

Our ref: DOC21/318853-10 Your ref: MP 10\_0137 MOD14

Ms Emma Butcher

Senior Planning Officer Industry Key Sites Department of Planning, Industry and Environment Emma.Butcher@planning.nsw.gov.au

Dear Emma

## Huntlee PA – Large Lot Changes (MP 10\_0137 MOD 14) – Response to Submissions

I refer to your email dated 23 April 2021 in which Planning and Assessments Group (P&A) of the Department of Planning, Industry and Environment (the Department) invited Biodiversity and Conservation Division (BCD) of the Department to comment on response to submissions report for modification 14 of the Huntlee PA – Large Lot Changes (MP 10\_0137 MOD 14), located at Branxton; in the Cessnock local government area.

BCD has reviewed the correspondence from Urban Ethos titled '*RE: Response to Request for Additional Information No. 3 - MOD 14 to MP\_10\_0137 Huntlee New Town, Branxton*' (dated 23 April 2021), including relevant appendices, annexures and attachments in relation to impacts on biodiversity and flooding. BCD also reviewed the response to submissions report prepared by Northrop Engineers (Letter Reference NL151661) in relation to flooding and flood risk.

BCD's recommendations are provided in **Attachment A** and detailed comments are provided in **Attachment B**. If you require any further information regarding this matter, please contact Steven Cox, Senior Team Leader Planning, on 4927 3140 or via email at rog.hcc@environment.nsw.gov.au

Yours sincerely

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JOE THOMPSON Director Hunter Central Coast Branch Biodiversity and Conservation Division

Date: 18/05/2021

Enclosures: Attachments A and B

# **BCD's recommendations**

# Huntlee PA – Large Lot Changes – Response to submissions

# **Biodiversity**

- BCD recommends that the proponent provides a review of MOD 14 against the status of conservation outcomes (i.e. avoidance and mitigation measures) as described in the Huntlee Ecological Assessment Report (2010) and the Flora and Fauna Management Sub-Plan (RPS, 2016). This review must include both direct and indirect impacts resulting from the project. Indirect impacts would include edge effects, weed encroachment, human disturbance and alteration to flow regimes that may result in modification to vegetation structure and composition.
- 2. BCD recommends that the proponent provides details of the locations and arrangements made to ensure ongoing management of the areas proposed for retention and preservation for their ecological value.

# Flooding and flood risk

- 3. Flood modelling needs to be consistent with earlier models and concurrent flooding needs to be considered. Any variations from previously adopted criteria must be justified.
- 4. The proponent should revise flood modelling using the broader Black Creek flood model to determine if on-site detention can be removed from the proposal without causing additional flood impacts.
- 5. The proponent should prepare a floodplain risk management plan in consultation with Cessnock City Council and the Department to show how flood warning and emergency evacuation will be achieved for floods in excess of the 1% annual exceedance probability (AEP) event.
- 6. The subdivision should be designed so that flood-free access is provided to all lots for the 1% AEP event. Rising road access is also required to permit evacuation to a place of safety for all events up to and including the PMF event. The proponent should also determine if the diversion of flows for Lots 56 and 57 will impact the level of service of the road. Detail would need to be provided regarding how evacuation of the subdivision could be facilitated given the existing level of service of Wine Country Drive and the lack of flood warning infrastructure.
- 7. Riparian areas provide essential functions for flood and stormwater management for the Huntlee Subdivision and the proponent needs to demonstrate how these functions will be maintained if riparian areas are transferred from public to private ownership.

The proponent should also review the roughness values used in its hydrological model and outline how these values will be maintained in riparian areas under community title.

8. The Huntlee DCP 2013 should be extended to ensure that water sensitive urban design measures are enforced within the new development area. The proponent should also provide detail about how proposed on-site water treatment devices will achieve pollution reduction targets, how they will be maintained and how they will be imposed on privately owned sites.

# **BCD's detailed comments**

# Huntlee PA – Large Lot Changes – Response to submissions

# **Biodiversity**

1. The conservation outcomes of avoidance and mitigation measures need to be further described.

The avoidance and mitigation measures detailed within the Huntlee Ecological Assessment Report (2010) (EAR) are not extinguished by the Section 34(A) Order and must be an ongoing consideration as each development sub-stage is planned and assessed. The Section 34(A) Order clearly refers to offsets satisfying the 'residual impact' (i.e. after avoidance and mitigation) of the Huntlee Development. The EAR, not the Section 34(A) Order, should be the point of reference when determining what conservation outcomes require consideration within the Huntlee Development area.

BCD disagrees with Urban Ethos' assertion that all of open space areas (outside of riparian areas) are not relevant to conservation measures. For example, Section 5.4 of the EAR states that open space and riparian corridors have been allocated over large proportions of Central Hunter Riparian Forest and Hunter Lowlands Redgum Forest Endangered Ecological Communities (EECs) to see the majority 'retained and managed for their ecological value'.

The proposal fails to adequately demonstrate that the conservation outcomes (i.e. avoidance and mitigation measures) as described in the EAR are being adhered to. Therefore, it remains to be seen if impacts of the MOD 14 area are having a cumulative effect that exceed the residual impact thresholds described in the EAR, particularly in relation to EECs.

As noted in our previous comments (letter dated 13 Jan 2021, recommendation 1) BCD remains unable to assess the impacts of the proposed Modification 14 project until sufficient information is provided.

## Recommendation 1

BCD recommends that the proponent provides a review of MOD 14 against the status of all conservation outcomes (i.e. avoidance and mitigation measures) as described in the EAR and the Flora and Fauna Management Sub-Plan (RPS, 2016). Assessment of avoidance measures should include demonstrating that clearing thresholds of EECs are not on track to be exceeded.

2. The proposal does not clearly differentiate between areas for public use and conservation.

As described above and in the EAR, the Huntlee development includes areas of open space and riparian corridors that would be retained and managed for their ecological value. It is not clear which areas of the MOD 14 proposal are intended to be managed for conservation and how that management will be delivered. For example, the required *Persoonia pauciflora* habitat protection area has been mapped as 'Public Open Space' on the Public Realm Plan.

## Recommendation 2

BCD recommends that the proponent provides details of the locations and arrangements made to ensure ongoing management of the areas proposed or required for retention and preservation for their ecological value. This should include details on how the Community Title Management scheme will be resourced and charged with the delivery of conservation outcomes. Areas required to be managed for bushfire protection are not regarded as conserved.

# Flooding and flood risk

The location for the large lot subdivision included in Modification 14 (Mod 14) has significant flood constraints. BCD has previously made comments regarding flood modelling, emergency management, management of riparian areas and stormwater quality management for Huntlee (refer to DOC20/714725-12 and DOC20/13367-11).

BCD staff also facilitated the provision of flood data from the Cessnock Council Black Creek model in March 2021 to assist the proponent in assessing flooding issues at the site. It is noted that this data has not been used for the assessments supporting Modification 14. A number of issues raised in previous correspondence have not been addressed, however; this letter replaces BCD's previous comments on flooding and flood risk for Mod 14.

## 3. The flooding assessment is inadequate

The revised flood model has adjusted loss values in accordance with NSW Specific Guidance for Use of Australian Rainfall and Runoff (ARR) data provided on the ARR data hub. This has resulted in changes in the flood modelling and sensitivity analysis which show that modelling is very sensitive to the loss values used. In the absence of calibration, conservative values should be used to set planning constraint.

Hydraulic roughness values used for Black Creek are also much lower than was used in the Cessnock Council's studies and these have not been adjusted or adequately justified in the revised document. The Manning's roughness coefficient assumed for Black Creek appears to be low and this appears to result in faster transference of water downstream than in either the Council study or the previous Worley Parsons Black Creek flood study (ref. 301017-00329). The values used in the current study have not been justified.

BCD has not been provided with a copy of the document tilted: "Trunk Stormwater and Flooding Assessment - Stage 1 Project Application prepared by WorleyParsons in 2012" which is noted in the modification documents as being the current approved strategy.

The model has also assumed a free outlet of water from the local catchment to Black Creek with flood levels at top of bank. A 1% Annual Exceedance Probability (AEP) flood within the local catchment is unlikely to coincide with 1% AEP flood in Black Creek, however; best practice assessment methods assume some flooding in the major waterway would occur concurrently. The Worley Parsons study assumed a 5% AEP flood concurrently for assessing the coincidence of flooding in Black Creek with flooding in the Hunter River. A similar boundary condition should be used for the Mod 14 assessment. In addition, it will be necessary to ensure that the current development area is outside the area of influence of the Hunter River flooding noted in Table 4.3 of the Worley Parsons study.

March 2021 flooding in NSW was characterised by concurrent local and riverine flooding and this highlights the need for consideration of the concurrent flooding in developing flood planning areas.

In each case flood planning levels must be based on the worst case of local, Black Creek and Hunter River flooding.

## Recommendation 3

Flood modelling needs to be consistent with earlier models and concurrent flooding needs to be considered. Any variations from previously adopted criteria must be justified.

#### 4. On-site stormwater detention will be removed without justification

The proponent has not justified the removal of on-site detention from its Stormwater Management Strategy. As outlined in point 1, it appears that flood flows have been underestimated and incorrect roughness values have been adopted, therefore the hydrographs provided in support of the proposed modification are not considered to accurately represent stormwater flows.

BCD is unable to comment on whether this issue has been adequately addressed until flood modelling is revised as noted in point 1. It is noted that management of erosive discharge to the creeklines may still require some detention/retention of flows up to the two-year event.

#### Recommendation 4

The proponent should revise flood modelling using the broader Black Creek flood model to determine if on-site detention can be removed from the proposal without causing additional flood impacts.

# 5. The flood prone nature of the site poses significant residual risk to residents in the event of a flood greater than the 1% AEP event

The proposed development and access roads are located within the probable maximum flood (PMF) extent established by the Black Creek flood study. This study shows the development area as being a low flood island or trapped perimeter area under State Emergency Service (SES) classification guidelines. PMF floods must be considered when placing additional development in a floodplain which would require assistance by emergency services.

The Worley Parsons study provided levels for the 200-year Annual Recurrence Interval (ARI) event in this location which indicates that a flood slightly rarer than that used for setting of floor levels would be 1.5 metres higher than the 1% AEP flood. Extreme floods can happen in very short time frames with limited opportunity for self-evacuation. There is currently no gauging (river or rainfall) in this locality which could inform a regional flood warning system. Cessnock City Council does not currently require a flood warning system in this area because of the limited residential development in the flood plain. This section of the Huntlee development and future stages in the Black Creek flood plain will significantly increase residential use of the floodplain and are likely to result in need for flood warning systems and emergency responses. The proponent's statements that sheltering can be achieved by standing on furniture or that regional government emergency plans would address this risk does not address the remaining risk to this area posed by rare floods.

## Recommendation 5

The proponent should prepare a floodplain risk management plan in consultation with Cessnock City Council and the Department to show how flood warning and emergency evacuation will be achieved for floods in excess of the 1% annual exceedance probability (AEP) event.

## 6. Flood free access is not provided

The revised Northrop report indicates that access in the 1% AEP event will be provided to all lots. This includes filling in of a drainage line which currently crosses lots 56 and 57. The flood mapping indicates this will be achieved by collecting offsite flows on the upstream side of Wine Country drive and piping these through the subdivision. Flows in excess of the design flow are

shown as diverting towards the south once pit/pipe capacity is exceeded. Insufficient detail is given to assess whether this is an adequate solution or whether flow will continue through the developed lots. It is likely that lots will be developed with limited freeboard to floor levels and overland flow from failure of significant drainage structures should be considered.

A previous response from Northrop outlined that flood flows that would be diverted from Lots 56 and 57 to the roadway, however; further information is required to assess if this will impact the level of service of the road.

Map A1 provided with Mod 14 shows the output of hydrological modelling and this is not matched by hydraulic modelling. No discharge point is shown for the diversion pipe, no modelling of the pipe or the impact of downstream flooding on the action of this pipe has been carried out or shown on the mapping.

BCD is unable to assess the suitability of the proposed flood mitigation and drainage solutions until such time as flood models are updated and made to be consistent, and further information regarding the piped solutions, works on land not under the control of the developer and the impact of downstream flood levels are assessed.

It is also noted that Wine Country Drive does not provide a level of service that ensures safe egress from the development in the absence of an early flood warning system. Shelter in place is not considered to be a viable option in a Black Creek flood event due to the extreme difference between a 1% AEP and a PMF flood event.

## Recommendation 6

The subdivision should be designed so that flood-free access is provided to all lots for the 1% AEP event. Rising road access is also required to permit evacuation to a place of safety for all events up to and including the PMF event. The proponent should also determine if the diversion of flows for Lots 56 and 57 will impact the level of service of the road. Detail would need to be provided regarding how evacuation of the subdivision could be facilitated given the existing level of service of Wine Country Drive and the lack of flood warning infrastructure.

## 7. Management of riparian land remains unclear

Most of the riparian corridors in the development are proposed to be managed under community title. It is unclear how this will be managed and funded and what degree of riparian vegetation will be retained. Flood modelling has used different roughness in drainage channels and riparian areas, assuming some riparian vegetation remains. Further detail on the landscaping/maintenance regime would be needed to inform assumptions made and future maintenance/replanting guidelines.

Riparian areas would need to be maintained as grassed corridors to achieve the roughness values used in flood modelling for the proposal. This is not consistent with best practice assessment techniques and Section 3.3.2 of the Stormwater Management Strategy which refers to vegetated riparian areas. If grassed riparian areas must be established and maintained, it is not clear how this would be protected under community title without maintenance guidance.

In addition, lots 56 and 57 contain a drainage line that will be filled, and flows directed to an underground stormwater pipe. No justification is given to why this is necessary.

## Recommendation 7

Riparian areas provide essential functions for flood and stormwater management for the Huntlee Subdivision and the proponent needs to demonstrate how these functions will be maintained if riparian areas are transferred from public to private ownership.

The proponent should also review the roughness values used in its hydrological model and outline how these values will be maintained in riparian areas under community title.

# 8. The stormwater report provides minimal information on how water quality and quantity is to be managed.

The proposed modification relies on water treatment devices being established on private property. Adequate stormwater treatment infrastructure should be provided in public parts of the subdivision to minimise the need for homeowners to install and maintain these devices. The use of oversized rainwater tanks may be an appropriate part of the solution, however; requirements for this would need become part of a development control plan (DCP) to ensure that homeowners and development assessors are aware that the site-specific requirements and exceed the minimal BASIX requirements.

Most treatment of stormwater for the subdivision has been modelled as occurring on private property and no DCP or covenant arrangements are in place to ensure they will be established and maintained. No details are given as to how drainage swales would be constructed for public infrastructure/roadways or how and where these would discharge.

#### **Recommendation 8**

The Huntlee DCP 2013 should be extended to ensure that water sensitive urban design measures are enforced within the new development area. The proponent should also provide detail about how proposed on-site water treatment devices will achieve pollution reduction targets, how they will be maintained and how they will be imposed on privately owned sites.