Attachment 6 to Item 3.1.1.

Water Cycle Management Report

Date of meeting: 21 November 2024
Location: Audio-visual link
Time: 10am

REDBANK
COMMUNITIES

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5th August 2024

Planning Proposal for 'Redbank Expansion Area (Kemsley Park)'.

Prepared to –

- be included with the Planning Proposal for 'Redbank Expansion Area (Kemsley Park)',
- provide specific detail for Water Cycle Management implemented to date within 'Redbank, North Richmond' for extension throughout 'Redbank Expansion Area (Kemsley Park)'.

The 'Redbank, North Richmond' master planned estate off Arthur Phillip Drive / Grose Vale Road comprising of 1399 dwellings in addition to the completed 80 bed aged care facility and 192 home retirement village is already significantly in progress, with 914 lots already registered and approximately 700 lots occupied by new dwellings and residents. Our new planning proposal is for our 'Redbank Expansion Area (Kemsley Park)' which is planned to comprise of between 300-350 new urban lots higher on the natural landform above the existing 'Redbank, North Richmond', which is formed by the intersection of the primary ridge Grose Vale Road the secondary central ridge extending from within 'Redbank, North Richmond' and into 'Redbank Expansion Area (Kemsley Park)'.

Our earlier Kingsford Smith Village and Ron Middleton Gardens ACF, being constructed since 2010 and the 'Redbank, North Richmond' estate being under construction 2013, has already been fully developed across multiple stages which are now completed and fully occupied. During that time, there have been several major flood events which have occurred and in every case existing residents west of the existing North Richmond Bridge have been able to safely remain in place.

The intended proposal is for the 300-350 new urban lots which will become possible with a rezoning and development of the 'Redbank Expansion Area (Kemsley Park)', which will be delivered with seamless integration with and predominantly on higher landform above the existing 'Redbank, North Richmond', with the residents of the 'Redbank Expansion Area (Kemsley Park)' also able to remain in place.

The 'Redbank Expansion Area (Kemsley Park)' will have stormwater infrastructure connecting into the existing 'Redbank, North Richmond' stormwater network.

The 'Redbank Expansion Area (Kemsley Park)' will align with the current strategy for 'Redbank, North Richmond', which is governed by two different approaches for the two different sub-catchments, North & South -

North sub-catchment

For the north sub-catchment of 'Redbank Expansion Area (Kemsley Park)', stormwater will discharge into a combination of existing pipe / overland flow connections within 'Redbank, North Richmond' and an upper branch of Redbank Creek on the northern boundary. For runoff quantity conveyance there is NIL requirement for On Site Detention (OSD) as the overriding strategy is to ensure the local sub-catchment peak flow into Redbank Creek, occurs well before the much greater Redbank Creek regional flow occurs.

For runoff quality treatment in the north, additional facilities such as gross pollutant traps, rain gardens and water bodies will be delivered within the 'Redbank Expansion Area (Kemsley Park)' to complement those existing facilities within 'Redbank, North Richmond', prior to velocity controlled and scour protected outlets into Redbank Creek.

South sub-catchment

For the south sub-catchment of 'Redbank Expansion Area (Kemsley Park)', stormwater will discharge into a combination of existing pipe / overland flow connections within 'Redbank, North Richmond'.

For runoff quantity conveyance in the south, there is a requirement for OSD as the overriding strategy is to ensure the local sub-catchment peak flow downstream of the Kingsford Smith Village, Ron Middleton Gardens ACF does **not** impose a greater peak flow for a range of storm events (up to 1% AEP), greater than the pre-developed (green fields) discharge from both the proposed 'Redbank Expansion Area (Kemsley Park)' and the existing 'Redbank, North Richmond'. This is due to the existing lack of conveyance in both stormwater pipe infrastructure and overland flow landform at the interface of the existing North Richmond township to 'Redbank, North Richmond'. Since 2010 the stormwater infrastructure delivered across the existing Kingsford Smith Village, Ron Middleton Gardens ACF and 'Redbank, North Richmond' developments has been delivered and operated successfully in alignment with this strategy.

At the connection to the existing North Richmond township in the south, since before 2010, runoff is directed into two (2) directions, the primary north being via a diversion pipe via the easement to Peel Park and then to Redbank Creek and the other continuing east via pipe, and/or overland flow / road flow via Tyne Crescent.

For runoff quality treatment in the south, additional facilities such as gross pollutant traps, rain gardens and water bodies will be delivered within 'Redbank Expansion Area (Kemsley Park)' to complement those existing facilities within 'Redbank, North Richmond', prior to velocity controlled and scour protected outlets into the existing unnamed riparian corridor extending eastward adjacent the Kingsford Smith Village and Ron Middleton Gardens ACF.

To confirm overall confidence in this strategy for both runoff quantity and runoff quality, essentially **overall Water Cycle Management**, we rely on several key outcomes already achieved for both North and South sub-catchments –

1) the attached Stormwater Management Strategy from J.Wyndham Prince (May 2013) detailed the approach to both runoff quantity and runoff quality –

    a. noting that with reference to the recommendations on Pg 32, the following has been implemented throughout Redbank since 2014 to 2024 (as modified with detailed design and approvals) for a total of seven (7) stages comprising 914 urban lots (out of a maximum total of 1399) -

        i. On-lot treatments such as on-site management systems, BASIX compliant water efficient fittings and rainwater tanks for on-site re-use;
        ii. Stormwater from the North sub-catchments will be treated by a series of bio-retention raingardens totalling over 7,000 m² in bed area adjacent Redbank Creek along the northern fringe of the site,
        iii. Discharges from the North sub-catchment greater than the 3 month ARI to discharge directly into Redbank Creek.
        iv. Stormwater from the South sub-catchment will be treated by a series of bio-retention raingardens totalling over 11,000 m² in bed area along the central drainage corridor of the catchment, as well as a constructed pond to assist with pollutant removals; and
        v. Discharges from the South sub-catchment greater than the 3 month ARI to be captured and detained in a series of basins (including a constructed pond), which are situated within the drainage corridor through the centre of the catchment and has a total active detention volume of over 40,000 m³,

    b. through ongoing design & development in consultation with Council over seven (7) stages since 2014, there are two (2) initiatives which have not been implemented as improved outcomes for both ongoing maintenance and asset management costs have already been realised -

        i. Enviropod Pit inserts have not been required as the treatment/capture of gross pollutants has been achieved through the installation of proprietary gross pollutant facilities in key locations – eg. Rocla, Humes, CDS, Stormfilter – and the arrangement of splitter pits and outlets to raingardens and retained water bodies (Heritage listed modified dams). This agreed outcome with Council has been confirmed by achieved

Subdivision Work Certificate (SWC) approvals, completed works and released Subdivisions from 2014 to 2024,

ii. Duplication of the existing 1500 mm dia. RCP drainage from the South sub-catchment has not been required, as detailed hydrologic, hydraulic modelling and detailed SWC design of the OSD basin network is currently being progressively completed and made operational has achieved detention volumes with discharge rates which have been able to align with pre-development discharges from the undeveloped Redbank South sub-catchment. This agreed outcome with Council has been confirmed by achieved Subdivision Work Certificate (SWC) approvals, completed works and released Subdivisions from 2014 to 2024.

2) to provide a summary of the 'Redbank, North Richmond' achieved Subdivision Work Certificate (SWC) approvals, for completed works and released Subdivisions from 2014 to 2024, please find the following references (for major DA approval releases) where the progressively delivered **Water Cycle Management** infrastructure is already successfully in operation –

- DA 0471/14 consent – Yobarnie & Mountainview / The Gallery – 237 lots, roads & drainage,
- DA 0467/15 consent – Belmont – 59 lots, roads & drainage, open space,
- DA 0412/17 consent – Ploughmans – 57 lots, roads & drainage, open space,
- DA 0216/16 consent – Yeomans – 254 lots, roads & drainage, open space,
- DA 0430/19 consent – Sandstone Arch – 25 lots, roads & drainage,
- DA 0498/18 consent – Southern Heights – 254 lots, roads & drainage, open space,
- DA 00092/22 consent – Southern Valley – 375 lots, roads & drainage, open space.

In summary, the 'Redbank Expansion Area (Kemsley Park)' will connect seamlessly into the **overall Water Cycle Management** infrastructure already approved, and being progressively completed within 'Redbank, North Richmond', maintaining the same level of established runoff quantity (peak discharges for a range of storm events up to 1% AEP) and runoff quality (capture / treatment as required for gross pollutants, total suspended solids (TSS) and nutrients).

Please accept this letter as supporting documentation to specifically support extension of the overall Water Cycle Management network across the 'Redbank Expansion Area (Kemsley Park)'.

If you have any queries, please do not hesitate to contact me on 0419 474 960.

Andrew Flaherty

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Attachment - *Stormwater Management Strategy from J.Wyndham Prince (May 2013), with cover letter denoted 8580_DOP_130510 Lett and report denoted 8505rpt1D.*