MOTT MACDONALD

Homes NSW
Level G, 4 Parramatta Square,
Darcy Street,
Parramatta NSW 2150

Your Reference
SSD-83256478

Our Reference
703103419-009

Beauchamp Road, Hillsdale, Affordable Housing — Response to Submissions RFI #2

Mott MacDonald
Level 7, Tower 1
Darling Park
201 Sussex Street
Sydney
NSW 2000
PO Box Q1678
QVB Sydney NSW 1230
Australia

T +61 (0)2 9098 6800
mottmac.com

Dear Alexander,

In an email dated 7th May 2026, the Department of Planning, Housing and Infrastructure (DPHI) raised further comments on the Hillsdale SSDA.

These comments cover three categories:

- Flooding,
- Stormwater bypass,
- Rainwater tank design
- Cut and fill.

This letter provides further information on how these items have been addressed within the SSDA design, including some updated documentation.

1. Flooding

The DPHI comment is contained below:

"The afflux mapping provided in the RFI response show extensive impacts to properties north and northeast of the site. These impacts are not captured or assessed in the Flood Impact Risk Assessment (FIRA). Please provide an updated FIRA that assesses all impacted properties and provides further mitigation measures to minimise on and offsite flood impacts. Matraville Public School is a sensitive land use, and impacts should be minimised during the PMF at this site."

Response:

Where flood impacts are shown to result from the proposed development, these are limited to areas already heavily affected by flooding under existing conditions. Flood impacts to areas that are not already exposed to high flood risk have been reduced/mitigated through design.

The impacts noted on the school are solely related to PMF afflux. PMF afflux mapping is not a requirement of Council's DCP, the NSW Floodplain Development Manual, the Flood Risk Management Guideline LU01 or current best practice. The PMF is the rarest possible event and its likelihood is extremely low being approximately 100,000 times less likely than the 1% AEP event. A 1 in 100 year (1% AEP) event is more appropriate for compliance assessment and is the industry standard.

The FIRA, as submitted, addressees all 1% AEP impacted properties as required by the Flood Risk Management Guideline LU01 and additional mitigation measures are not required - as such the FIRA has not been updated as it already complies with the requirements of Council's DCP, the NSW Floodplain Development Manual and the Flood Risk Management Guideline LU01. This is consistent with previous approved SSDA's that included associated industry peer reviews (refer SSD-73228210, 2025 for further details).

It is also noted that the modelling outcomes from PMF are conservative in nature due to a number of modelling configuration decisions in the baseline modelling (e.g. block-outs for existing buildings and centrally weighted temporal pattern) which was undertaken by Council. Due to the extremely severe PMF rainfall magnitude, assessments of PMF afflux resulting from built form changes are useful for consideration of options and planning for emergency response only.

Matraville Public School Assessment

Due to the sensitive land use the school was considered early in the design process and potential impacts minimised through the following methods:

- Open space for overland flow was located centrally, accepting surcharge flows from the channel between the school site and the subject site, providing conveyance to the west. This reduces the potential for surcharge flows from the channel to cause water level build up at the school site,
- Dwellings that were distributed across the site under existing conditions located close to the eastern boundary have been removed, reducing the obstructions to overland flow located adjacent to the school site and reducing blockage potential.

While a sensitive site, the nature of the changes in PMF levels that are being presented at the Matraville Public School are minor as detailed below:

- The School is immediately adjacent the urbanised channel which effectively bounds the site and creates an access barrier for the School site. As a result, the accessibility of the school site has been configured in an easterly direction, rising away from this constraint – effectively reducing the flood affectation to buildings or grounds,
- The existing SWC corridor is already categorised as a high flood hazard environment for both people and vehicles during frequent storm events. These conditions are an existing characteristic of the established drainage corridor and are not created or materially altered by the proposed development. The channel currently functions as a hard boundary to the site, with substantial flood conveyance already occurring within the defined channel both upstream and downstream of the development area,
- The School site is effectively terraced, with significant vertical elevation change from east to west. Potential changes in water level are highly localised to the immediate surrounds of the creek, adjacent the low portions along the western boundary of the site as a result of the steeply sloping site (separated spatially and vertically from the wider school area). Adjoining school land adjacent to the SWC is already fenced off due to the steep terrain and existing flooding environment, with no direct student accessibility provided to this area.

Figure 1 below clearly demonstrates the nature of the existing conditions, including the steep embankment, fencing, and separation from usable school land. The western areas of the school are already isolated from student activity areas and are not considered usable or habitable open space by the school.

Figure 1: Matraville Public School Channel

Any potential PMF afflux are confirmed to be under-floor given the level differences across the School site in the proposed design scenario are summarised below:

- PMF flood levels in the stormwater channel are 15.7m,
- 1% AEP flood levels 14.8m.

By making a comparison to the finished ground levels in the school, it can be seen the channel is particularly incised and potential impacts are limited to below floor level flooding, even in the PMF. Finished levels in the vicinity of the school buildings are above 18m.

The school remains effectively separated from the existing flood hazard through both the natural topography of the site and the considered site planning response. The proposal does not introduce obstruction to overland flow paths, reduce flood storage capacity, or alter the hydraulic function of the existing drainage corridor.

Accordingly, the proposal maintains the existing flood behaviour characteristics of the catchment. Any predicted increases in 1% AEP flood levels are negligible (<10mm) and increases to PMF levels considered minor, localised, and effectively unnoticeable within the context of the broader existing flood environment. It is noted that the adjoining school land adjacent to the SWC is already fenced off due to the steep terrain and existing flooding environment, with no direct student accessibility provided to this area.

The topography further reinforces the limited nature of any impacts. The site rises steeply toward Bunnerong Road, creating a natural hydraulic and physical separation between the channel corridor and the functional school environment. As a result, any temporary increases in flood levels remain highly localised to the immediate low points adjacent to the SWC and do not meaningfully extend into usable school land or operational areas.

Overall SSDA flood compliance

The proposed SSDA comprises the following key features that result from flood risk assessment being formative into the design basis for the site:

- Flood free habitable floor levels demonstrated in the submitted FIRA (Rev E),
- Dedicated shelter-in-place capability, recommended to be reinforced by the approval agency through condition of consent. This eliminates potential burdens to emergency personnel by providing the community with safe refuge,
- Robust built form that is to modern standards and specific loadings for PMF flood events, recommended to be reinforced by the approval agency through condition of consent: “design shall be supplemented by a detailed flood vulnerability assessment to establish and mitigate the risk of disproportionate collapse via robustness assessment as outlined within Part B1 of Volume One of the NCC (Structural provisions)” or similar,
- Protected basement carparks for all events including PMF,
- Clear access for SWC to maintain existing stormwater assets.

In conclusion, afflux mapping is assessed within this letter and no further mitigation measures or updates to the FIRA are required to address flood impacts to Matraville Public School or other properties.

2. Stormwater Bypass

The DPHI comment is contained below:

“Approximately 53% of stormwater runoff is proposed to bypass the OSD, exceeding Sydney Water initial advice/requirements. The Department has reached out to Sydney Water who has advised that they may accept a bypass area greater than 15% on a case-by-case basis. Total discharge from the site is to be 277 L/s and additional OSD volume above Sydney Water’s nominated volume of 120m³ is required. The additional storage volume must be at least equal to the volume of flow between the 5-year ARI and 100-year ARI events from the bypass area, based on a time of concentration of 6 minutes. Revised Civil Plans are needed demonstrating these amendments and are to be submitted to the Department and Sydney Water for review. Note that the revised OSD volume should aim to address flooding comments above.”

Response:

Additional storage volume has been added to equal to the volume of flow between the 5-year ARI and 100-year ARI events from the bypass area, based on a time of concentration of 6 minutes. This has resulted in an additional 30m^3 of storage reflected in the updated design to reduce the effective bypass catchment.

This storage has been added as an additional On-Site Detention (OSD) system roof drainage from the rear building. This additional storage has been incorporated to reduce the effective bypass catchment and added to equal the volume of flow between the 5-year ARI and 100-year ARI.

This revised OSD storage contributes toward reducing peak discharge and mitigating flows associated with the bypass area. The design approach has been reviewed to ensure that the residual bypass is minimised and that detention storage provisions are consistent with the intent of Sydney Water's guidance.

The updated design therefore addresses the requirement to reduce bypass extent and increase detention capacity, while also contributing to downstream flood mitigation outcomes.

These amendments are documented in the revised Civil Engineering Drawing Set, Revision P4, dated 14/05/2026, the Integrated Water Management Plan, Rev [D] and the electronic copy of the DRAINS model submitted alongside this letter.

It is noted that coordination with Sydney Water will continue throughout the detailed design of this project including future applications for stormwater, potable water and wastewater connections.

3. Rainwater tank design

The DPHI comment is contained below:

"Please include Council's RWT requirements as part of the revised Civil Plans."

Response:

The updated civil engineering package now locates the rainwater tank adjacent to the On-Site Detention (OSD) tank to enable gravity overflow to the OSD system. All non-trafficable roof runoff has been redirected to the rainwater tank. Detailed design of the rainwater reuse system, including connections to ground floor toilets, cold water taps for washing machines and irrigation, will be finalised at the Construction Certificate stage, with hydraulic and civil documentation to be updated accordingly.

4. Cut and fill

The DPHI comment is contained below:

"Please provide revised cut and fill plans that accurately detail cut and fill works proposed. The current plans show fill proposed along the drainage channel."

Response:

The bulk earthworks strategy has been revised to more accurately reflect the agreed approach with Sydney Water, which avoids placement of fill over the existing culvert and drainage channel. The updated design ensures that existing hydraulic capacity and functionality of the drainage overland flow path is maintained.

To achieve this outcome, the design incorporates suspended structural elements, including a suspended driveway slab and a suspended pedestrian bridge, located over the drainage corridor. These elements eliminate the need for fill within sensitive drainage areas while maintaining site accessibility and functionality.

Detailed structural design of these suspended elements will be undertaken during the Construction Certificate stage to ensure compliance with relevant standards and coordination with the civil design intent.

The revised cut and fill arrangements are shown in the updated Civil Engineering Drawing Set, Revision P4, dated 14/05/2026 and the Integrated Water Management Plan, Rev [D] submitted alongside this letter.

Mott MacDonald would appreciate and look forward to the opportunity to discuss the letter and its contents to support any further information that DPHI might require to support the delivery of this important project.

Kind regards,

Niall McNamara
Civil Engineer
+61272506029

niall.mcnamara@mottmac.com

Daniel Fettell
National Precincts & Land Infrastructure Lead
+61433326543

daniel.fettell@mottmac.com
BEng(Hons), FIEAust, CPEng
NER 3488136
NSW Principal Design Practitioner PDP0001251
NSW Professional Engineer PRE0000221

Refer Attachment 1 for revised comments register.

Attachment 1: Revised Comments Register Response

1.1 Stormwater Management

No	Issue raised	Response
Bayside Council (Ref: SSD-2025/10)		
OSD		
1	It needs to be confirmed that the combined run-off from the OSD and the areas that bypass the OSD does not exceed 277 L/s in the 1% AEP storm. The flow rate from the bypass and OSD is to be clearly calculated and detailed. The orifice plate calculations shall be provided for the flow rate.	The OSD and stormwater network within the site have been designed to ensure that permissible site discharge (PSD) is met for all design storm events. That is the PSD does not exceed 277L/s in 1% AEP (or more common storm events) and does not exceed PSD rates under greenfield conditions for all events from 20% to 1% AEP as specified in the *Bayside Technical Specification Stormwater Management, 2023*. These requirements have been outlined in section 2.5.1 of the IWMP and the DRAINS model has been designed accordingly.
2	The applicant needs to confirm what is the maximum OSD bypass permitted by Sydney Water. The current OSD bypass is over 30% which is significant.	The design has been updated to introduce an additional On-site Detention (OSD) system which captures roof drainage from the rear building. This additional storage has been incorporated to reduce the effective bypass catchment and bring the overall design into alignment with Sydney Water requirements and previous advice regarding bypass limitations. The revised OSD strategy includes a total additional storage volume of 30 m³, which contributes toward reducing peak discharge and mitigating flows associated with the bypass area. The design approach has been reviewed to ensure that the residual bypass is minimised and that detention storage provisions are consistent with the intent of Sydney Water's guidance, including management of flows between the 5-year and 100-year ARI events. The updated design therefore addresses the requirement to reduce bypass extent and increase detention capacity, while also contributing to downstream flood mitigation outcomes. These amendments are documented in the revised Civil Engineering Drawing Set, Revision P4, dated 14/05/2026, the Integrated Water Management Plan, Rev [D] and the electronic copy of the DRAINS model submitted for review.
3	1. It's not clear how the OSD is protected from 1% AEP overland flows given the presence of a grated drain at SL 14.5 connected to the OSD.	1. The OSD has been designed in accordance with Sydney Water's requirements, which specify a minimum storage volume of 120 m³. Modelling indicates that the peak volume within the tank during the 1% AEP event is approximately 70 m³ which allows for excess storage in the events where Sydney water's culvert runs full.

	2. It's not clear how the OSD will function during the 1% AEP storm given the Sydney Water stormwater culvert will be operating at capacity (the OSD culvert is full, and excess flows that exceed the culverts capacity are now surface flows during 1% AEP event). The culvert appears to often reach capacity frequently as even in the 10% AEP storm overland flows are present which can create an issue for the hydraulic design of the building. Tailwater needs to be considered in the DRAINS modelling for all storm events and HGL runs shall be undertaken for the drainage system.	2. Noted and addressed. Tailwater conditions up to the 1% AEP event have been incorporated into the DRAINS model for both connections to the Sydney Water culvert, and HGL analysis has been undertaken. The results confirm that the proposed connection operates within capacity, with the OSD Tank A providing sufficient storage even under tailwater-impacted conditions. While some backwater effects occur at the existing culvert connection during extreme events, the resulting discharge from the site remains within the permissible Sydney Water limit of 277 L/s. OSD Tank B (30 m^3) has been introduced to mitigate minor nuisance flooding associated with tailwater impacts during the 1% AEP event, noting that the site previously achieved compliance with all peak site discharge requirements.
4	A safe emergency overflow provision for the OSD (e.g. in case of pipe blockage) is to be provided and clearly shown on the civil plans. There is to be a safe emergency overflow route from the OSD to the surface drains of the Sydney Water stormwater channel/overland flow path.	Noted and addressed. A compliant emergency overflow provision from the OSD to the Sydney Water stormwater channel/overland flow path has been incorporated into the design and is clearly documented within the revised Civil Engineering Drawing Set (Revision P4, dated 14/05/2026) and the Integrated Water Management Plan (Revision D).
5	Figure 5-1 in the integrated water cycle management plan is not legible.	Noted. The amendments have been documented in the revised Civil Engineering Drawing Set, Revision P4, dated 14/05/2026, the Integrated Water Management Plan, Rev [D].
Basement		
1	It is not supported to have the roof run-off for the rear building drain to a rainwater tank in the basement with overflow directed to the basement pump which is then pumped to the OSD. This is not an acceptable arrangement long term for the development and will cause significant maintenance issues due to overuse of the pump and risks flooding the basement with roof run-off. The rainwater tank for the rear building shall be revised to be provided at ground level with gravity overflow to the Water Quality Chamber/OSD. All non-trafficable roof run-off shall be directed to the rainwater tanks. The rainwater tanks shall be designed to be connected to all ground floor toilet flushing; the	Noted and actioned. The design has been revised, and the updated civil engineering package now locates the rainwater tank adjacent to the OSD tank to facilitate gravity overflow to the OSD system. All non-trafficable roof runoff has been redirected to the rainwater tank. Detailed design of the rainwater reuse system, including connections to ground floor toilets, cold water taps for washing machines, and irrigation, will be finalised at the Construction Certificate stage. Hydraulic and civil documentation will be updated accordingly.

	cold water tap that supplies all ground floor clothes washing machines and the entire ground floor landscape irrigation system for non-potable stormwater re-use. The hydraulic & civil plans must be updated to reflect this requirement	
2	The pump-out tank in the basement is to be designed as an in-situ rectangular tank with grated maintenance access and shown on the civil design with plans and sections. The sizing and calculations of the pump-out pit are to be shown and demonstrate compliance with AS3500.3. The rising main from the basement pump out pit is to be connected to the OSD. No groundwater is permitted to enter the basement or the basement pump; the pump shall only capture run-off that may enter the basement through the driveway.	Noted. The detailed design of the basement pump-out tank, including configuration, sizing calculations in accordance with AS3500.3, connection to the OSD and measures to exclude groundwater ingress, will be completed at the Construction Certificate stage by a suitably qualified Hydraulic Engineer.
3	Confirmation that the basement is a fully tanked and watertight structure due to the presence of sandy soils and shallow groundwater is required. The tanking of the basement must be shown and annotated as such on the civil plans for the basement.	Confirmed—the basement is fully tanked.

Overland Flow Path		
1	The architectural and civil plans are considerably lacking in levels on the ground floor and do not provide sufficient details on the design of the overland flow path through the site, only the landscape plans include a few levels and even this is not sufficient. The architectural, civil and landscape plans are to be amended to include design levels throughout the entire overland flow path (including the levels of the overland flow path at the property boundaries including the interface of those levels with the existing levels of the neighbouring properties), gradients, dimensions of the width of the overland flow path at regular intervals along the site, the height/soffit of the bridge structures over the flow path and the location of all retaining walls, columns etc. Also changes (cut/fill) to existing levels on the overland flow path is to be detailed. The existing east to west crossfall should be maintained in the design of the overland flow path and shown on the plans.	Noted. Detailed levels, gradients, dimensions and interface conditions will be incorporated across the architectural, civil and landscape documentation as part of the coordinated design update at the Construction Certificate stage. The bulk earthworks plan has been revised in accordance with the agreed approach with Sydney Water, avoiding fill over the existing culvert and drainage channel, and maintaining the existing hydraulic capacity and functionality of the overland flow path, including the east–west crossfall.
2	The cut & fill plan indicates significant fill across the overland flow path which is not acceptable. The plan also appears to be incorrect given the presence of fill where there are two bridges spanning over the flow path. The cut & fill plan needs revision.	The bulk earthworks strategy has been revised to accurately reflect the agreed approach with Sydney Water, which avoids placement of fill over the existing culvert and drainage channel. The updated design ensures that existing hydraulic capacity and functionality of the drainage overland flow path is maintained. To achieve this outcome, the design incorporates suspended structural elements, including a suspended driveway slab and a suspended pedestrian bridge, located over the drainage corridor. These elements eliminate the need for fill within sensitive drainage areas while maintaining site accessibility and functionality. Detailed structural design of these suspended elements will be undertaken during the Construction Certificate stage to ensure compliance with relevant standards and coordination with the civil design intent. The revised cut and fill arrangements are shown in the updated Civil Engineering Drawing Set, Revision P4, dated 14/05/2026 and the Integrated Water Management Plan, Rev [D] submitted for review.
3	The structures crossing over the Sydney Water culvert and overland flow path are to be detailed, including sections	Noted. Detailed design of the structures spanning the Sydney Water culvert and overland flow path, including plan and sectional details, will be developed and documented at the Construction Certificate stage as part of the coordinated civil and structural design.

WSUD		
1	The civil plans do not demonstrate as to how the overflow from the rainwater tank from both buildings will drain through separate oceanguards before entering the SF chamber, this needs to be addressed. This is typically achievable by having oceanguards attached to the wall below the inlet into the OSD from the rainwater tank overflow, typically reflected on the OSD sections/plans.	Noted and addressed. The design has been revised, with rainwater tanks now located adjacent to the OSD tank to enable gravity overflow to the OSD system. Provision for oceanguard treatment units on the overflow lines has been incorporated and is reflected in the revised Civil Engineering Drawing Set (Revision P4, dated 14/05/2026) and the Integrated Water Management Plan (Revision D), including detailing on the OSD plan and sections.
2	It's not clear how the Overland Flow Gully will work as it crosses over the overland flow path.	Water Sensitive Urban Design (WSUD) is designed for 1 in 3-month storm events. The gully has been designed to convey and treat overland flows originating from the south-western corner of the site (refer to Catchment D in the WSUD catchment plan within the drainage drawing set). Based on the FIRA findings, no significant overland flows from external catchments are anticipated in this area of the site for events up to and including the 1% AEP.
3	Figure 6-1 in the integrated water cycle management plan is not legible.	Noted. The amendments have been documented in the revised Civil Engineering Drawing Set, Revision P4, dated 14/05/2026, the Integrated Water Management Plan, Rev [D].

Department of Planning, Housing and Infrastructure		
1	The Applicant's previous correspondence with Sydney Water indicates that the maximum site area permitted to bypass the proposed onsite stormwater detention (OSD) system is 15% of the site area. The Integrated Water Management Plan (IWMP) confirms that a maximum of 15% of the site area will bypass the proposed OSD. The Department has reviewed the Civil Plans and found that 4,200 m² of the site (53%) is proposed to bypass the OSD into the existing Sydney Water stormwater culvert. Provide confirmation from Sydney Water that their stormwater culvert is capable of the proposed bypass. Should Sydney Water advise against the proposed bypass, please provide a revised IWMP, Flood Impact Risk Assessment (FIRA) and Civil Plans that meet their requirements.	The design has been updated to introduce an additional On-site Detention (OSD) system which captures roof drainage from the rear building. This additional storage has been incorporated to reduce the effective bypass catchment and bring the overall design into alignment with Sydney Water requirements and previous advice regarding bypass limitations. The revised OSD strategy includes a total additional storage volume of 30 m³, which contributes toward reducing peak discharge and mitigating flows associated with the bypass area. The design approach has been reviewed to ensure that the residual bypass is minimised and that detention storage provisions are consistent with the intent of Sydney Water's guidance, including management of flows between the 5-year and 100-year ARI events. The updated design therefore addresses the requirement to reduce bypass extent and increase detention capacity, while also contributing to downstream flood mitigation outcomes. These amendments are documented in the revised Civil Engineering Drawing Set, Revision P4, dated 14/05/2026, the Integrated Water Management Plan, Rev [D] and the electronic copy of the DRAINS model submitted for review.
2	The IWMP advises that the stormwater culvert will be operating at a maximum capacity during the 1% AEP flood event whilst acknowledging Sydney Water's maximum bypass requirement of 15%. This raise concerns over potential tailwater impact and uncertainty whether flood modelling has factored 53% of site area bypassing the OSD. Please update the IWMP, FIRA and flood modelling to ensure the proposed site area bypassing the OSD is calculated, whilst also addressing CPHR and Council's comments on flooding and stormwater.	Updated flood modelling indicates that post-development 1% AEP flood level increases on neighbouring properties are generally ≤10 mm. The proposal consolidates flood conveyance into a single, continuous flow path, providing a more predictable and safer outcome compared to existing conditions, where flows disperse towards multiple properties. As noted above, confirmation will be sought from Sydney Water regarding acceptance of this approach. Additional storage volume has been added to equal to the volume of flow between the 5-year ARI and 100-year ARI events from the bypass area, based on a time of concentration of 6 minutes. This has resulted in an additional 30m^3 of storage reflected in the updated design to reduce the effective bypass catchment. These amendments are documented in the revised Civil Engineering Drawing Set, Revision P4, dated 14/05/2026, the Integrated Water Management Plan, Rev [D] and the electronic copy of the DRAINS model submitted for review.

1.2 Floodplain Management

No.	Issue raised	Response
Bayside Council (Ref: SSD-2025/10)		
1	Revise the development design to reduce 1% AEP flood level increases on neighbouring properties to ≤10 mm afflux, in accordance with DCP controls.	Updated flood modelling indicates that post-development 1% AEP flood level increases on neighbouring properties are generally ≤10 mm. The Flood Risk Management Manual explicitly promotes proportionate assessment, requiring that the level of concern be with proportionate to the scale of impact and risk, rather than absolute avoidance of any change. In accordance with NSW floodplain risk management guidance, such minor localised exceedances occur at the stormwater channel edge and do not result in adverse flooding impacts to surrounding properties. The image below makes it clear that flow remains within stormwater channel or flow path within site, previous mapping was not as clear. The green and blue line overlays indicate where the SWC open channel extends to (green lines indicating centreline and cross-sections, blue lines representing bank tops). The 1% AEP afflux (image below) shows increase is contained within channel banks despite appearing as afflux on neighbouring site in the FIRA (revision E) mapping.  1% AEP Afflux image with stormwater culvert footprint overlay Additional assessment was completed following consultation on the extent and magnitude of 1% AEP impacts. FIRA (revision F) includes further mapping of the channel (reproduced here) to demonstrate the limits of the flood extent. The following figure represents the same 1% AEP Design Scenario flood depth output (shown on FIRA Figure 5.10) and wet/dry changes (shown on FIRA Figure 5.13) with additional overlay of the detailed flood model's bank cells which are the interface of grid represented floodplain and cross-section represented main channel flow. This figure:

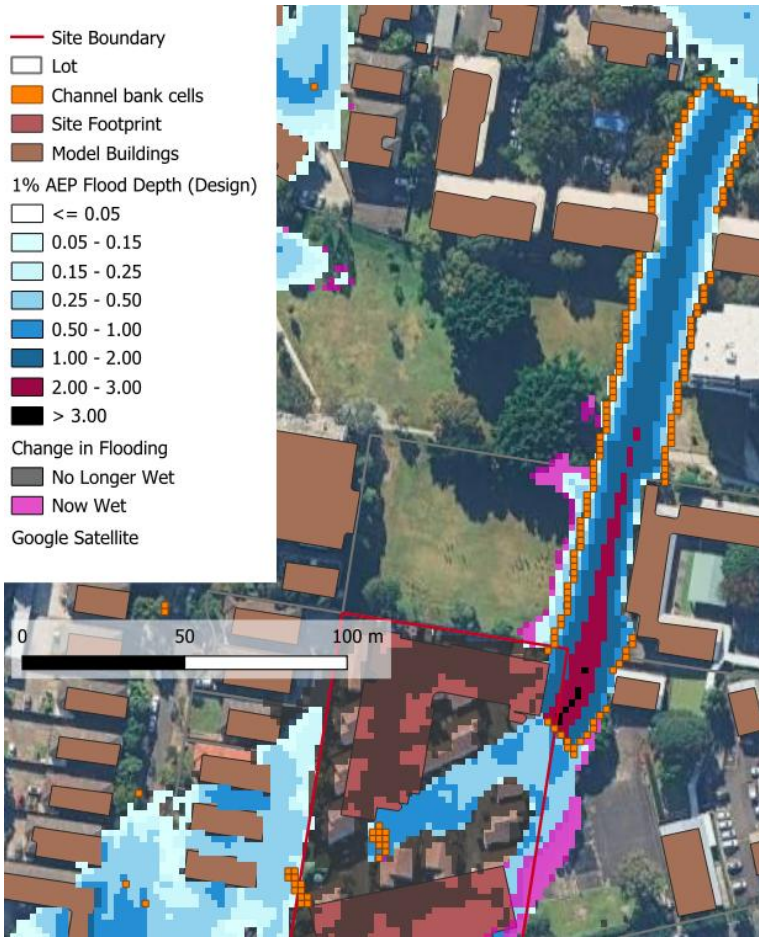
- demonstrates flooding is wholly contained with the channel for the large eastern interface with the school site

- Indicates increases in ponded extent adjacent the channel (shown as pink “now wet” shading) occurs on the western bank, where the 1% AEP already inundates the park. Newly ponded areas are in the depth range of 0 to 0.15m,

- Indicates increases in ponded extent south of the channel headwall entry to below ground culvert (shown as pink “now wet” shading). This is located at the very south-western limit of the school site. Ponding in this lowest corner of the school site is typically up to approximately 0.5m depth (H1 to H2 hazard) under existing 1% AEP and remains typically H1 to H2 after development, with newly ponded area in the depth range of 0.1 to 0.2m.

Outside of these specific locations the impact to other properties is below 10mm of worsening.

FIRA Revision F 1% depth and dry/wet map (Fig 5.19) showing wider extent.



FIRA Revision F 1% Impact map (Fig 5.17) showing wider extent.

		
2	Amend the 1% AEP afflux mapping legend so that it clearly identifies all flood level increases greater than 10 mm (not >20 mm as currently shown).	1% AEP afflux mapping has been updated in revised FIRA (F) to clearly identify all flood level increases greater than 10 mm in accordance with Council controls, copied to item 1 above.
3	Revise the development design to reduce PMF flood level increases on neighbouring properties to ≤50 mm.	The fundamental objective for flood management in the PMF is to reduce risk to life and property. While PMF flood extents cover a larger portion of the school footprint, flows remain within defined conveyance corridors, drain away from school facilities and occur in areas where the presence of children is not anticipated. Flood depths and velocities within areas used for school activities remain low, and inundation primarily occurs in peripheral, landscaped, or drainage-dominated areas of the site, not the evacuation routes or buildings/critical infrastructure. It is assumed that the evacuation and emergency response planning for the school appropriately accounts for the extreme nature of PMF events, which affect the site in the existing conditions. It is also noted that the proposal is not for newly developed areas encroaching on a floodplain, rather brownfield development – replacing the existing habitable structures with new flood-resilient development. In this context, PMF flooding does not introduce new or unacceptable risks to occupants beyond those that already exist under extreme flood conditions. Ultimately, flood outcomes for the school and site are not worsened relative to existing conditions. Additional assessment was completed for Revision F of the FIRA. Where flood impacts are shown to result from the proposed development, these are limited to areas already heavily affected by flooding under existing conditions. Flood impacts to areas that are not already exposed to high flood risk have been reduced/mitigated through design.

		Specifically regarding Rhodes Street properties: Three large buildings with a common basement were approved for construction (DA-12/070) by the Joint Regional Planning Panel, and it is evident they are currently occupied. This development was conditioned to require an emergency evacuation plan – derived prior to the approval authority issuing the construction certificate. This development can be observed west of the Rhodes Reserve park area, with rising access to the west towards Rhodes Street. The emergency evacuation plan for this existing development would not be altered as a result of the afflux caused by the proposed development. Specifically regarding Flack Avenue properties Developments located immediately to the west of the subject site front onto Flack Avenue, a no through road which experiences deeper ponding to it's south towards Beauchamp Road. Approximately half of the properties along Flack Avenue are flood affected in the 1% AEP, including properties towards the south. These typically experience an improvement in peak flooding conditions as a result of the proposed development. All Flack Avenue properties are flood prone in the PMF. There are some properties that experience a benefit in terms of lower PMF flood levels resulting from the proposed development. Other properties are shown to have a negative result, with increased peak flood levels in the PMF. Two properties at numbers 12 and 14 are identified as having higher peak PMF levels, noting this flow is relatively shallow overland flow in the order of 0.1m to 0.2m depth, and H1 hazard. Whilst the impacts of the proposed development don't change these two properties respective emergency response opportunities or flood hazard, there are opportunities to optimise (reduce) the flood impact during detailed design of the proposed development. It's recommended that the development seeks to mitigate PMF impacts here further during detailed design with more accurate topographical data (detailed survey) to supplement the flood models' lidar based ground model. PMF afflux should not be used for compliance: PMF afflux mapping is not a requirement of Council's DCP, the NSW Floodplain Risk Management Manual Guideline LU01 (Flood Risk Management) or current best practice for determining compliance. The PMF is the rarest possible event and its likelihood is extremely low being approximately 100,000 times less likely than the 1% AEP event. A 1 in 100 year (1% AEP) event is more appropriate for compliance assessment and is the industry standard. PMF afflux is however discussed through key outcomes of the risk assessment, as it relates to general impact assessment and specifically emergency management. It is also noted that the modelling outcomes from PMF are conservative in nature due to a number of modelling configuration decisions in the baseline modelling (e.g. block-outs for existing buildings and centrally weighted temporal pattern) which was undertaken by Council. Due to the extremely severe PMF rainfall magnitude, assessments of PMF afflux resulting from built form changes are useful for consideration of options and planning for emergency response only.

4	Update PMF post-development flood modelling to demonstrate compliance with the ≤50 mm PMF afflux criterion.	PMF modelling has been undertaken; however, due to upstream catchment conditions (highly urbanised) and downstream controls (trunk drainage/overland flow provisions), the site is highly flood constrained and achieving uniform ≤50 mm PMF afflux through on-site design alone is proving challenging. Despite the challenge, PMF impacts are largely contained within the site and defined flow corridor following the SWC trunk line/channel. The proposal consolidates flood conveyance into a single, continuous flow path, delivering a safer and more predictable outcome than the existing condition where PMF flows disperse towards multiple downstream properties. Given the extreme rarity of the PMF, the proposal represents a net improvement in flood risk management relative to existing conditions. Refer also updated response to item 3 above and FIRA (revision F)
5	Specifically address flood impacts on Matraville Public School as a sensitive land use and demonstrate that flood outcomes do not worsen for the school site in the 1% AEP and PMF events.	Impacts appear to almost entirely remain within site development in 1% AEP and PMF. Flood extents in the PMF cover a larger portion of the school footprint; however, flows remain within defined corridors, drain away from school facilities and occur in areas where the presence of children is not anticipated. The remainder of the school site is not vulnerable to flooding, and flood outcomes for the school are not worsened relative to existing conditions. Further risk assessment summary has been provided in new section within updated FIRA Revision F Section 5.4.3.1.
7	Design the overland flow path through the site to ensure it is not further channelised in a way that worsens impacts.	The overland flow path design was balanced for upstream and downstream priorities: a) The upstream area is a dedicated channel owned and maintained by the stormwater authority with open space adjacent (park) and Rhodes Reserve more broadly. b) Downstream is characterised predominantly by private dwellings where there is no vehicular road access to evacuate in an event as the road grades down to flood prone areas. Impacts were limited: -Open space for overland flow was located centrally, accepting surcharge flows from the channel between the school site and the subject site, providing conveyance to the west. This reduces the potential for surcharge flows from the channel to cause water level build up at the school site, -Dwellings that were distributed across the site under existing conditions located close to the eastern boundary have been removed, reducing the obstructions to overland flow located adjacent to the school site and reducing blockage potential

8	Design the overland flow path through the site to ensure it is not blocked or cut off from downstream properties, including impacts caused by the driveway design.	Driveway is designed as suspended deck over the flow path which follows the SWC clearance zone associated with their underground drainage asset. Refer updated discussion to item 7 above.
9	Demonstrate continuity of flood conveyance through the site with acceptable downstream behaviour in all assessed flood events.	The proposal consolidates flood conveyance into a single, continuous flow path, providing a more predictable and safer outcome compared to existing conditions, where flows disperse towards multiple properties. There is a need to avoid impacts to downstream so a balance was found in sizing that would achieve the priorities discussed in item 7 above.
10	Clearly document how the post-development surface levels and overland flow path design have been represented in the TUFLOW model, including treatment of surface levels, representation of obstructions (e.g. driveway), and basement crest levels.	The TUFLOW model represents items as follows: -post-development surface levels represented by terrain modification, represented in the digital terrain model or DEM, -continuity of flow path under the driveway structure is achieved with 1d_nwk culvert item for the flow opening beneath -obstructions and landscape features (modelled using Z-shape elements as part of concept design), similar to that of the surface level representation.
11	Provide a soft copy of all TUFLOW results files to Council to enable a full technical review.	To be packaged and sent.
12	Provide 1% AEP and PMF post-development flood contour maps in accordance with Section 9.5.4 of the Bayside DCP.	Updated in revision E of FIRA.
13	Provide 1% AEP climate change afflux mapping comparing pre- and post-development conditions, as required by Section 9.5.4 of the Bayside DCP.	Updated in revision E of FIRA.
14	Revise Figure 6.2 of the FIRA so that all text, including red annotations, is legible.	Updated in revision E of FIRA.
15	Clearly demonstrate that flood planning levels, including basement crest levels, have been correctly set and are compliant with Council requirements.	This is demonstrated in Table 6.1.

Department of Climate Change, Energy, the Environment and Water (Ref: DOC26/186290)		
1	Compliance with SIP Clause 8(c)	A key requirement of the SIP is that the site is not located within High Hazard (H5 or H6) areas. There are many existing dwellings subject to high hazard in the PMF under existing conditions, including above floor level inundation. A recent aerial image indicates a significant population present (typically) from the large number of vehicles/garbage bins etc.

With the proposed development, the extent of the H5 and H6 zones has reduced compared to existing conditions and does not encroach on the proposed building footprint or the nominated floor and basement levels.

The SIP guidance notes that, when considering shelter in place, consent authorities should adopt a risk-based approach that is informed by the scale of the proposal and implements controls and mitigation measures proportionate to the depth and duration of flooding up to the PMF.

The guideline does not forbid development within high-hazard flood zones, nor does it require evacuation in all circumstances. Instead, it recognises that in certain settings, particularly for large, constrained or strategically important sites, well-designed SIP outcomes may deliver a safer and more resilient overall risk outcome than reliance on evacuation alone.

In this context, while the site is located within an area of existing high hazard, the proposed development results in an overall improvement to flood conditions consistent with NSW floodplain risk management principles. This reduces hazard exposure through raised floor levels, structures designed specifically to withstand the forces of a PMF event and critical services/refuge areas are located above predicted hazard zones.

The SIP approach ultimately avoids reliance on evacuation during extreme flood events, which:

- May not be feasible or safe during a rapidly escalating PMF scenario,
- Could expose occupants to a higher risk while traversing flood-affected routes and
- Is inconsistent with best practice emergency planning for rare, severe events.

On balance, this is considered to satisfy the intent of the shelter in place provisions. A literal application of the guideline would otherwise remove the ability of any development on the site, which is not consistent with the

		needs and requirements of NSW flood policy and the risk-based approach of the SIP.
2	Provide risk mitigation strategies that avoid transferring risk to other parties	The recommended emergency response to flooding is for SIP and the design has been developed to provide for safe refuge for the full duration of flooding events. The recommended emergency response doesn't rely on any actions or strategies that may be developed by others. The FIRA reference to risk mitigation by third parties is in relation to secondary emergencies only. The same recommendation made in the FIRA applies to existing and proposed development alike, across development within or adjacent hazardous area during floods – which covers a considerable population across the catchment.
3	Enhance risk mitigation works to ensure that offsite impacts do not exceed Council's DCP requirement of a maximum 10mm increase during the 1% AEP event and demonstrate that the proposed development will not result in over-floor flooding of adjoining properties during the PMF event. Measures are to also minimise off site impacts and changes in flood behaviour for all events ranging from the 10% AEP through to the PMF.	Response to Council comment number 1 (above) presents response to this. This response captures summary updates provided in a new section of FIRA (Revision F) specifically 5.4.3.
4	The development to be assessed on the basis that shelter in place is the sole viable emergency response option.	Noted and SIP remains the recommended emergency response for flooding. This doesn't preclude the addition of a pre-emptive evacuation strategy in the future IF developed by Council/SES (i.e. flood warning system on rainfall radar). But this doesn't exist currently and is not part of the proposal.
5	Update flood modelling to assess the impacts of blockage and demonstrate how occupants, visitors and debris will be prevented from being conveyed under the bridge. Any proposed preventative measures are to be incorporated into the blockage assessment.	There are no exclusion grates proposed for the driveway bridge over SWC clearance zone, to avoid a) entrapment risk and, b) creating obstacles within the SWC clearance zone. Further, finished ground levels within the SWC clearance zone are to remain as per existing conditions (ie. no change to cover over the SWC asset). In this regard, the driveway over is an approx. 10m clear span suspended deck. On the upstream side of the driveway structure, all vehicles have been removed from the (potential)

		PMF floodplain by locating the driveway to the western boundary of the site. East of the site is the SWC open channel (not accessible by vehicles), and therefore potential debris comprises items carried from further upstream only. Observing the open channel upstream of the site there are numerous upstream bridge structures of smaller span than 10m. The nearest upstream structure at the school boundary comprises reinforced concrete suspended desk and masonry wall above, image added below. This structure, and foot bridges further upstream are anticipated to reduce likelihood of blockages to the 10 wide opening such that it is deferred to detailed design stage. 
6	Confirm that the active play area is no longer located in the flow path and update architectural plans accordingly. Clarify whether fencing of the flow path is proposed and if not demonstrate how the safety of residents and visitors will be effectively managed. Ongoing liaise with Sydney Water is to be maintained as the project progressed to the detailed design stage.	This is confirmed, and ongoing liaison with SWC will continue through remaining design stages. Fencing is not proposed to the full perimeter of the SWC clearance zone and is subject to the requirements of SWC.