2.079	2.284	2.226	2.336	2.015	2.172	1.873	2.601	2.438	2.37	1.858	1.994	1.989	1.933	1.761	2.723	1.754	2.26	2.684	1.942
8.784	8.946	9.191	11.534	9.13	8.746	7.566	8.693	8.168	9.527	8.71	8.954	8.219	10.182	9.919	9.159	7.134	7.839	8.099	8.045	7.685	10.481	7.391	9.016	10.553	7.642
11.58	11.866	11.799	12.715	11.612	11.377	9.909	10.942	10.438	11.959	11.448	11.667	11.007	12.138	12.972	12.175	9.539	10.016	10.449	10.43	10.044	12.549	9.785	11.738	12.806	10.349
27.1	27.739	27.84	31.511	27.466	26.717	23.084	25.815	24.687	28.421	26.721	27.136	25.517	29.224	30.45	28.442	21.939	23.686	24.343	24.368	23.31	30.042	22.48	27.125	30.632	23.949
3.388	3.495	3.611	4.967	3.605	3.507	3.24	3.507	3.446	3.803	3.356	3.545	3.12	4.187	3.876	3.776	2.893	3.118	3.23	3.165	2.952	4.348	2.886	3.657	4.321	3.075
0.181	0.223	0.186	0.32	0.208	0.218	0.206	0.247	0.229	0.198	0.162	0.19	0.153	0.242	0.227	0.216	0.185	0.194	0.187	0.183	0.145	0.253	0.152	0.203	0.242	0.181
1.943	2.028	2.048	2.923	2.044	2.062	1.924	2.104	2.056	2.173	1.873	2.024	1.743	2.407	2.262	2.203	1.719	1.848	1.855	1.802	1.63	2.526	1.634	2.096	2.49	1.803
0.74	0.789	0.758	1.182	0.765	0.822	0.774	0.876	0.84	0.816	0.683	0.752	0.645	0.937	0.886	0.856	0.693	0.738	0.712	0.706	0.599	0.986	0.605	0.804	0.961	0.707
1.232	1.262	1.287	1.572	1.264	1.242	1.088	1.25	1.176	1.337	1.196	1.269	1.124	1.382	1.399	1.306	0.969	1.12	1.152	1.139	1.014	1.459	1.033	1.239	1.464	1.064
0.503	0.59	0.509	0.842	0.558	0.583	0.559	0.651	0.614	0.546	0.45	0.523	0.427	0.649	0.616	0.591	0.503	0.529	0.512	0.497	0.398	0.682	0.418	0.551	0.658	0.495
4.084	4.203	4.194	4.756	4.072	4.093	3.606	4.067	3.866	4.297	3.944	4.161	3.747	4.275	4.625	4.336	3.205	3.672	3.772	3.735	3.31	4.608	3.394	4.085	4.64	3.546
4.542	4.663	4.51	4.52	4.482	4.619	4.1	4.405	4.155	4.66	4.541	4.801	4.45	4.429	5.027	4.867	3.854	3.935	4.257	4.29	4.015	4.901	4.057	4.727	4.977	4.244
0.398	0.445	0.402	0.658	0.425	0.454	0.429	0.494	0.469	0.436	0.36	0.407	0.342	0.512	0.484	0.465	0.384	0.406	0.392	0.387	0.318	0.538	0.328	0.436	0.521	0.386
5.008	5.192	5.331	7.259	5.311	5.174	4.81	5.191	5.104	5.609	4.939	5.248	4.594	6.126	5.712	5.575	4.303	4.635	4.798	4.689	4.323	6.39	4.269	5.37	6.342	4.558
7.227	7.408	7.517	8.92	7.358	7.28	6.451	7.368	6.95	7.781	7.016	7.421	6.615	7.96	8.182	7.651	5.761	6.615	6.783	6.68	5.981	8.393	6.066	7.248	8.427	6.269
2.088	2.175	2.2	3.163	2.2	2.227	2.079	2.284	2.226	2.336	2.015	2.172	1.873	2.601	2.438	2.37	1.858	1.994	1.989	1.933	1.761	2.723	1.754	2.26	2.684	1.942
8.784	8.946	9.191	11.534	9.13	8.746	7.566	8.693	8.168	9.527	8.71	8.954	8.219	10.182	9.919	9.159	7.134	7.839	8.099	8.045	7.685	10.481	7.391	9.016	10.553	7.642
11.58	11.866	11.799	12.715	11.612	11.377	9.909	10.942	10.438	11.959	11.448	11.667	11.007	12.138	12.972	12.175	9.539	10.016	10.449	10.43	10.044	12.549	9.785	11.738	12.806	10.349
27.1	27.739	27.84	31.511	27.466	26.717	23.084	25.815	24.687	28.421	26.721	27.136	25.517	29.224	30.45	28.442	21.939	23.686	24.343	24.368	23.31	30.042	22.48	27.125	30.632	23.949

REC ARR16_Aep1_45min_4 REC REC52 REC52 52-1(REC)	REC ARR16_Aep1_45min_4 REC REC53 REC53 53-1(REC)	REC ARR16_Aep1_45min_4 REC REC54 REC54 54-1(REC)	REC ARR16_Aep1_45min_4 REC REC55 REC55 55-1(REC)	REC ARR16_Aep1_45min_4 REC REC56 REC56 56-1(REC)	REC ARR16_Aep1_45min_4 REC REC57 REC57 57-1(REC)	REC ARR16_Aep1_45min_4 REC REC58 REC58 58-1(REC)	REC ARR16_Aep1_45min_4 REC REC59 REC59 59-1(REC)	REC ARR16_Aep1_45min_4 REC REC60 REC60 60-1(REC)	REC ARR16_Aep1_60min_4 REC REC61 REC61 61-1(REC)	REC ARR16_Aep1_60min_4 REC REC62 REC62 62-1(REC)	REC ARR16_Aep1_60min_4 REC REC63 REC63 63-1(REC)	REC ARR16_Aep1_60min_4 REC REC64 REC64 64-1(REC)	REC ARR16_Aep1_60min_4 REC REC65 REC65 65-1(REC)	REC ARR16_Aep1_60min_4 REC REC66 REC66 66-1(REC)	REC ARR16_Aep1_60min_4 REC REC67 REC67 67-1(REC)	REC ARR16_Aep1_60min_4 REC REC68 REC68 68-1(REC)	REC ARR16_Aep1_60min_4 REC REC69 REC69 69-1(REC)	REC ARR16_Aep1_60min_4 REC REC70 REC70 70-1(REC)	REC ARR16_Aep1_90min_4 REC REC71 REC71 71-1(REC)	REC ARR16_Aep1_90min_4 REC REC72 REC72 72-1(REC)	REC ARR16_Aep1_90min_4 REC REC73 REC73 73-1(REC)	REC ARR16_Aep1_90min_4 REC REC74 REC74 74-1(REC)	REC ARR16_Aep1_90min_4 REC REC75 REC75 75-1(REC)	REC ARR16_Aep1_90min_4 REC REC76 REC76 76-1(REC)	REC ARR16_Aep1_90min_4 REC REC77 REC77 77-1(REC)
77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19
57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56
69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	69.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	84.5	84.5	84.5	84.5	84.5	84.5	84.5
69.17	69.17	69.17	69.17	69.17	69.17	69.17	69.17	69.17	75.09	75.09	75.09	75.09	75.09	75.09	75.09	75.09	75.09	75.09	84.04	84.04	84.04	84.04	84.04	84.04	84.04
69.15	69.18	69.15	69.04	69.1	69.07	69.07	69.09	69.11	75.07	75.04	75	75.06	75.09	75.01	75.05	75.01	75.05	74.99	83.88	84	83.96	83.98	83.89	83.92	83.92
6338	6342	6338	6331	6335	6333	6333	6335	6336	6879	6879	6878	6882	6882	6877	6880	6876	6879	6873	7688	7697	7693	7695	7688	7690	7690
269	269	269	269	269	269	269	269	269	293	293	293	293	293	293	293	293	293	293	328	328	328	328	328	328	327
3342	3343	3343	3340	3341	3341	3341	3341	3341	3629	3629	3628	3629	3629	3627	3629	3627	3628	3628	4059	4062	4061	4062	4060	4060	4059
1179	1179	1179	1178	1178	1179	1179	1179	1179	1280	1280	1280	1280	1280	1279	1280	1280	1280	1280	1433	1432	1432	1432	1432	1432	1432
2166	2166	2167	2164	2164	2165	2164	2165	2166	2350	2351	2349	2351	2352	2348	2351	2350	2351	2350	2629	2630	2629	2630	2628	2629	2627
757	757	757	757	757	757	757	757	757	822	823	822	823	823	822	822	823	823	822	922	922	922	922	922	922	921
7324	7325	7325	7314	7318	7317	7316	7317	7320	7948	7949	7944	7950	7951	7941	7948	7944	7948	7947	8888	8895	8892	8897	8890	8891	8886
9412	9414	9415	9395	9402	9399	9398	9397	9404	10216	10211	10202	10215	10219	10201	10211	10204	10213	10208	11413	11431	11425	11429	11417	11420	11414
614	614	614	613	613	614	613	614	614	666	666	666	666	666	666	666	666	666	666	746	746	746	746	746	745	746
9266	9273	9267	9257	9263	9261	9260	9263	9265	10060	10059	10057	10062	10063	10057	10060	10057	10060	10052	11248	11258	11254	11256	11249	11250	11251
13249	13258	13250	13235	13243	13241	13240	13243	13246	14387	14384	14380	14388	14391	14379	14386	14380	14385	14376	16089	16104	16100	16104	16091	16094	16094
3623	3624	3624	3621	3622	3621	3622	3622	3622	3934	3934	3932	3934	3934	3932	3934	3932	3932	3932	4400	4402	4401	4402	4400	4400	4400
17319	17327	17320	17295	17310	17304	17303	17310	17312	18805	18797	18787	18799	18805	18793	18796	18794	18797	18785	21012	21042	21032	21033	21013	21020	21025
23763	23775	23764	23722	23746	23735	23736	23742	23749	25802	25785	25770	25793	25805	25778	25789	25779	25791	25769	28813	28867	28850	28854	28819	28834	28837
53376	53403	53380	53296	53338	53322	53321	53331	53348	57950	57925	57897	57944	57963	57901	57932	57905	57935	57891	64749	64843	64814	64828	64761	64784	64781
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.183	0.17	0.15	0.136	0.135	0.128	0.152	0.174	0.183	0.207	0.139	0.141	0.129	0.175	0.131	0.124	0.129	0.111	0.168	0.132	0.126	0.095	0.085	0.083	0.144	0.219
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.725	0.707	0.63	0.57	0.578	0.526	0.607	0.665	0.75	0.859	0.546	0.572	0.496	0.703	0.552	0.464	0.518	0.465	0.655	0.51	0.512	0.404	0.337	0.341	0.559	0.802
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.444	3.508	3.147	2.911	2.989	2.648	3.017	3.176	3.7	4.246	2.659	2.91	2.399	3.381	2.884	2.313	2.656	2.364	3.267	2.446	2.592	2.074	1.702	1.726	2.788	3.987
3.733	3.742	3.416	3.287	3.365	2.867	3.321	3.552	3.904	4.473	2.706	3.255	2.653	3.491	3.304	2.479	2.976	2.605	3.612	2.626	2.961	2.371	1.866	1.871	3.079	4.215
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.733	4.853	4.363	4.139	4.241	3.766	4.28	4.517	5.156	5.853	3.749	4.14	3.327	4.654	4.124	3.308	3.788	3.34	4.563	3.477	3.625	2.92	2.475	2.491	3.935	5.517
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.009	2.02	1.809	1.682	1.718	1.538	1.759	1.866	2.146	2.446	1.557	1.675	1.393	1.965	1.656	1.351	1.531	1.364	1.887	1.443	1.488	1.19	0.995	1.007	1.616	2.297
7.934	8.208	7.422	7.386	7.578	6.657	7.503	8.018	8.785	9.864	6.456	7.342	5.886	7.658	7.449	5.863	6.759	5.888	7.858	5.952	6.491	5.256	4.441	4.456	6.78	9.336
24.478	24.443	22.39	22.954	23.281	20.04	23.094	24.375	25.947	29.281	18.959	22.331	18.066	22.475	22.995	17.556	20.616	17.892	24.441	18.116	20.158	16.354	13.233	13.384	21.009	27.712
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.144	0.146	0.132	0.123	0.126	0.108	0.125	0.135	0.151	0.175	0.104	0.124	0.102	0.137	0.124	0.093	0.112	0.099	0.138	0.1	0.112	0.089	0.07	0.07	0.117	0.164
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.619	0.622	0.567	0.535	0.549	0.468	0.541	0.58	0.647	0.747	0.443	0.534	0.439	0.582	0.537	0.403	0.486	0.427	0.594	0.429	0.485	0.387	0.304	0.304	0.506	0.698
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.196	3.204	2.932	2.814	2.875	2.455	2.844	3.025	3.354	3.84	2.311	2.792	2.272	2.999	2.821	2.121	2.549	2.228	3.096	2.247	2.533	2.03	1.597	1.602	2.64	3.594
3.304	3.326	3.127	3.158	3.18	2.719	3.132	3.163	3.539	3.87	2.461	3.037	2.487	3.069	3.134	2.386	2.789	2.454	3.342	2.376	2.76	2.278	1.79	1.79	2.845	3.464
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.435	4.45	4.077	4.024	4.07	3.501	4.068	4.294	4.692	5.304	3.278	3.971	3.174	4.159	4.014	3.05	3.631	3.151	4.359	3.223	3.56	2.872	2.29	2.319	3.751	4.979
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.488	1.501	1.421	1.506	1.491	1.296	1.504	1.519	1.638	1.741	1.171	1.432	1.2	1.386	1.484	1.151	1.324	1.148	1.549	1.146	1.274	1.065	0.861	0.872	1.332	1.592
7.394	7.4	6.93	7.218	7.179	6.211	7.235	7.422	7.985	8.684	5.677	6.942	5.682	6.899	7.143	5.488	6.391	5.525	7.561	5.615	6.204	5.107	4.145	4.182	6.536	8.037
24.478	24.443	22.39	22.954	23.281	20.04	23.094	24.375	25.947	29.281	18.959	22.331	18.066	22.475	22.995	17.556	20.616	17.892	24.441	18.116	20.158	16.354	13.233	13.384	21.009	27.712
1.334	1.343	1.221	1.317	1.323	1.155	1.324	1.393	1.471	1.622	1.095	1.269	1.057	1.215	1.313	1.024	1.178	1.009	1.365	1.031	1.125	0.92	0.78	0.779	1.179	1.541
0.018	0.017	0.015	0.013	0.013	0.013	0.015	0.017	0.018	0.021	0.014	0.014	0.013	0.017	0.013	0.012	0.013	0.011	0.017	0.013	0.013	0.009	0.008	0.008	0.014	0.022
0.663	0.687	0.619	0.607	0.627	0.546	0.617	0.658	0.732	0.831	0.53	0.602	0.478	0.637	0.612	0.478	0.554	0.486	0.65	0.48	0.538	0.434	0.353	0.359	0.556	0.782
0.292	0.299	0.268	0.246	0.253	0.223	0.254	0.269	0.314	0.363	0.223	0.246	0.202	0.287	0.245	0.193	0.225	0.2	0.277	0.203	0.22	0.176	0.143	0.144	0.235	0.339
0.429	0.45	0.405	0.382	0.395	0.345	0.391	0.416	0.475	0.545	0.34	0.381	0.304	0.425	0.383	0.3	0.349	0.309	0.42	0.308	0.34	0.271	0.222	0.224	0.357	0.512
0.025	0.024	0.021	0.019	0.019	0.018	0.021	0.024	0.026	0.029	0.019	0.02	0.017	0.024	0.018	0.016	0.018	0.015	0.023	0.018	0.017	0.013	0.011	0.011	0.02	0.03
0.454	0.477	0.429	0.407	0.42	0.367	0.416	0.443	0.504	0.578	0.361	0.406	0.323	0.45	0.408	0.32	0.372	0.328	0.446	0.328	0.362	0.29	0.236	0.239	0.379	0.543
0.74	0.763	0.688	0.683	0.704	0.613	0.692	0.739	0.815	0.923	0.593	0.675	0.54	0.705	0.689	0.538	0.623	0.544	0.729	0.54	0.604	0.487	0.398	0.404	0.624	0.87
0.165	0.164	0.146	0.131	0.135	0.12	0.138	0.147	0.173	0.199	0.122	0.132	0.114	0.161	0.129	0.104	0.12	0.107	0.152	0.113	0.119	0.094	0.076	0.077	0.129	0.186
1.513	1.516	1.394	1.519	1.515	1.326	1.526	1.599	1.671	1.83	1.251	1.456	1.223	1.378	1.51	1.178	1.352	1.153	1.564	1.189	1.286	1.055	0.905	0.9	1.355	1.743
0.123	0.12	0.107	0.095	0.097	0.087	0.101	0.109	0.127	0.146	0.09	0.096	0.084	0.119	0.093	0.076	0.087	0.078	0.111	0.083	0.087	0.068	0.055	0.056	0.094	0.136
0.764	0.787	0.71	0.708	0.729	0.635	0.717	0.766	0.843	0.953	0.614	0.699	0.56	0.727	0.714	0.557	0.645	0.563	0.755	0.559	0.625	0.505	0.412	0.419	0.647	0.898
2.058	2.038	1.925	2.155	2.115	1.858	2.165	2.247	2.288	2.461	1.757	2.045	1.749	1.888	2.128	1.661	1.901	1.598	2.183	1.694	1.782	1.477	1.311	1.307	1.911	2.357
1.241	1.252	1.133	1.214	1.223	1.068	1.221	1.287	1.367	1.513	1.014	1.173	0.972	1.136	1.212	0.945	1.088	0.935	1.263	0.951	1.042	0.85	0.716	0.718	1.089	1.436
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.993	1.938	1.731	1.537	1.566	1.416	1.643	1.775	2.038	2.343	1.466	1.56	1.392	1.93	1.496	1.24	1.402	1.262	1.794	1.375	1.404	1.103	0.912	0.923	1.537	2.198
0.165	0.153	0.135	0.122	0.122	0.115	0.137	0.157	0.165	0.187	0.125	0.127	0.116	0.158	0.118	0.112	0.116	0.1	0.151	0.119	0.113	0.086	0.077	0.075	0.13	0.197
1.095	1.049	0.934	0.83	0.841	0.77	0.893	0.986	1.112	1.272	0.807	0.853	0.755	1.057	0.8	0.678	0.764	0.681	0.972	0.76	0.755	0.592	0.497	0.501	0.832	1.215
0.433	0.408	0.362	0.323	0.325	0.303	0.353	0.4	0.437	0.496	0.324	0.336	0.299	0.417	0.311	0.281	0.303	0.265	0.389	0.306	0.297	0.228	0.198	0.197	0.333	0.499
0.102	0.095	0.084	0.075	0.075	0.072	0.086	0.098	0.102	0.115	0.078	0.079	0.072	0.098	0.073	0.071	0.072	0.062	0.095	0.074	0.07	0.053	0.048	0.047	0.081	0.123
0.477	0.451	0.4	0.357	0.359	0.334	0.389	0.44	0.482	0.548	0.356	0.371	0.329	0.459	0.343	0.308	0.334	0.293	0.427	0.337	0.327	0.252	0.217	0.217	0.366	0.548
0.109	0.101	0.09	0.081	0.08	0.076	0.092	0.105	0.109	0.123	0.084	0.084	0.077	0.104	0.078	0.076	0.077	0.066	0.101	0.08	0.075	0.057	0.051	0.05	0.086	0.132
0.351	0.33	0.292	0.261	0.262	0.245	0.287	0.326	0.353	0.401	0.263	0.272	0.244	0.337	0.251	0.23	0.246	0.214	0.317	0.249	0.241	0.184	0.161	0.16	0.271	0.408
0.229	0.214	0.189	0.17	0.17	0.16	0.189	0.215	0.23	0.26	0.173	0.177	0.16	0.219	0.164	0.153	0.161	0.139	0.209	0.164	0.157	0.119	0.106	0.104	0.179	0.27
3.384	3.337	2.991	2.664	2.726	2.441	2.819	2.996	3.485	4.022	2.498	2.684	2.388	3.289	2.614	2.13	2.436	2.187	3.086	2.33	2.436	1.921	1.569	1.591	2.643	3.774
2.35	2.294	2.052	1.823	1.859	1.676	1.943	2.087	2.407	2.771	1.729	1.841	1.647	2.278	1.779	1.466	1.664	1.496	2.124	1.619	1.666	1.31	1.079	1.092	1.819	2.6
1.281	1.232	1.099	0.975	0.989	0.903	1.048	1.15	1.303	1.493	0.944	0.999	0.887	1.238	0.942	0.794	0.895	0.8	1.142	0.888	0.888	0.697	0.582	0.588	0.978	1.413
4.872	4.856	4.361	3.902	4.005	3.563	4.089	4.312	5.05	5.839	3.618	3.932	3.463	4.749	3.849	3.105	3.573	3.203	4.486	3.36	3.565	2.824	2.296	2.324	3.842	5.476
2.215	2.16	1.931	1.715	1.748	1.578	1.83	1.97	2.268	2.61	1.63	1.735	1.55	2.147	1.672	1.381	1.565	1.408	1.999	1.527	1.567	1.232	1.016	1.028	1.712	2.448
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.196	3.28	2.947	2.824	2.888	2.572	2.927	3.075	3.509	3.965	2.561	2.814	2.229	3.145	2.81	2.264	2.58	2.271	3.094	2.375	2.46	1.979	1.692	1.702	2.668	3.739
0.183	0.17	0.15	0.136	0.135	0.128	0.152	0.174	0.183	0.207	0.139	0.141	0.129	0.175	0.131	0.124	0.129	0.111	0.168	0.132	0.126	0.095	0.085	0.083	0.144	0.219
1.866	1.88	1.684	1.558	1.594	1.422	1.626	1.72	1.991	2.276	1.438	1.555	1.296	1.826	1.536	1.246	1.42	1.265	1.753	1.33	1.385	1.106	0.916	0.929	1.499	2.138
0.725	0.707	0.63	0.57	0.578	0.526	0.607	0.665	0.75	0.859	0.546	0.572	0.496	0.703	0.552	0.464	0.518	0.465	0.655	0.51	0.512	0.404	0.337	0.341	0.559	0.802
1.123	1.154	1.042	0.981	1.017	0.874	0.991	1.075	1.202	1.393	0.846	0.985	0.8	1.071	0.991	0.753	0.899	0.792	1.083	0.785	0.887	0.707	0.566	0.568	0.921	1.311
0.503	0.474	0.421	0.376	0.378	0.352	0.41	0.464	0.507	0.577	0.375	0.39	0.347	0.484	0.361	0.324	0.351	0.308	0.45	0.355	0.345	0.266	0.228	0.229	0.386	0.579
3.733	3.742	3.416	3.287	3.365	2.867	3.321	3.552	3.904	4.473	2.706	3.255	2.653	3.491	3.304	2.479	2.976	2.605	3.612	2.626	2.961	2.371	1.866	1.871	3.079	4.215
4.128	4.183	3.949	4.062	4.038	3.456	4.031	4.051	4.477	4.825	3.103	3.853	3.202	3.85	4.019	3.039	3.535	3.113	4.229	3.044	3.509	2.896	2.278	2.279	3.597	4.27
0.394	0.378	0.335	0.301	0.304	0.28	0.325	0.363	0.402	0.46	0.295	0.307	0.267	0.38	0.289	0.248	0.278	0.246	0.349	0.277	0.271	0.213	0.179	0.181	0.298	0.445
4.733	4.853	4.363	4.139	4.241	3.766	4.28	4.517	5.156	5.853	3.749	4.14	3.327	4.654	4.124	3.308	3.788	3.34	4.563	3.477	3.625	2.92	2.475	2.491	3.935	5.517
6.599	6.746	6.113	5.835	6.004	5.171	5.915	6.394	7.03	8.094	4.967	5.867	4.729	6.281	5.885	4.467	5.355	4.67	6.4	4.721	5.232	4.191	3.373	3.415	5.502	7.66
2.009	2.02	1.809	1.682	1.718	1.538	1.759	1.866	2.146	2.446	1.557	1.675	1.393	1.965	1.656	1.351	1.531	1.364	1.887	1.443	1.488	1.19	0.995	1.007	1.616	2.297
7.934	8.208	7.422	7.386	7.578	6.657	7.503	8.018	8.785	9.864	6.456	7.342	5.886	7.658	7.449	5.863	6.759	5.888	7.858	5.952	6.491	5.256	4.441	4.456	6.78	9.336
10.452	10.365	9.64	10.038	10.048	8.646	10.093	10.531	11.134	12.286	8.039	9.655	7.913	9.648	9.992	7.612	8.92	7.695	10.58	7.901	8.702	7.098	5.779	5.811	9.134	11.654
24.478	24.443	22.39	22.954	23.281	20.04	23.094	24.375	25.947	29.281	18.959	22.331	18.066	22.475	22.995	17.556	20.616	17.892	24.441	18.116	20.158	16.354	13.233	13.384	21.009	27.712
3.196	3.28	2.947	2.824	2.888	2.572	2.927	3.075	3.509	3.965	2.561	2.814	2.229	3.145	2.81	2.264	2.58	2.271	3.094	2.375	2.46	1.979	1.692	1.702	2.668	3.739
0.183	0.17	0.15	0.136	0.135	0.128	0.152	0.174	0.183	0.207	0.139	0.141	0.129	0.175	0.131	0.124	0.129	0.111	0.168	0.132	0.126	0.095	0.085	0.083	0.144	0.219
1.866	1.88	1.684	1.558	1.594	1.422	1.626	1.72	1.991	2.276	1.438	1.555	1.296	1.826	1.536	1.246	1.42	1.265	1.753	1.33	1.385	1.106	0.916	0.929	1.499	2.138
0.725	0.707	0.63	0.57	0.578	0.526	0.607	0.665	0.75	0.859	0.546	0.572	0.496	0.703	0.552	0.464	0.518	0.465	0.655	0.51	0.512	0.404	0.337	0.341	0.559	0.802
1.123	1.154	1.042	0.981	1.017	0.874	0.991	1.075	1.202	1.393	0.846	0.985	0.8	1.071	0.991	0.753	0.899	0.792	1.083	0.785	0.887	0.707	0.566	0.568	0.921	1.311
0.503	0.474	0.421	0.376	0.378	0.352	0.41	0.464	0.507	0.577	0.375	0.39	0.347	0.484	0.361	0.324	0.351	0.308	0.45	0.355	0.345	0.266	0.228	0.229	0.386	0.579
3.733	3.742	3.416	3.287	3.365	2.867	3.321	3.552	3.904	4.473	2.706	3.255	2.653	3.491	3.304	2.479	2.976	2.605	3.612	2.626	2.961	2.371	1.866	1.871	3.079	4.215
4.128	4.183	3.949	4.062	4.038	3.456	4.031	4.051	4.477	4.825	3.103	3.853	3.202	3.85	4.019	3.039	3.535	3.113	4.229	3.044	3.509	2.896	2.278	2.279	3.597	4.27
0.394	0.378	0.335	0.301	0.304	0.28	0.325	0.363	0.402	0.46	0.295	0.307	0.267	0.38	0.289	0.248	0.278	0.246	0.349	0.277	0.271	0.213	0.179	0.181	0.298	0.445
4.733	4.853	4.363	4.139	4.241	3.766	4.28	4.517	5.156	5.853	3.749	4.14	3.327	4.654	4.124	3.308	3.788	3.34	4.563	3.477	3.625	2.92	2.475	2.491	3.935	5.517
6.599	6.746	6.113	5.835	6.004	5.171	5.915	6.394	7.03	8.094	4.967	5.867	4.729	6.281	5.885	4.467	5.355	4.67	6.4	4.721	5.232	4.191	3.373	3.415	5.502	7.66
2.009	2.02	1.809	1.682	1.718	1.538	1.759	1.866	2.146	2.446	1.557	1.675	1.393	1.965	1.656	1.351	1.531	1.364	1.887	1.443	1.488	1.19	0.995	1.007	1.616	2.297
7.934	8.208	7.422	7.386	7.578	6.657	7.503	8.018	8.785	9.864	6.456	7.342	5.886	7.658	7.449	5.863	6.759	5.888	7.858	5.952	6.491	5.256	4.441	4.456	6.78	9.336
10.452	10.365	9.64	10.038	10.048	8.646	10.093	10.531	11.134	12.286	8.039	9.655	7.913	9.648	9.992	7.612	8.92	7.695	10.58	7.901	8.702	7.098	5.779	5.811	9.134	11.654
24.478	24.443	22.39	22.954	23.281	20.04	23.094	24.375	25.947	29.281	18.959	22.331	18.066	22.475	22.995	17.556	20.616	17.892	24.441	18.116	20.158	16.354	13.233	13.384	21.009	27.712

REC ARR16_Aep1_90min_4	REC ARR16_Aep1_90min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_120min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4	REC ARR16_Aep1_180min_4656	
REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	REC	
REC78 REC78	REC79 REC79	REC80 REC80	REC81 REC81	REC82 REC82	REC83 REC83	REC84 REC84	REC85 REC85	REC86 REC86	REC87 REC87	REC88 REC88	REC89 REC89	REC90 REC90	REC91 REC91	REC92 REC92	REC93 REC93	REC94 REC94	REC95 REC95	REC96 REC96	REC97 REC97	REC98 REC98	REC99 REC99	REC100 REC100
78-1(REC)	79-1(REC)	80-1(REC)	81-1(REC)	82-1(REC)	83-1(REC)	84-1(REC)	85-1(REC)	86-1(REC)	87-1(REC)	88-1(REC)	89-1(REC)	90-1(REC)	91-1(REC)	92-1(REC)	93-1(REC)	94-1(REC)	95-1(REC)	96-1(REC)	97-1(REC)	98-1(REC)	99-1(REC)	100-1(REC)
77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19	77.19
57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56	57.56
84.5	84.5	84.5	92	92	92	92	92	92	92	92	92	92	105	105	105	105	105	105	105	105	105	105
84.04	84.04	84.04	91.39	91.39	91.39	91.39	91.44	91.39	91.39	91.39	91.47	91.39	104.08	104.08	104.08	104.08	104.08	104.08	104.08	104.08	104.08	104.08
83.97	83.91	83.96	91.3	91.28	91.25	91.25	91.36	91.22	91.23	91.27	91.29	91.2	103.7	103.62	103.56	103.55	103.56	103.47	103.71	103.75	103.83	103.39
7693	7689	7693	8365	8364	8361	8359	8370	8359	8358	8362	8366	8357	9502	9494	9491	9490	9491	9485	9503	9505	9511	9480
328	328	328	357	356	357	357	356	357	357	356	357	357	407	407	407	406	407	407	407	407	407	407
4061	4060	4061	4417	4416	4416	4417	4420	4415	4415	4414	4420	4417	5028	5026	5025	5024	5025	5024	5028	5029	5031	5023
1433	1432	1432	1558	1558	1558	1558	1559	1557	1558	1557	1559	1558	1774	1774	1773	1774	1774	1774	1774	1774	1774	1773
2630	2629	2629	2858	2858	2858	2858	2861	2857	2857	2856	2862	2858	3253	3251	3249	3252	3250	3250	3252	3253	3254	3249
921	922	922	1003	1003	1003	1003	1003	1003	1003	1003	1003	1003	1145	1144	1145	1143	1145	1145	1144	1145	1145	1145
8893	8890	8894	9670	9668	9669	9671	9678	9664	9666	9664	9678	9669	11004	10997	10990	10993	10993	10991	11003	11005	11010	10983
11427	11418	11425	12422	12417	12416	12418	12432	12406	12411	12411	12425	12413	14113	14098	14084	14090	14088	14081	14107	14115	14126	14067
746	746	746	811	811	811	811	811	811	811	811	812	811	924	924	923	924	923	923	924	924	924	923
11254	11251	11254	12240	12240	12235	12232	12247	12235	12233	12236	12240	12229	13913	13905	13901	13898	13900	13891	13915	13919	13926	13885
16099	16093	16098	17512	17512	17508	17505	17521	17504	17504	17508	17512	17500	19920	19910	19900	19899	19901	19889	19925	19927	19937	19878
4402	4400	4402	4787	4786	4786	4787	4791	4784	4785	4785	4790	4786	5447	5444	5442	5443	5443	5441	5447	5447	5449	5439
21034	21021	21032	22871	22860	22851	22859	22883	22854	22851	22868	22864	22838	25961	25950	25939	25930	25933	25908	25970	25981	25997	25892
28851	28829	28849	31370	31357	31342	31350	31387	31338	31336	31364	31354	31317	35591	35564	35545	35531	35537	35495	35600	35618	35649	35465
64816	64774	64811	70480	70462	70439	70442	70521	70417	70421	70457	70469	70398	80050	79989	79944	79934	79941	79874	80059	80089	80147	79814
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.158	0.113	0.097	0.119	0.12	0.086	0.172	0.198	0.123	0.08	0.142	0.125	0.11	0.097	0.076	0.123	0.125	0.047	0.076	0.087	0.072	0.062	0.071
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.541	0.447	0.407	0.486	0.472	0.333	0.694	0.74	0.481	0.29	0.503	0.461	0.414	0.394	0.325	0.521	0.521	0.202	0.319	0.374	0.31	0.261	0.298
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.509	2.188	2.085	2.464	2.286	1.57	3.385	3.335	2.435	1.454	2.231	2.154	2.041	1.905	1.684	2.646	2.598	1.059	1.621	1.932	1.615	1.331	1.541
2.682	2.233	2.314	2.814	2.559	1.661	3.621	3.284	2.794	1.58	2.48	2.044	2.328	1.947	1.906	2.901	2.775	1.22	1.766	2.173	1.837	1.486	1.779
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.545	3.149	2.954	3.447	3.226	2.192	4.722	4.583	3.473	2.104	3.108	3.075	2.929	2.652	2.412	3.742	3.629	1.517	2.32	2.759	2.338	1.92	2.26
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.451	1.288	1.2	1.414	1.338	0.922	1.97	1.983	1.407	0.848	1.329	1.287	1.18	1.107	0.968	1.526	1.499	0.608	0.938	1.112	0.932	0.772	0.891
6.122	5.491	5.217	6.179	5.721	3.695	7.988	7.144	6.304	3.723	5.661	5.208	5.303	4.358	4.33	6.559	6.197	2.753	4.09	4.935	4.248	3.5	4.177
18.233	15.981	15.874	19.189	17.454	11.3	24.327	20.957	19.461	11.073	17.446	14.637	16.331	12.527	13.252	19.817	18.457	8.528	12.274	15.089	13.009	10.65	12.833
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.104	0.086	0.088	0.106	0.098	0.065	0.139	0.131	0.105	0.06	0.094	0.079	0.087	0.078	0.072	0.111	0.108	0.046	0.067	0.082	0.069	0.056	0.066
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.443	0.364	0.379	0.461	0.42	0.276	0.597	0.55	0.455	0.258	0.403	0.335	0.379	0.326	0.311	0.474	0.46	0.199	0.287	0.354	0.298	0.241	0.287
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.301	1.91	1.98	2.407	2.192	1.423	3.107	2.825	2.39	1.354	2.119	1.75	1.991	1.674	1.632	2.463	2.379	1.043	1.499	1.851	1.567	1.272	1.52
2.342	2.065	2.125	2.627	2.362	1.535	3.295	2.738	2.665	1.481	2.369	1.833	2.241	1.68	1.822	2.556	2.456	1.171	1.549	2.01	1.743	1.422	1.736
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.272	2.778	2.803	3.387	3.114	1.999	4.368	3.924	3.422	1.97	3.047	2.531	2.853	2.353	2.339	3.487	3.329	1.487	2.155	2.642	2.268	1.863	2.229
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.093	0.996	1.005	1.216	1.104	0.753	1.535	1.224	1.268	0.716	1.135	0.899	1.062	0.752	0.862	1.204	1.121	0.554	0.746	0.954	0.844	0.696	0.856
5.488	4.876	4.854	5.913	5.396	3.616	7.517	6.291	6.108	3.493	5.474	4.398	5.116	3.783	4.164	5.966	5.558	2.66	3.721	4.647	4.083	3.374	4.102
18.233	15.981	15.874	19.189	17.454	11.3	24.327	20.957	19.461	11.073	17.446	14.637	16.331	12.527	13.252	19.817	18.457	8.528	12.274	15.089	13.009	10.65	12.833
1.015	0.938	0.905	1.072	0.978	0.659	1.358	1.113	1.111	0.635	1.001	0.867	0.936	0.661	0.748	1.117	1.017	0.481	0.691	0.855	0.748	0.617	0.75
0.016	0.011	0.01	0.012	0.012	0.008	0.017	0.02	0.012	0.008	0.014	0.012	0.011	0.01	0.008	0.012	0.012	0.005	0.008	0.009	0.007	0.006	0.007
0.498	0.437	0.428	0.512	0.467	0.294	0.661	0.58	0.514	0.295	0.459	0.413	0.432	0.351	0.351	0.539	0.511	0.224	0.328	0.403	0.342	0.278	0.333
0.212	0.182	0.176	0.209	0.193	0.13	0.286	0.279	0.205	0.121	0.189	0.176	0.173	0.16	0.142	0.224	0.22	0.089	0.136	0.163	0.136	0.111	0.13
0.322	0.278	0.272	0.323	0.297	0.19	0.431	0.4	0.321	0.186	0.286	0.266	0.27	0.236	0.221	0.344	0.333	0.14	0.209	0.253	0.213	0.172	0.205
0.021	0.015	0.013	0.016	0.016	0.012	0.024	0.027	0.017	0.011	0.019	0.017	0.015	0.014	0.011	0.017	0.017	0.007	0.011	0.012	0.01	0.009	0.01
0.342	0.295	0.29	0.344	0.316	0.202	0.457	0.421	0.342	0.198	0.305	0.282	0.288	0.249	0.235	0.366	0.353	0.149	0.222	0.27	0.227	0.184	0.219
0.556	0.491	0.48	0.574	0.524	0.333	0.736	0.636	0.579	0.331	0.518	0.463	0.486	0.388	0.394	0.603	0.569	0.253	0.368	0.452	0.385	0.314	0.377
0.116	0.1	0.094	0.113	0.106	0.074	0.159	0.164	0.11	0.066	0.106	0.099	0.094	0.09	0.076	0.121	0.12	0.047	0.074	0.087	0.072	0.06	0.069
1.159	1.083	1.047	1.226	1.121	0.766	1.556	1.258	1.281	0.733	1.156	0.997	1.087	0.74	0.861	1.276	1.153	0.554	0.794	0.982	0.865	0.716	0.874
0.086	0.073	0.068	0.082	0.078	0.055	0.117	0.124	0.08	0.048	0.081	0.074	0.069	0.066	0.055	0.088	0.088	0.034	0.054	0.063	0.052	0.044	0.05
0.574	0.509	0.497	0.594	0.542	0.345	0.76	0.654	0.6	0.343	0.537	0.479	0.504	0.4	0.408	0.624	0.588	0.262	0.381	0.468	0.4	0.325	0.392
1.608	1.551	1.499	1.701	1.572	1.114	2.174	1.693	1.821	1.048	1.653	1.411	1.58	1.041	1.228	1.775	1.568	0.807	1.124	1.382	1.241	1.041	1.276
0.941	0.864	0.833	0.992	0.905	0.604	1.256	1.037	1.024	0.584	0.921	0.801	0.859	0.619	0.69	1.034	0.947	0.444	0.638	0.79	0.688	0.566	0.688
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.523	1.213	1.113	1.332	1.291	0.944	1.887	2.043	1.302	0.849	1.426	1.24	1.145	1.112	0.888	1.423	1.435	0.552	0.88	1.02	0.844	0.72	0.818
0.143	0.102	0.087	0.108	0.108	0.078	0.155	0.178	0.111	0.072	0.128	0.113	0.099	0.088	0.068	0.111	0.113	0.043	0.068	0.079	0.065	0.056	0.064
0.866	0.666	0.598	0.716	0.708	0.516	1.033	1.14	0.717	0.471	0.801	0.695	0.637	0.603	0.475	0.767	0.776	0.297	0.474	0.547	0.452	0.387	0.44
0.36	0.266	0.231	0.282	0.281	0.204	0.408	0.461	0.287	0.189	0.327	0.285	0.257	0.234	0.183	0.296	0.301	0.115	0.183	0.211	0.174	0.15	0.17
0.09	0.064	0.054	0.067	0.067	0.048	0.096	0.111	0.069	0.045	0.08	0.071	0.062	0.054	0.042	0.068	0.069	0.026	0.042	0.048	0.04	0.034	0.039
0.395	0.293	0.255	0.311	0.31	0.225	0.449	0.507	0.316	0.208	0.36	0.313	0.283	0.259	0.202	0.327	0.332	0.127	0.202	0.233	0.192	0.165	0.188
0.096	0.068	0.058	0.071	0.071	0.051	0.102	0.119	0.074	0.048	0.085	0.076	0.066	0.058	0.045	0.073	0.074	0.028	0.045	0.052	0.043	0.037	0.042
0.295	0.216	0.187	0.228	0.228	0.165	0.33	0.375	0.233	0.153	0.267	0.233	0.209	0.189	0.147	0.239	0.243	0.092	0.148	0.17	0.14	0.121	0.137
0.196	0.141	0.122	0.149	0.149	0.108	0.215	0.246	0.153	0.1	0.176	0.154	0.137	0.122	0.095	0.155	0.157	0.06	0.096	0.11	0.091	0.078	0.089
2.504	2.066	1.935	2.312	2.2	1.611	3.22	3.418	2.255	1.425	2.369	2.078	1.946	1.912	1.551	2.465	2.475	0.964	1.525	1.777	1.473	1.249	1.421
1.778	1.431	1.322	1.581	1.523	1.115	2.228	2.398	1.543	0.998	1.67	1.455	1.346	1.316	1.056	1.688	1.7	0.656	1.044	1.212	1.003	0.854	0.971
1.005	0.78	0.704	0.843	0.829	0.605	1.21	1.329	0.838	0.55	0.933	0.808	0.743	0.708	0.56	0.902	0.912	0.349	0.557	0.644	0.532	0.455	0.518
3.526	2.991	2.838	3.385	3.183	2.328	4.656	4.869	3.3	2.034	3.358	2.978	2.838	2.776	2.283	3.605	3.606	1.424	2.233	2.612	2.169	1.829	2.082
1.682	1.348	1.243	1.487	1.436	1.05	2.1	2.265	1.452	0.942	1.578	1.374	1.27	1.239	0.993	1.588	1.6	0.617	0.982	1.139	0.943	0.803	0.913
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.397	2.151	2.005	2.339	2.186	1.463	3.21	3.09	2.363	1.429	2.117	2.107	1.993	1.773	1.636	2.54	2.453	1.031	1.571	1.875	1.592	1.307	1.543
0.158	0.113	0.097	0.119	0.12	0.086	0.172	0.198	0.123	0.08	0.142	0.125	0.11	0.097	0.076	0.123	0.125	0.047	0.076	0.087	0.072	0.062	0.071
1.346	1.187	1.114	1.316	1.238	0.855	1.827	1.834	1.304	0.784	1.223	1.181	1.095	1.03	0.898	1.416	1.394	0.564	0.869	1.032	0.862	0.715	0.823
0.541	0.447	0.407	0.486	0.472	0.333	0.694	0.74	0.481	0.29	0.503	0.461	0.414	0.394	0.325	0.521	0.521	0.202	0.319	0.374	0.31	0.261	0.298
0.827	0.693	0.703	0.842	0.772	0.501	1.091	0.994	0.834	0.477	0.741	0.643	0.699	0.603	0.573	0.886	0.855	0.364	0.539	0.655	0.55	0.445	0.529
0.416	0.308	0.268	0.327	0.326	0.236	0.473	0.534	0.333	0.219	0.379	0.33	0.298	0.272	0.213	0.345	0.35	0.133	0.213	0.245	0.202	0.174	0.198
2.682	2.233	2.314	2.814	2.559	1.661	3.621	3.284	2.794	1.58	2.48	2.044	2.328	1.947	1.906	2.901	2.775	1.22	1.766	2.173	1.837	1.486	1.779
2.921	2.619	2.678	3.343	2.987	1.964	4.186	3.374	3.388	1.884	3.042	2.302	2.852	2.115	2.32	3.247	3.08	1.503	1.982	2.566	2.236	1.811	2.241
0.307	0.241	0.215	0.257	0.255	0.182	0.374	0.41	0.26	0.161	0.282	0.253	0.227	0.212	0.171	0.276	0.278	0.106	0.169	0.197	0.163	0.138	0.157
3.545	3.149	2.954	3.447	3.226	2.192	4.722	4.583	3.473	2.104	3.108	3.075	2.929	2.652	2.412	3.742	3.629	1.517	2.32	2.759	2.338	1.92	2.26
4.949	4.185	4.173	4.974	4.609	2.999	6.457	5.933	4.989	2.909	4.443	3.844	4.172	3.635	3.435	5.256	5.052	2.176	3.252	3.915	3.323	2.718	3.22
1.451	1.288	1.2	1.414	1.338	0.922	1.97	1.983	1.407	0.848	1.329	1.287	1.18	1.107	0.968	1.526	1.499	0.608	0.938	1.112	0.932	0.772	0.891
6.122	5.491	5.217	6.179	5.721	3.695	7.988	7.144	6.304	3.723	5.661	5.208	5.303	4.358	4.33	6.559	6.197	2.753	4.09	4.935	4.248	3.5	4.177
7.787	6.878	6.826	8.29	7.535	4.987	10.546	8.944	8.493	4.839	7.629	6.21	7.111	5.313	5.767	8.499	7.818	3.712	5.301	6.537	5.695	4.685	5.676
18.233	15.981	15.874	19.189	17.454	11.3	24.327	20.957	19.461	11.073	17.446	14.637	16.331	12.527	13.252	19.817	18.457	8.528	12.274	15.089	13.009	10.65	12.833
2.397	2.151	2.005	2.339	2.186	1.463	3.21	3.09	2.363	1.429	2.117	2.107	1.993	1.773	1.636	2.54	2.453	1.031	1.571	1.875	1.592	1.307	1.543
0.158	0.113	0.097	0.119	0.12	0.086	0.172	0.198	0.123	0.08	0.142	0.125	0.11	0.097	0.076	0.123	0.125	0.047	0.076	0.087	0.072	0.062	0.071
1.346	1.187	1.114	1.316	1.238	0.855	1.827	1.834	1.304	0.784	1.223	1.181	1.095	1.03	0.898	1.416	1.394	0.564	0.869	1.032	0.862	0.715	0.823
0.541	0.447	0.407	0.486	0.472	0.333	0.694	0.74	0.481	0.29	0.503	0.461	0.414	0.394	0.325	0.521	0.521	0.202	0.319	0.374	0.31	0.261	0.298
0.827	0.693	0.703	0.842	0.772	0.501	1.091	0.994	0.834	0.477	0.741	0.643	0.699	0.603	0.573	0.886	0.855	0.364	0.539	0.655	0.55	0.445	0.529
0.416	0.308	0.268	0.327	0.326	0.236	0.473	0.534	0.333	0.219	0.379	0.33	0.298	0.272	0.213	0.345	0.35	0.133	0.213	0.245	0.202	0.174	0.198
2.682	2.233	2.314	2.814	2.559	1.661	3.621	3.284	2.794	1.58	2.48	2.044	2.328	1.947	1.906	2.901	2.775	1.22	1.766	2.173	1.837	1.486	1.779
2.921	2.619	2.678	3.343	2.987	1.964	4.186	3.374	3.388	1.884	3.042	2.302	2.852	2.115	2.32	3.247	3.08	1.503	1.982	2.566	2.236	1.811	2.241
0.307	0.241	0.215	0.257	0.255	0.182	0.374	0.41	0.26	0.161	0.282	0.253	0.227	0.212	0.171	0.276	0.278	0.106	0.169	0.197	0.163	0.138	0.157
3.545	3.149	2.954	3.447	3.226	2.192	4.722	4.583	3.473	2.104	3.108	3.075	2.929	2.652	2.412	3.742	3.629	1.517	2.32	2.759	2.338	1.92	2.26
4.949	4.185	4.173	4.974	4.609	2.999	6.457	5.933	4.989	2.909	4.443	3.844	4.172	3.635	3.435	5.256	5.052	2.176	3.252	3.915	3.323	2.718	3.22
1.451	1.288	1.2	1.414	1.338	0.922	1.97	1.983	1.407	0.848	1.329	1.287	1.18	1.107	0.968	1.526	1.499	0.608	0.938	1.112	0.932	0.772	0.891
6.122	5.491	5.217	6.179	5.721	3.695	7.988	7.144	6.304	3.723	5.661	5.208	5.303	4.358	4.33	6.559	6.197	2.753	4.09	4.935	4.248	3.5	4.177
7.787	6.878	6.826	8.29	7.535	4.987	10.546	8.944	8.493	4.839	7.629	6.21	7.111	5.313	5.767	8.499	7.818	3.712	5.301	6.537	5.695	4.685	5.676
18.233	15.981	15.874	19.189	17.454	11.3	24.327	20.957	19.461	11.073	17.446	14.637	16.331	12.527	13.252	19.817	18.457	8.528	12.274	15.089	13.009	10.65	12.833

Appendix 3

TUFLOW Results

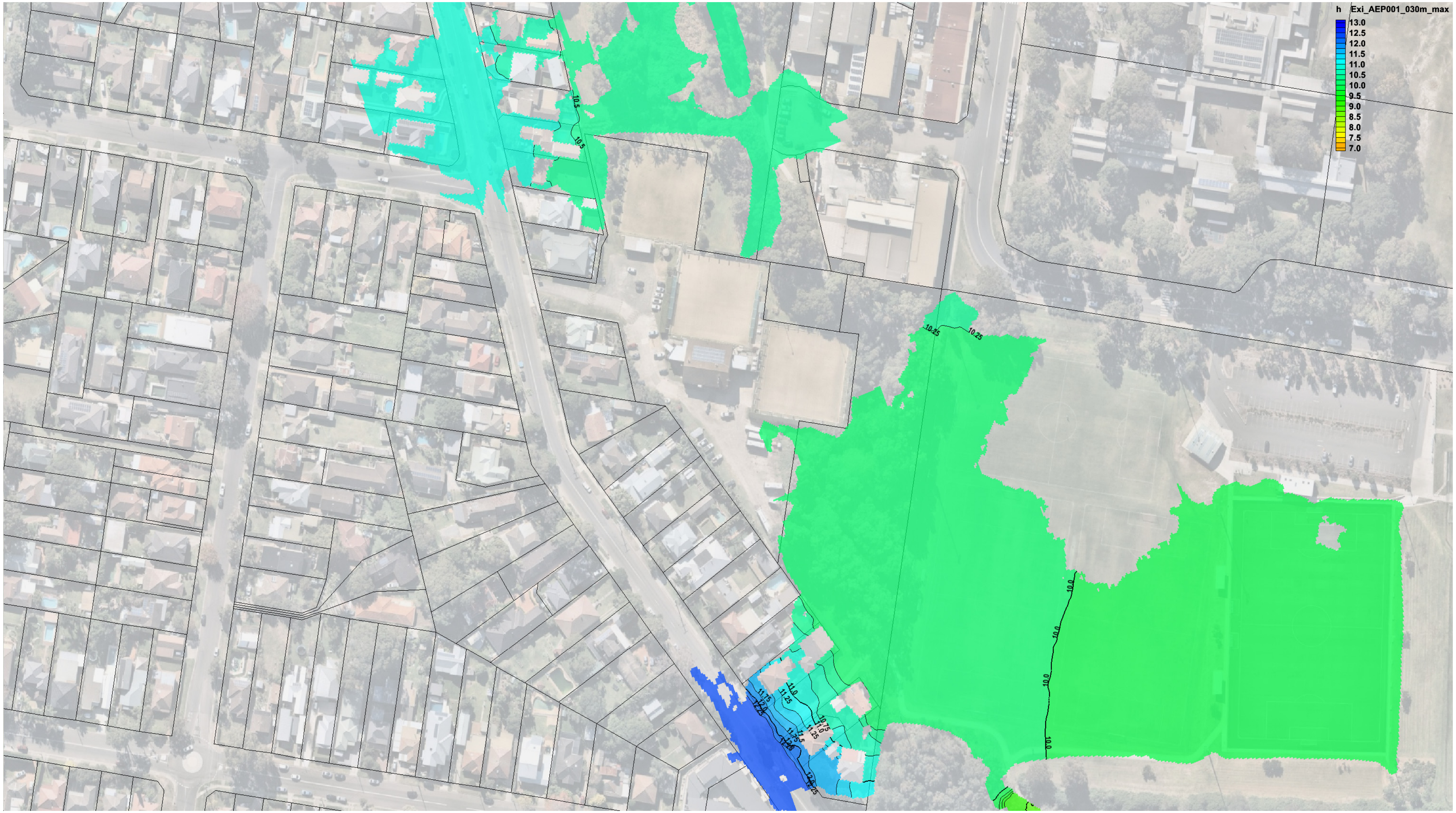

Figure A1: 1%AEP 30min Existing flood levels [mAHD] *all-clear*

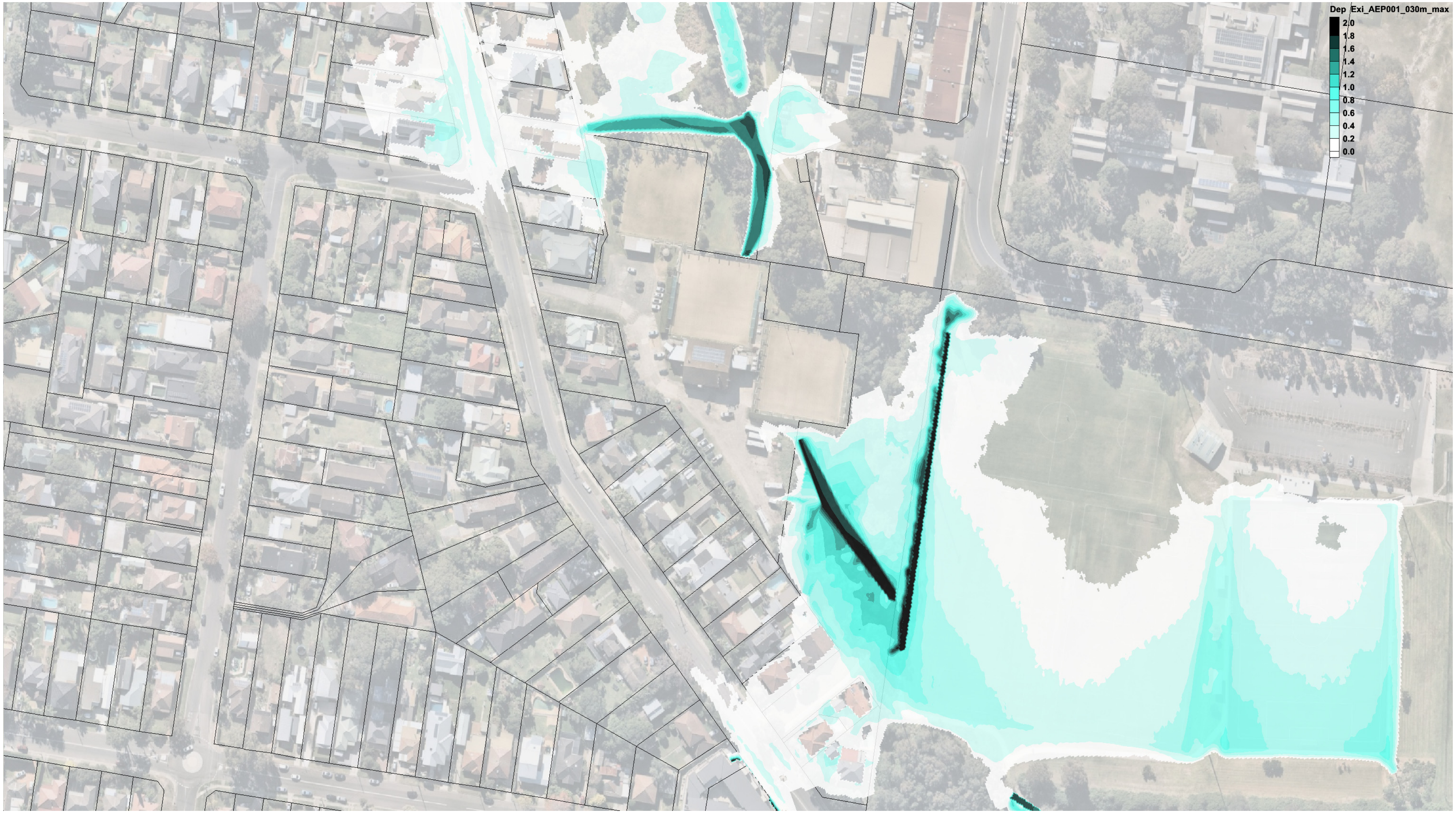

Figure A2: 1%AEP 30min Existing depths [m] *all-clear*

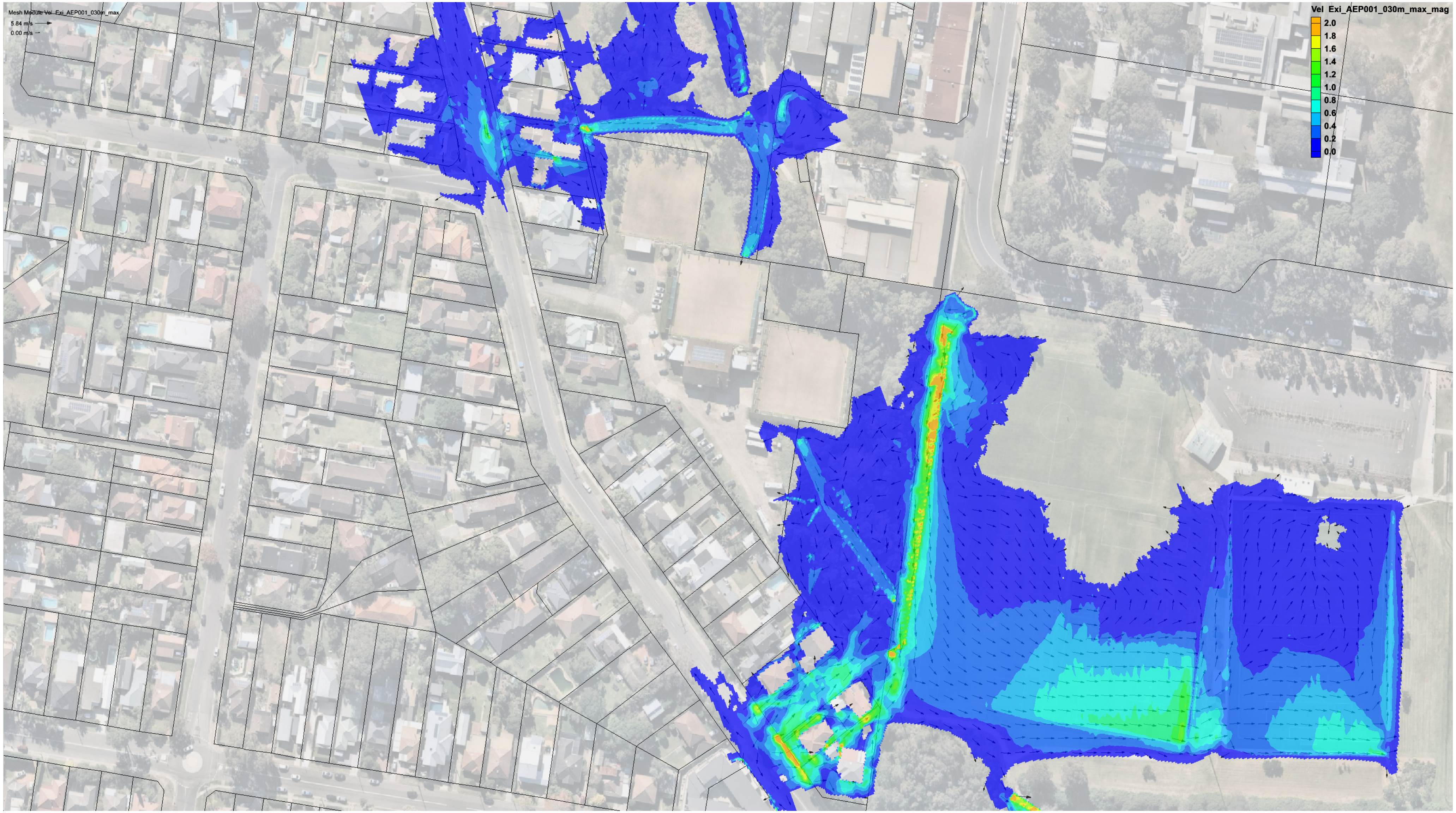

Figure A3: 1%AEP 30min Existing velocities [m/s] *all-clear*

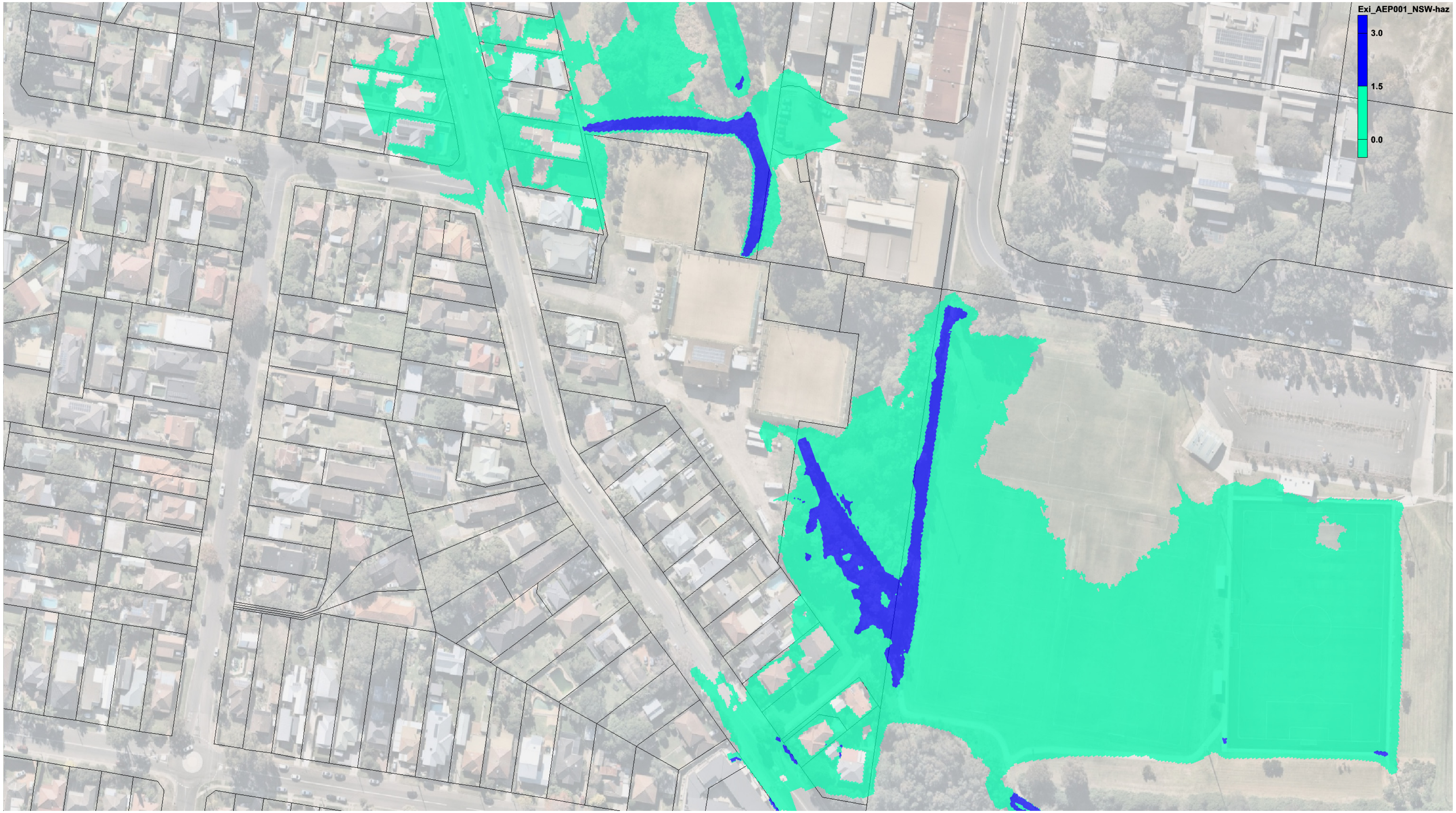

Figure A4: 1%AEP 30min Existing flood Hazard [NSW FDM] *all-clear*

[light blue = low, dark blue =high]

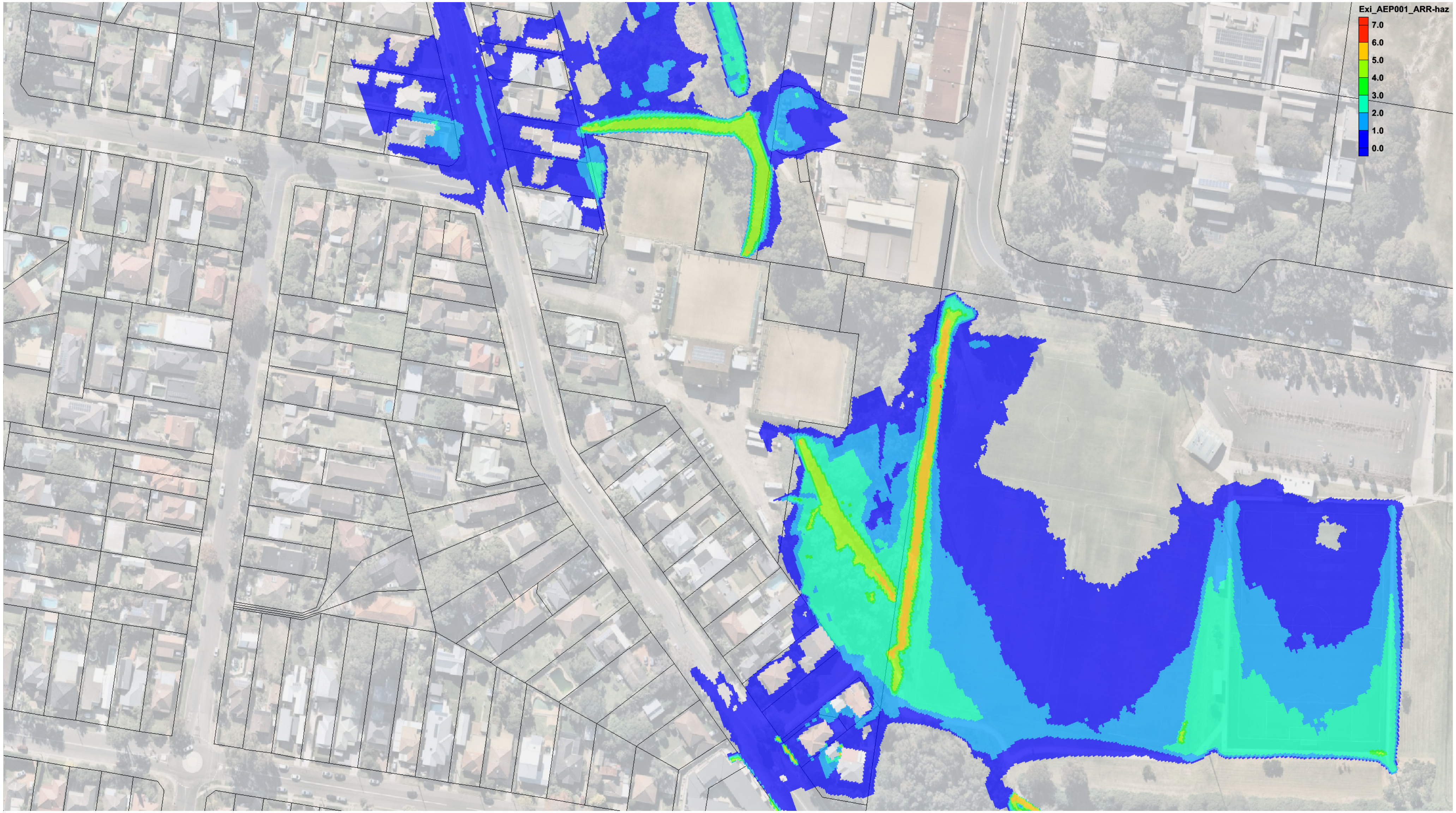

Figure A5: 1%AEP 30min Existing flood Hazard [ARR2019] *all-clear*

[H1=dark blue, H2=light blue, H3=aqua, H4 = green, H5=yellow, H6 = orange]

Figure A6: 1%AEP 30min Existing flood levels [mAHD] *50% blocked*

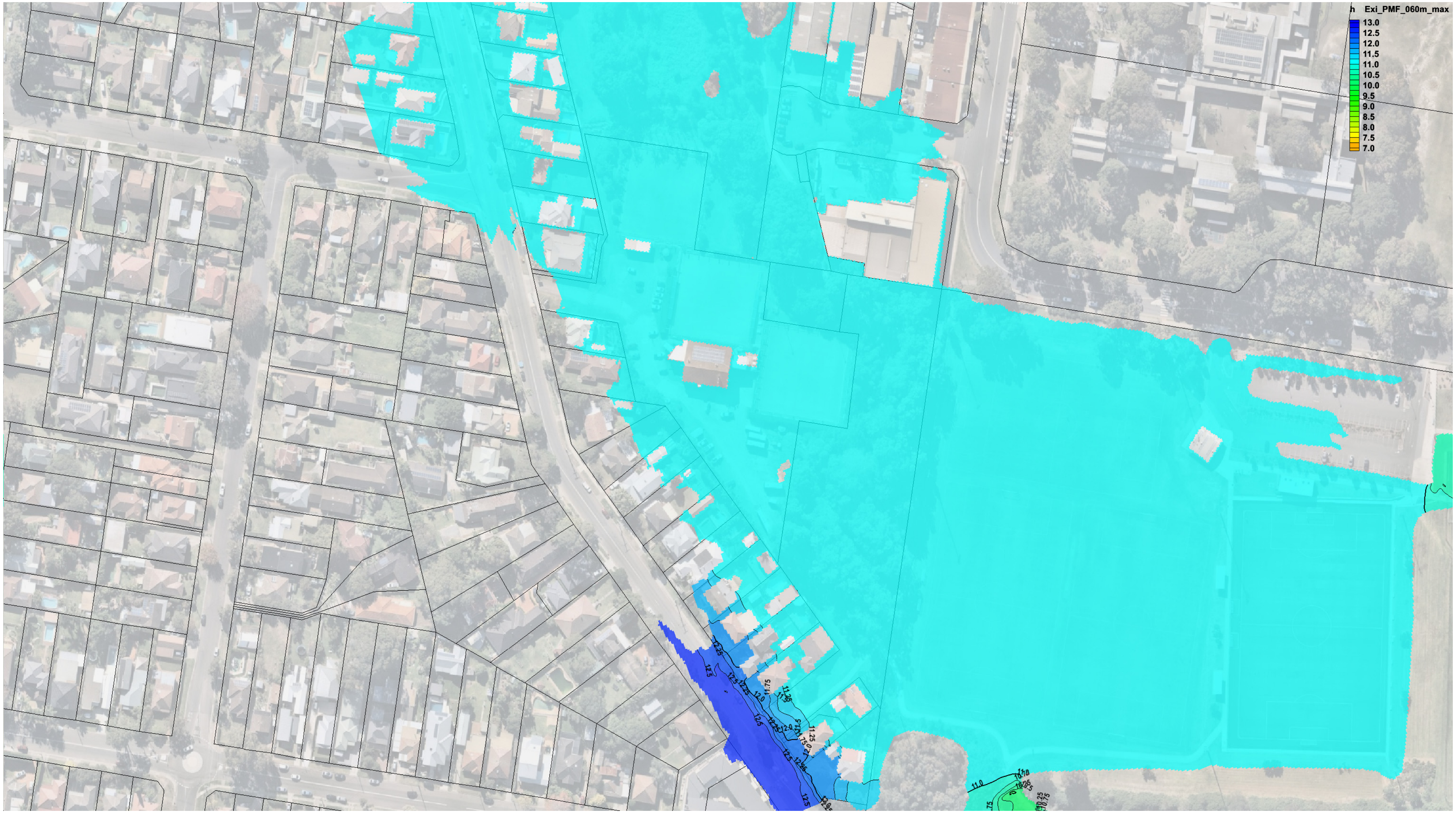

Figure A7: PMF 60min Existing flood levels [mAHD] *all-clear*

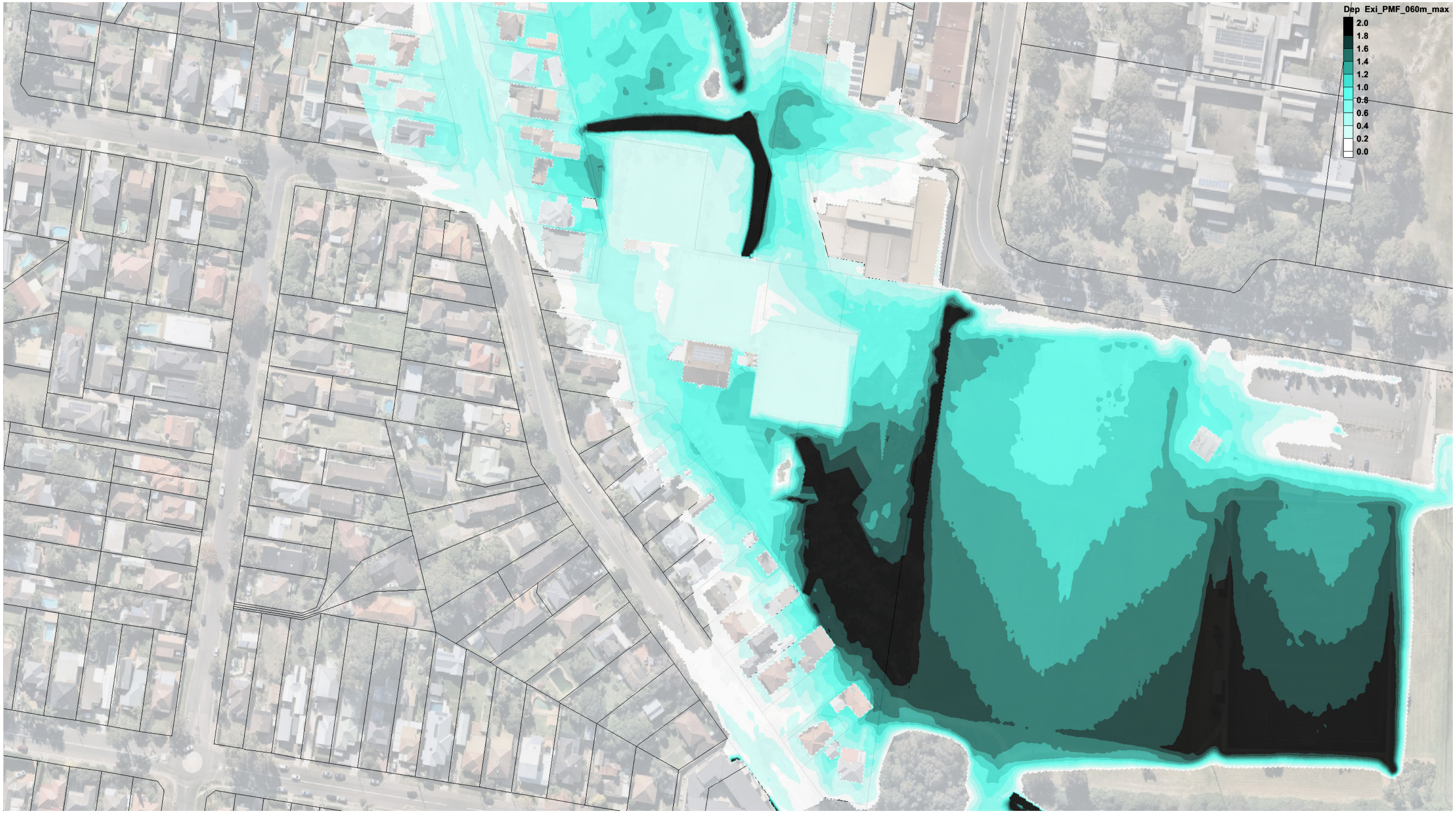

Figure A8: PMF 60min Existing depths [m] *all-clear*

Figures A9-A10 not used

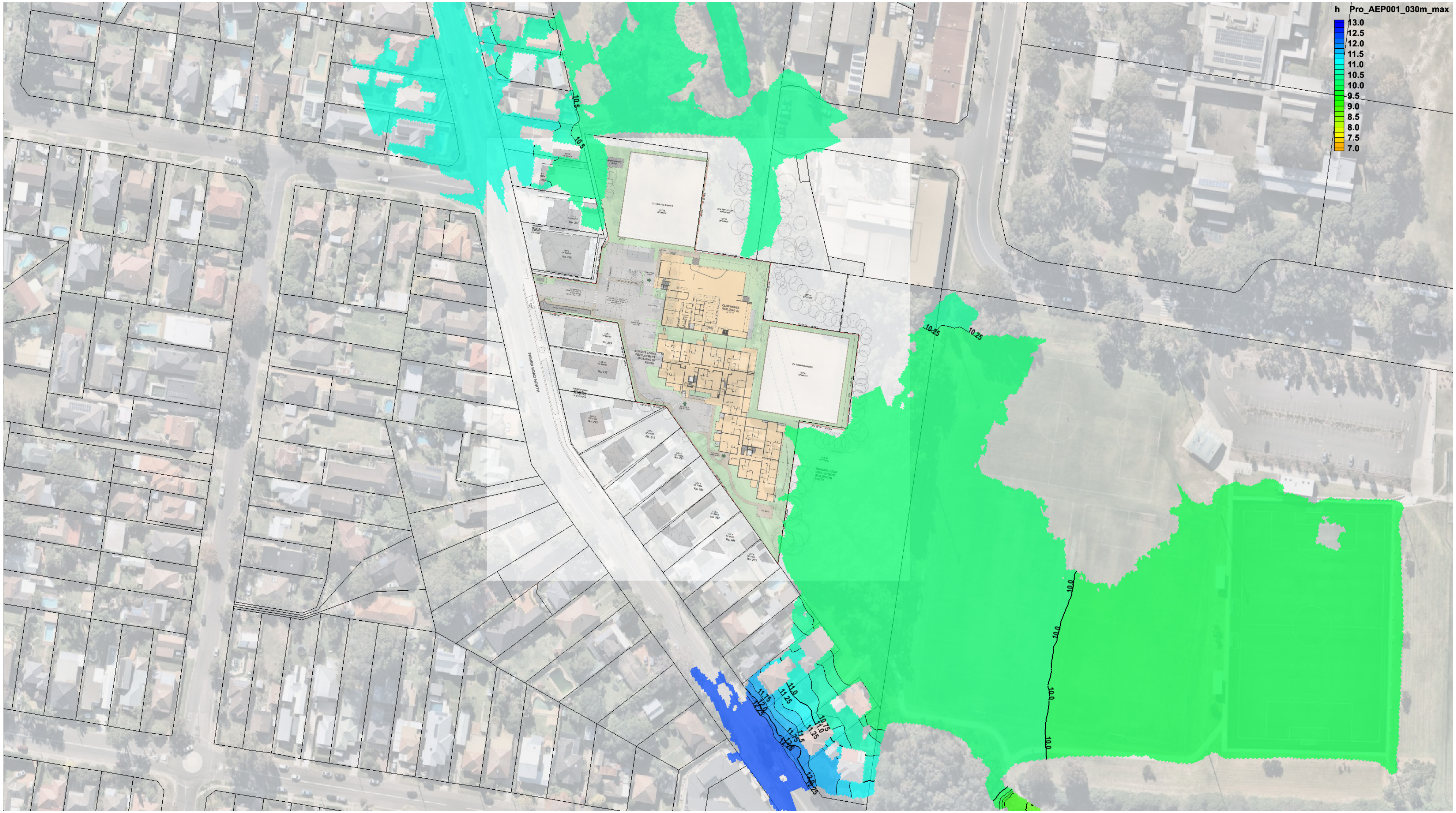

Figure A11: 1%AEP 30min Proposed flood levels [mAHD] *all-clear*

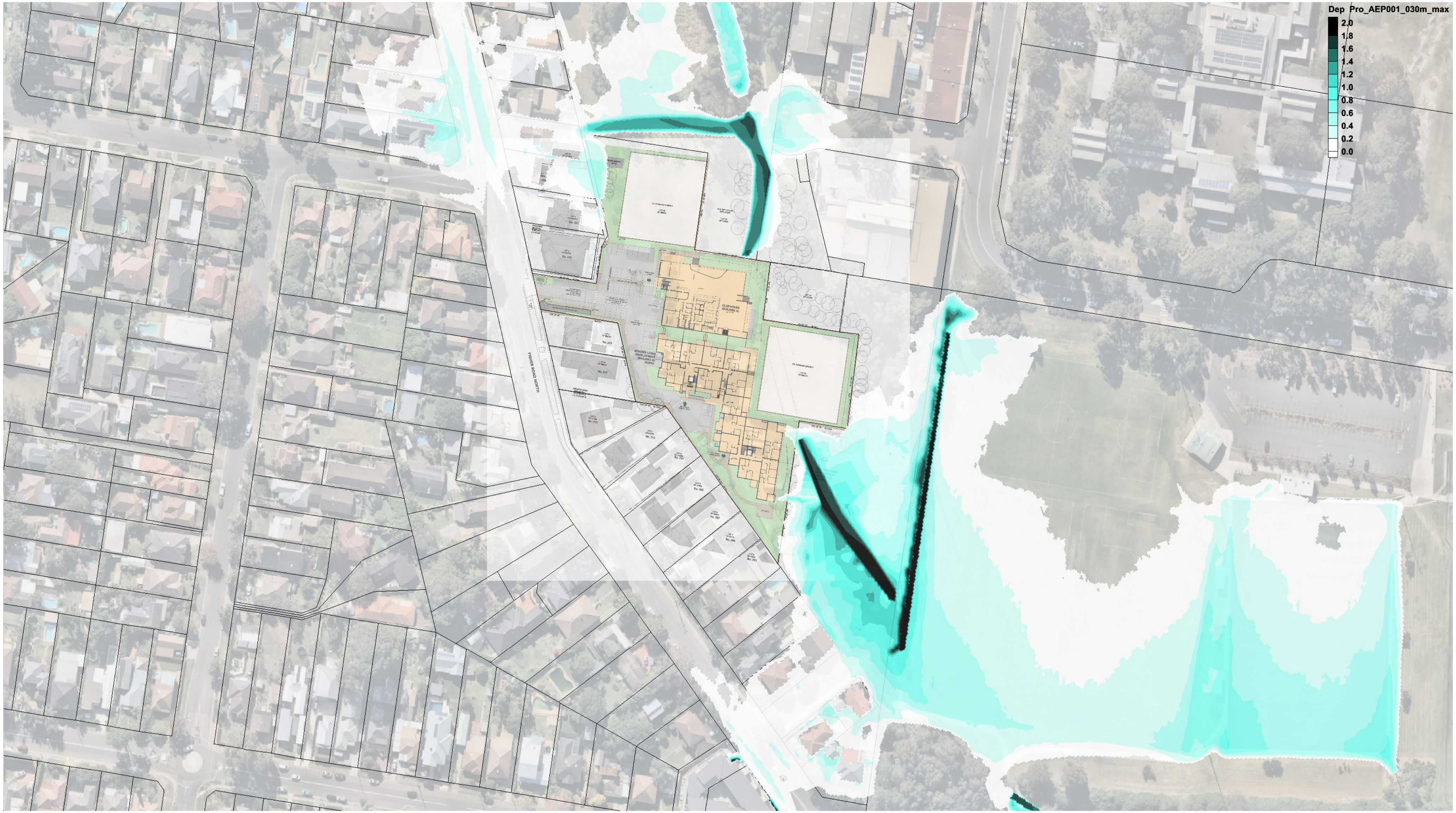

Figure A12: 1%AEP 30min Proposed depths [m] *all-clear*

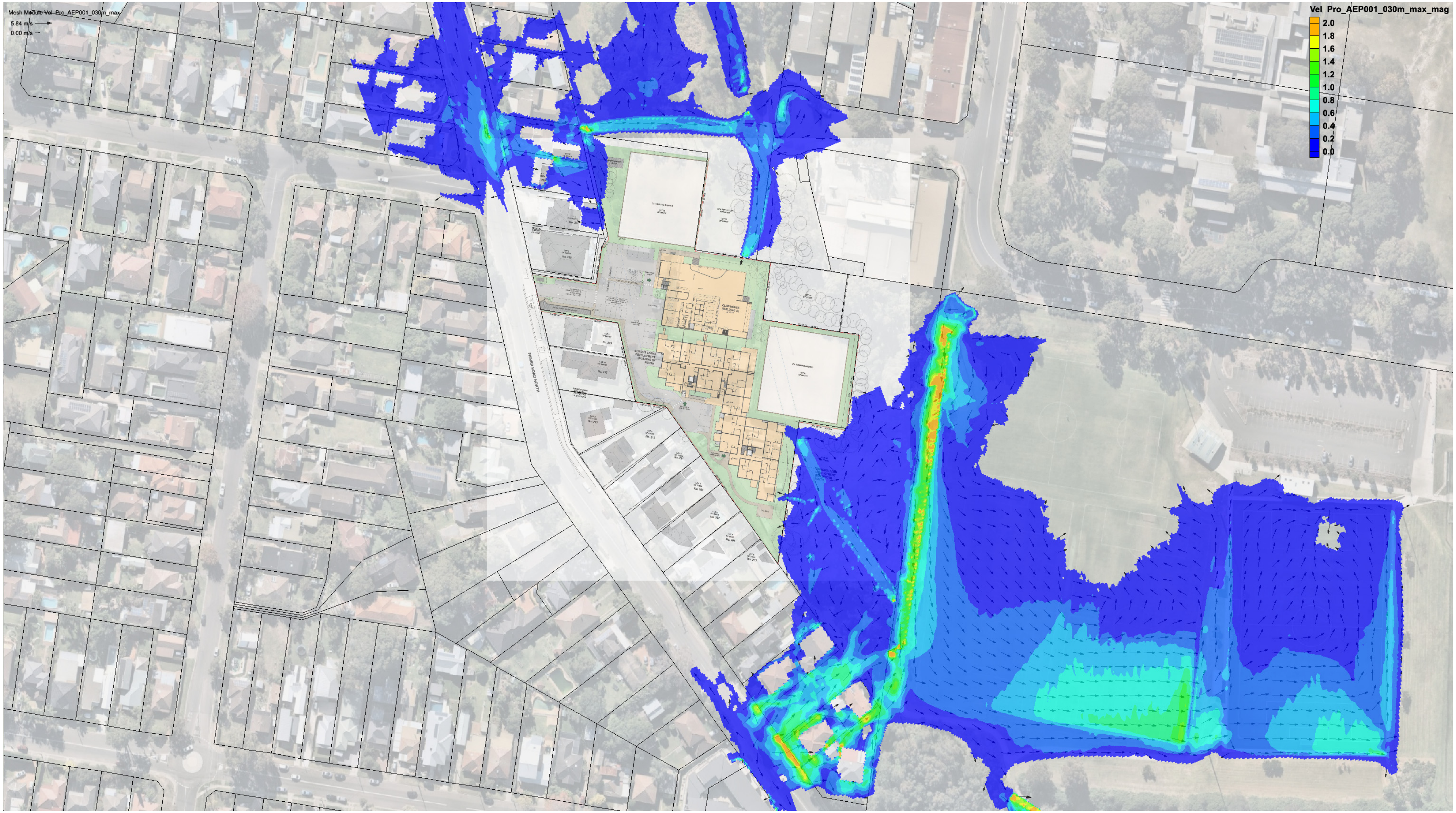

Figure A13: 1%AEP 30min Proposed velocities [m/s] *all-clear*

Figure A14: 1%AEP 30min Proposed flood Hazard [NSW FDM] *all-clear*

[light blue = low, dark blue =high]

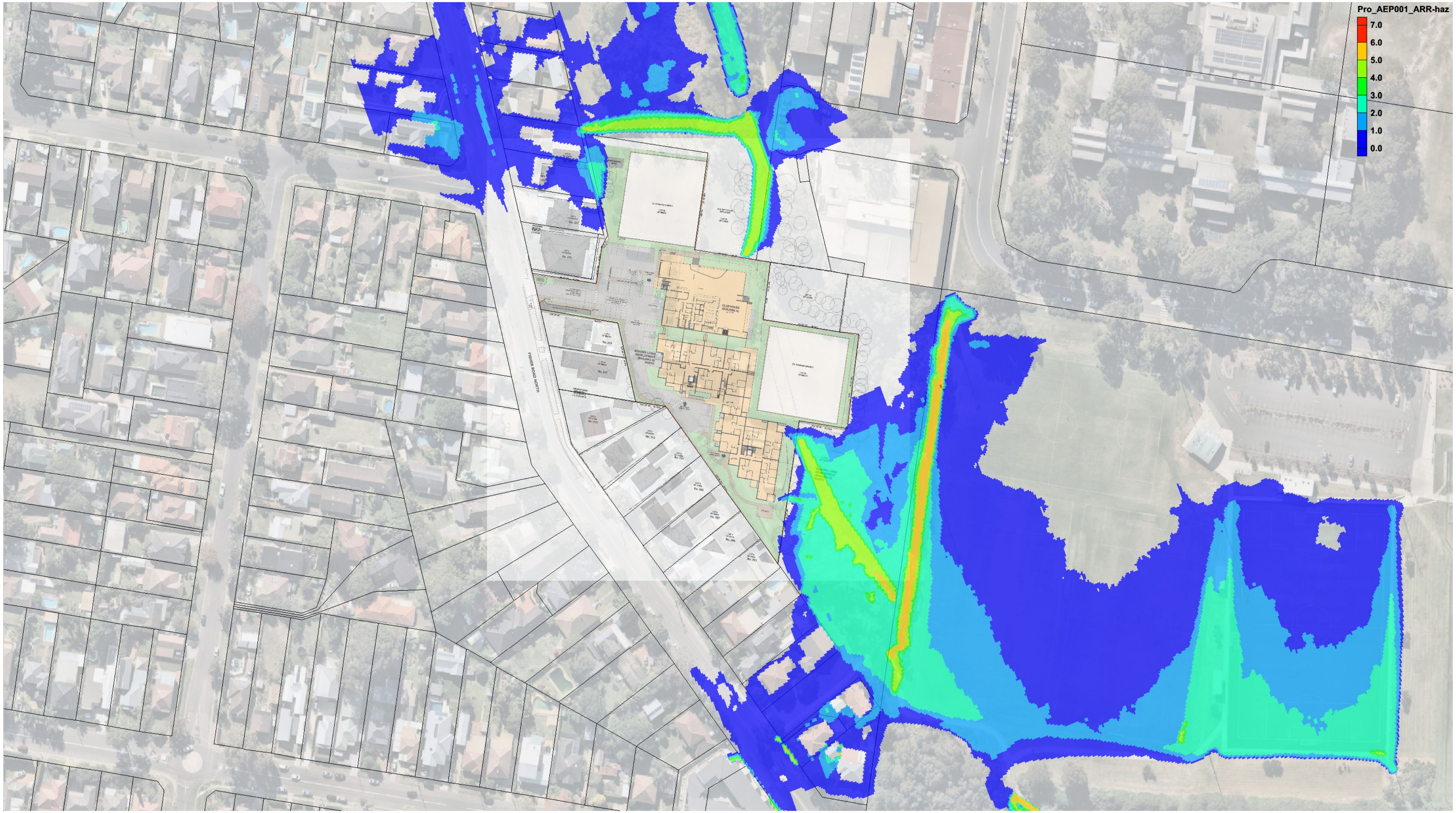

Figure A15: 1%AEP 30min Proposed flood Hazard [ARR2019] *all-clear*

[H1=dark blue, H2=light blue, H3=aqua, H4 = green, H5=yellow, H6 = orange]

Figure A16: 1%AEP 30min Proposed flood levels [mAHD] *50% blocked*

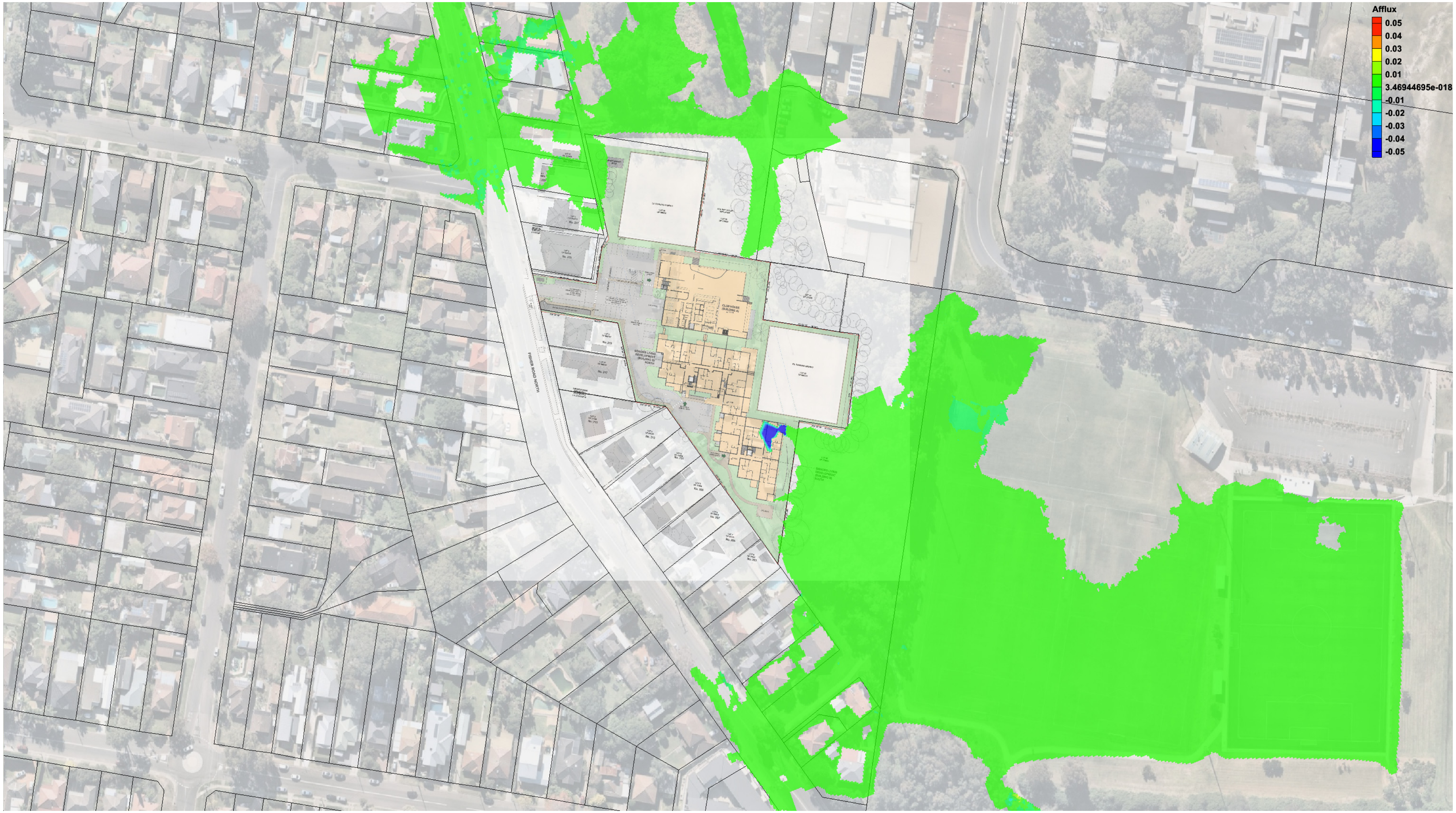

Figure A17: 1%AEP 30min Afflux [m] *all-clear*

[Proposed – Existing surfaces]

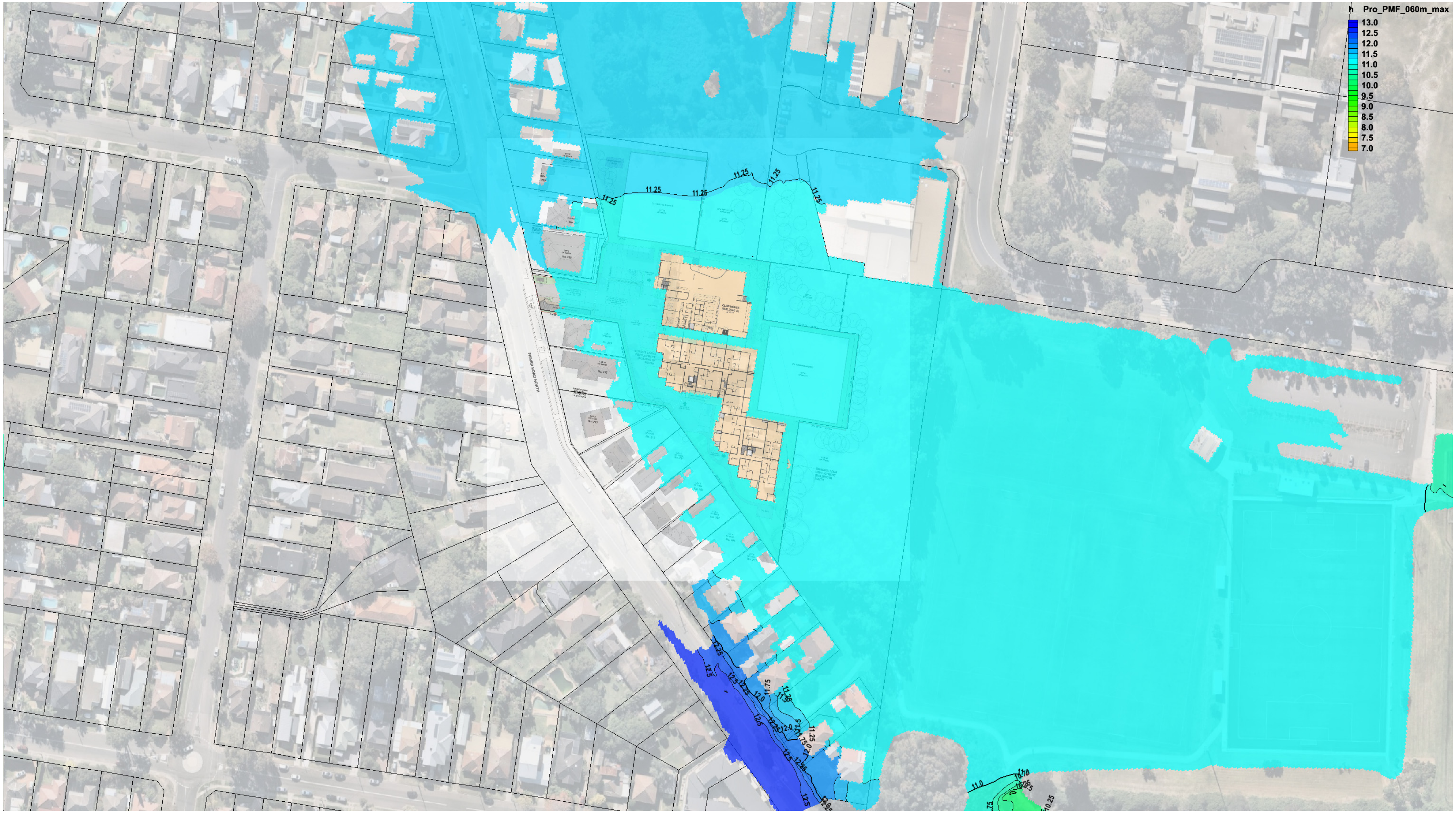

Figure A18: PMF 60min Proposed flood levels [mAHD] *all-clear*

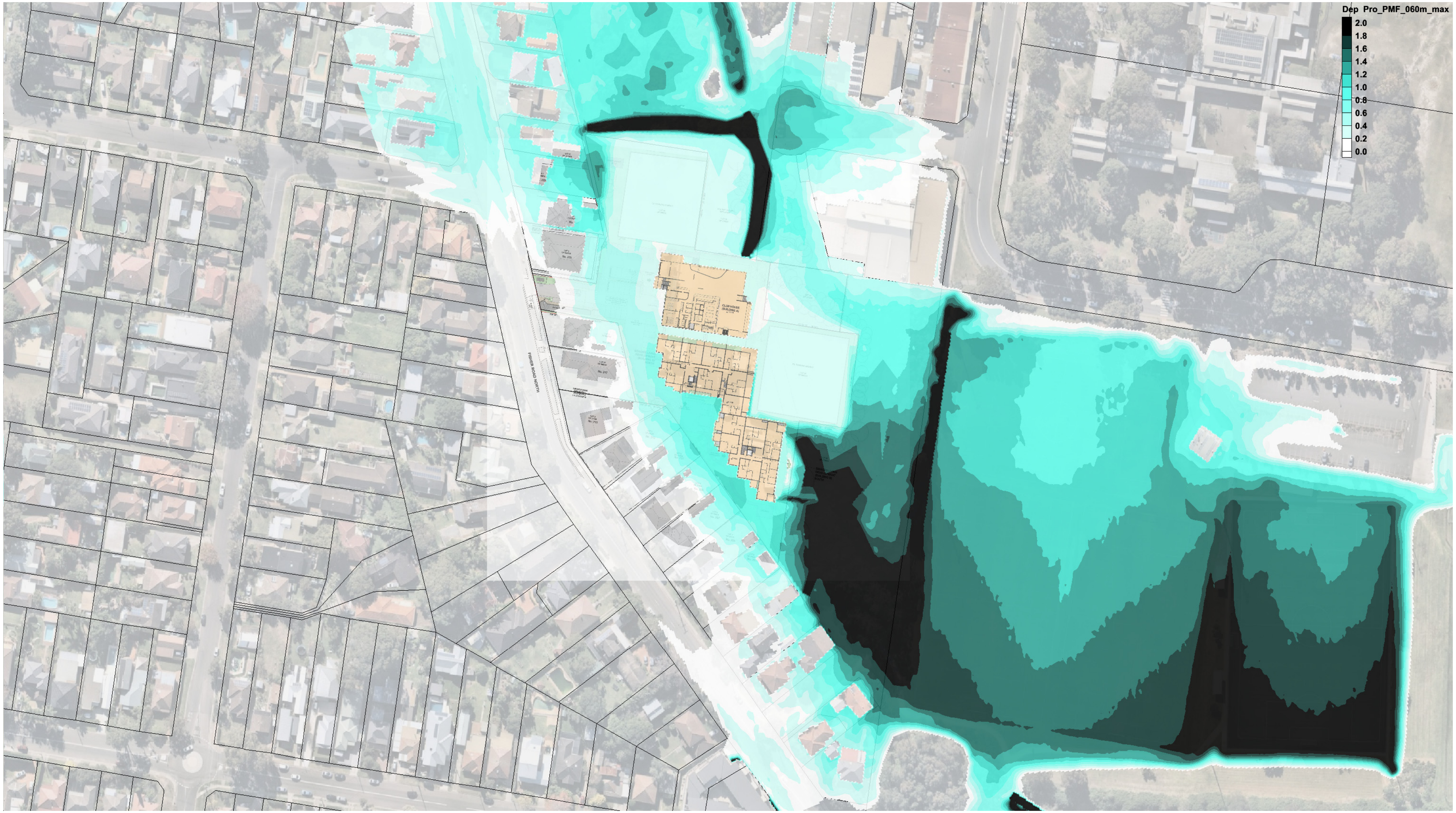

Figure A19: PMF 60min Proposed depths [m] *all-clear*