

# MEMO

Date: 11 September 2020  
To: Jason Wasiak  
From: Mark Aitkens  
Pages: 9 inc. this page  
Regarding: PR130430 Kings Hill: Response to JRPP External Works Impacts – Ecology considerations

## Response to JRPP External Works Impacts – Ecology considerations

External works outside the Concept DA assessment area were identified by the Joint Regional Planning Panel (JRPP) as requiring consideration for the purposes of determining if additional regulatory processes and assessment may have a bearing on the approval of the Concept DA. A broad discussion of what constituted external works identified upgrades to Six Mile Road and Newline Road as the only matters relevant to this assessment.

Eight locations identified by Northrop are likely to require external works for reasons relating to egress to the URA (i.e. roundabout on Newline Road and entrance from Six Mile Road) and flood management (i.e. various low lying lands located along Newline Road and Six Mile Road). The extent of these external works, as shown in plans C700 to C708 as supplied by Northrop dated 9 September 2020, has been reviewed against the environmental conditions prevailing at these locations, which were characterised during site visitations on 24 and 28 August 2020. The following sections summarise each location in terms of the existing environment, presence of notable sensitive environmental matters, likely mitigation works and expected impact on the environment.

## Location 1

### Existing Environment

The roadside verge of the Pacific Highway and Six Mile Road is typically characterised by disturbed soils and exotic groundcover vegetation. Few native trees are located within location 1 due to the history of earthworks and requirement to maintain 'line of sight' for access onto the Pacific Highway.

### Sensitive Environmental Matters

No sensitive environmental matters were identified at this location.

### Likely Impacts

Civil works performed at this location are likely to be restricted to an existing chronically disturbed roadside environment comprising no sensitive environmental matters.

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## Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the only mitigation measures that are likely to be required at this location.

## Significance of Environmental Impact

A negligible impact on the receiving environment is expected from civil works at this location. It is highly unlikely that such works would result in a significant impact on listed threatened species and ecological communities. Assuming such works are assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), it is considered that there would be no regulatory requirement to enter into the Biodiversity Offset Scheme (BOS) as would the works are not likely to have a significant impact on threatened species, ecological communities or their habitats [i.e. no exceedance of biodiversity offsets scheme threshold s specified under s7.2 or 7.3 of the *Biodiversity Conservation Act 2016* (BC Act)].

## Location 2

### Existing Environment

The roadside environment of Six Mile Road comprises native vegetation described as *Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest* [Plant Community Type (PCT) 1590] in a moderately disturbed condition state (i.e. edge effects). Existing disturbances include incursion of weed species and simplified vegetation composition and habitat character.

Hollow-bearing trees were recorded on the northern side of the road reserve. Preferred koala feed tree species were observed on both sides of the formed road. No threatened flora or endangered ecological communities occur within the roadside environment; however, threatened fauna species may periodically use this vegetation for foraging purposes. Hollows may be periodically used by species such as the squirrel glider, brush-tailed phascogale and threatened microbat species.

### Sensitive Environmental Matters

The roadside environment at Location 2 contains some hollow-bearing trees (i.e. on the northern side of the existing road) and preferred koala feed tree species [i.e. Forest Redgum (*Eucalyptus tereticornis*)]. Hollow-bearing trees are on the northern side of the formed road.

### Likely Impacts

Works occurring at this location would likely result in the removal of ~ five preferred koala feed trees. Hollow-bearing trees that occur on the northern side of the road are to be avoided.

### Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the main mitigation measures that are likely to be required at this location. Resource recovery (i.e. tree trunks) would be recommended to address sustainable development principles. Revegetation works involving the planting of ~30 to 40 to mitigate the loss of ~5 preferred Koala feed trees in this area would likely be recommended.

## Significance of Environmental Impact

A minor impact on the receiving environment is expected from civil works at with this location. Notwithstanding, the works may exceed the biodiversity offsets scheme threshold as specified under s7.2 of the BC Act should any native vegetation/ habitat be removed within an area included in the Biodiversity

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Values Map (BVM) (see area mapped as purple on **Figure 1** below). If this is the case, then approval under part 7 of the BC Act would be required with PSC being the determining authority for assessing these impacts.



**Figure 1: BVM for Location 2**

## Location 3

### Existing Environment

The roadside verge at location 3 is typical of a minor creek crossing. The road is formed over culverts that facilitate semi-permanent water flows in a northerly direction that eventually drains onto the Williams River floodplain. Vegetation is generally characterised by *Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest* [Plant Community Type (PCT) 1590] in a moderately disturbed condition state (i.e. edge effects). Some elements of downstream vegetation are also apparent by the presence of Swamp Oak (*Casuarina glauca*), indicating a transition point onto the floodplain. Preferred koala feed trees (i.e. *Eucalyptus punctata*) are in close proximity to the creek crossing and external works.

### Sensitive Environmental Matters

The roadside environment at Location 3 contains some hollow-bearing trees (i.e. on the northern side of the existing road) and preferred koala feed tree species [i.e. Grey Gum (*Eucalyptus punctata*)].

### Likely Impacts

Works occurring at this location would likely result in the removal of ~ two preferred koala feed trees. One hollow-bearing tree on the northern side of the road may also be removed.

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## Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the main mitigation measures that are likely to be required at this location. Resource recovery (i.e. tree trunks) would be recommended to address sustainable development principles. Revegetation works involving the planting of ~10 to 20 to mitigate the loss of ~2 preferred Koala feed trees in this area would likely be recommended. Sensitive clearing methods would be required to minimise harm to fauna utilising hollows that would be removed at this location.

## Significance of Environmental Impact

A minor impact on the receiving environment is expected from civil works at with this location. Notwithstanding, the works may exceed the biodiversity offsets scheme threshold as specified under s7.2 of the BC Act should any native vegetation/ habitat be removed within an area included in the BVM (see area mapped as purple on **Figure 2** below). If this is the case, then approval under part 7 of the BC Act would be required with PSC being the determining authority for assessing these impacts.



**Figure 2 BVM for Location 3**

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## Location 4

### Existing Environment

The roadside verge at location 4 is typical of a creek crossing with permanent water flowing in a northerly direction onto the Williams River floodplain. Vegetation within the creek at this location comprises native species that form part of two PCTs these being:

- PCT 783 Coastal freshwater swamps of the Sydney Basin Bioregion; and
- PCT 1728 Swamp Oak - Prickly Paperbark - Tall Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast.

The flanks of the riparian zone are characterised by *Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest* [Plant Community Type (PCT) 1590] in a moderately disturbed condition state (i.e. edge effects).

### Sensitive Environmental Matters

Two endangered ecological communities (EECs) occur at this location being:

- Swamp Oak Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC; and
- Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC.

No hollow-bearing trees or preferred koala feed trees occur within the area where upgrade works are likely.

### Likely Impacts

Works occurring at this location would involve the removal of ~100 m<sup>2</sup> of Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC. No threatened flora, hollow-bearing trees or preferred koala feed trees are to be removed.

### Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the main mitigation measures that are likely to be required at this location. Works would be best aligned with the drier cooler months of the year to minimise the risk of adverse impacts downstream (e.g. impacts on water quality following rainfall events).

### Significance of Environmental Impact

A minor impact on the receiving environment is expected from civil works at with this location. Notwithstanding, the works may exceed the biodiversity offsets scheme threshold as specified under s7.2 of the BC Act should any native vegetation/ habitat be removed within an area included in the BVM (see area mapped as purple on **Figure 3** below). If this is the case, then approval under part 7 of the BC Act would be required with PSC being the determining authority for assessing these impacts.



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Figure 3 BVM for Location 4

## Location 5

### Existing Environment

The roadside verge at location 5 is typical of a creek crossing with permanent water flowing in a northerly direction onto the Williams River floodplain. Vegetation within the creek at this location comprises native species that form part of two PCTs these being:

- PCT 783 Coastal freshwater swamps of the Sydney Basin Bioregion; and
- PCT 1728 Swamp Oak - Prickly Paperbark - Tall Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast.

### Sensitive Environmental Matters

Two endangered ecological communities (EECs) occur at this location being:

- Swamp Oak Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC; and
- Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC.

No hollow-bearing trees or preferred koala feed trees occur within the area where upgrade works are likely.

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## Likely Impacts

Works occurring at this location would involve the removal of ~150 m<sup>2</sup> of Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC. No threatened flora, hollow-bearing trees or preferred koala feed trees are to be removed.

## Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the main mitigation measures that are likely to be required at this location. Works would be best aligned with the drier cooler months of the year to minimise the risk of adverse impacts downstream (e.g. impacts on water quality following rainfall events).

## Significance of Environmental Impact

A minor impact on the receiving environment is expected from civil works at this location. It is highly unlikely that such works would result in a significant impact on listed threatened species and ecological communities. Assuming such works are assessed under Part 4 of the EP&A Act, it is considered that there would be no regulatory requirement to enter into the BOS as would the works are not likely to have a significant impact on threatened species, ecological communities or their habitats (i.e. no exceedance of biodiversity offsets scheme threshold s specified under s7.2 or 7.3 of the BC Act).

## Location 6

### Existing Environment

The roadside verge at location 6 is typical of a creek crossing with permanent water flowing in an easterly direction onto the Williams River floodplain. Vegetation within the creek at this location comprises native species that form part of two PCTs these being:

- PCT 783 Coastal freshwater swamps of the Sydney Basin Bioregion; and
- PCT 1728 Swamp Oak - Prickly Paperbark - Tall Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast.

### Sensitive Environmental Matters

Two endangered ecological communities (EECs) occur at this location being:

- Swamp Oak Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC; and
- Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC.

No hollow-bearing trees or preferred koala feed trees occur within the area where upgrade works are likely.

## Likely Impacts

Works occurring at this location would involve the removal of ~50 m<sup>2</sup> of Swamp Oak Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC. No threatened flora, hollow-bearing trees or preferred koala feed trees are to be removed.

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## Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the main mitigation measures that are likely to be required at this location. Works would be best aligned with the drier cooler months of the year to minimise the risk of adverse impacts downstream (e.g. impacts on water quality following rainfall events). All mitigation measures implement must demonstrate capacity to prevent deleterious impacts on the downstream coastal wetlands.

## Significance of Environmental Impact

A minor impact on the receiving environment is expected from civil works at with this location. Notwithstanding, the works may exceed the biodiversity offsets scheme threshold as specified under s7.2 of the BC Act should any native vegetation/ habitat be removed within an area included in the BVM (see area mapped as purple on **Figure 4** below). If this is the case, then approval under part 7 of the BC Act would be required with PSC being the determining authority for assessing these impacts.



**Figure 4 BVM for Location 6**



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## Location 7

### Existing Environment

The roadside environment at location 7 is characterised by a broad creek crossing on the Williams River floodplain. Vegetation at this location comprises native species that form part of two PCTs these being:

- PCT 783 Coastal freshwater swamps of the Sydney Basin Bioregion; and
- PCT 1728 Swamp Oak - Prickly Paperbark - Tall Sedge swamp forest on coastal lowlands of the Central Coast and Lower North Coast.

Planted specimens of Swamp Mahogany were noted along the property boundary between land owned by Port Stephens Council and the adjoining landholder to the west. No threatened flora species were observed. Preferred koala feed trees are present within the location (i.e. Swamp Mahogany). No hollow-bearing trees occur within the area of expected works.

### Sensitive Environmental Matters

Two endangered ecological communities (EECs) occur at this location being:

- Swamp Oak Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC; and
- Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC.

No hollow-bearing trees or preferred koala feed trees occur within the area where upgrade works are likely.

The site is located nearby a coastal wetland and is within the proximity mapping of this coastal wetland.

### Likely Impacts

Works occurring at this location would involve the selective removal of both EECs as follows:

- ~250 m<sup>2</sup> Swamp Oak Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC
- ~100 m<sup>2</sup> Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions EEC

### Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the main mitigation measures that are likely to be required at this location. Works would be best aligned with the drier cooler months of the year to minimise the risk of adverse impacts downstream (e.g. impacts on water quality following rainfall events). All mitigation measures implement must demonstrate capacity to prevent deleterious impacts on the downstream coastal wetlands.

### Significance of Environmental Impact

A minor impact on the receiving environment is expected from civil works at with this location. Notwithstanding, the works may exceed the biodiversity offsets scheme threshold as specified under s7.2 of the BC Act should any native vegetation/ habitat be removed within an area included in the BVM (see area

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mapped as purple on **Figure 5** below). If this is the case, then approval under part 7 of the BC Act would be required with PSC being the determining authority for assessing these impacts.

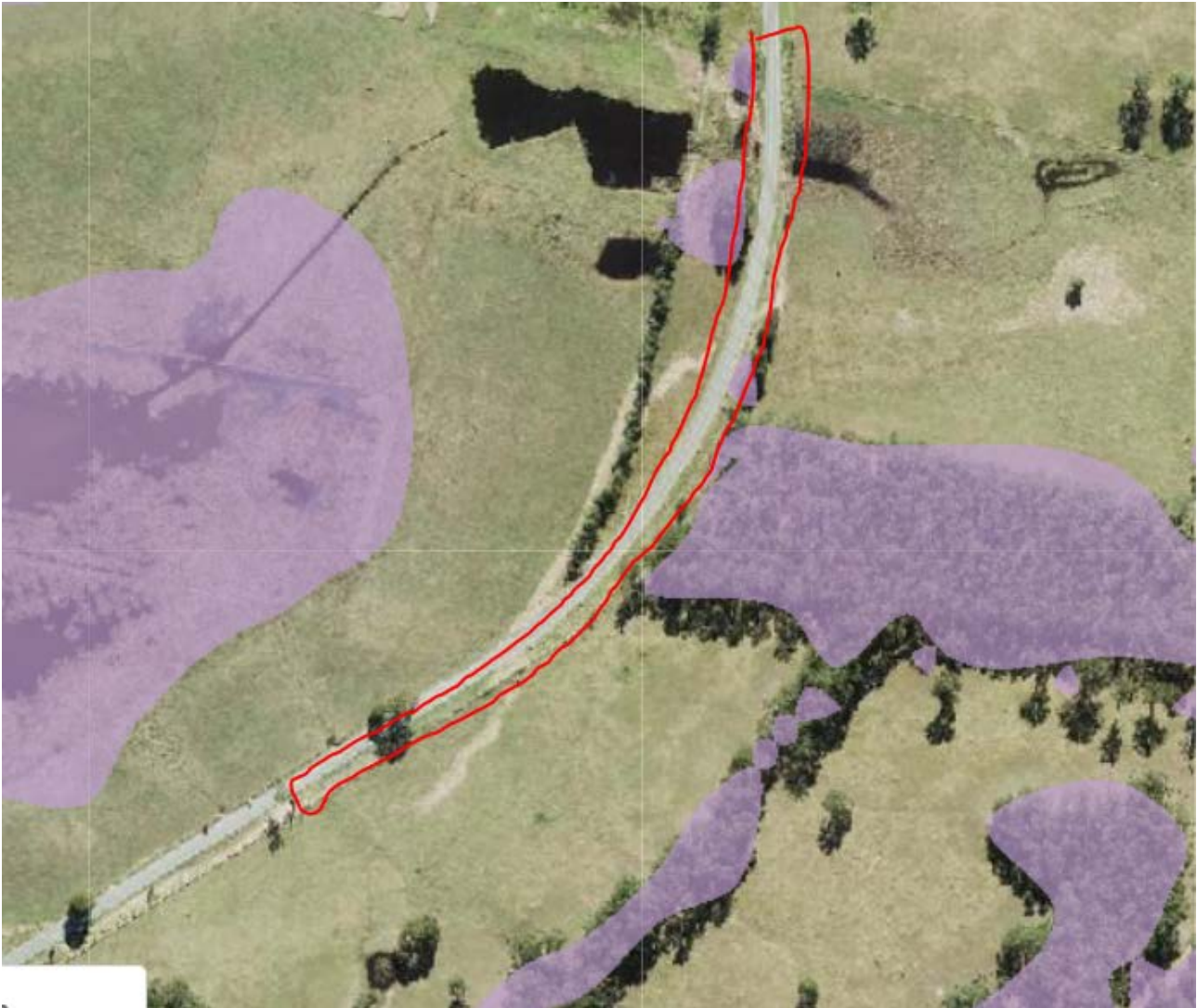


Figure 5 BVM for Location 7

## Location 8

### Existing Environment

The roadside verge of Newline Road at the proposed roundabout entering the KHURA is typically characterised by disturbed soils and exotic groundcover vegetation. Few native trees are located within location 8 due to the history of earthworks and requirement to maintain 'line of sight' for access onto Newline Road. Native vegetation to be disturbed by this intersection is located within the area assessed in the Species Impact Statement.

### Sensitive Environmental Matters

No sensitive environmental matters were identified at this location.

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## Likely Impacts

Civil works performed at this location are likely to be restricted to an existing chronically disturbed roadside environment comprising no sensitive environmental matters.

## Mitigation works

The establishment of standard sediment and erosion control measures in addition to appropriate topsoil management to prevent the spread of weed species are the only mitigation measures that are likely to be required at this location. All mitigation measures implemented must demonstrate capacity to prevent deleterious impacts on the downstream coastal wetlands.

## Significance of Environmental Impact

A negligible impact on the receiving environment is expected from civil works at this location. It is highly unlikely that such works would result in a significant impact on listed threatened species and ecological communities. Assuming such works are assessed under Part 4 of the EP&A Act, it is considered that there would be no regulatory requirement to enter into the BOS as would the works are not likely to have a significant impact on threatened species, ecological communities or their habitats (i.e. no exceedance of biodiversity offsets scheme thresholds specified under s7.2 or 7.3 of the BC Act). The external works relative to areas included in the BVM are shown in **Figure 6**.



**Figure 6 BVM for Location 8**

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## Commonwealth Legislation

Actions that will or may potentially have a significant impact on matters of national environmental significance (MNES) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) are required under Section 68(1) or 68(2) of this Act to be referred to the Commonwealth Department of Agriculture, Water and Environment to determine if the proposed action is a controlled action. The question of significance is determined by the assessment of MNES in accordance with the *Significant Impact Guidelines 1.1 - matters of national environmental significance* (DoE 2013), which specifies various assessment criteria for vulnerable, endangered, critically endangered species and ecological communities and migratory species.

The external works is likely to involve the removal ~0.03 ha of Swamp Oak Forest which is part of the Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community listed as endangered under the EPBC Act. The removal of this community and a second (Coastal Freshwater Wetlands) would also result in a localised adjustment in the availability of habitat for migratory species listed under the EPBC Act.

For listed ecological communities, the significant impact criteria are as follows:

- reduce the extent of an ecological community
- fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines
- adversely affect habitat critical to the survival of an ecological community
- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns
- cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting
- cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
  - assisting invasive species, that are harmful to the listed ecological community, to become established, or
  - causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or
- interfere with the recovery of an ecological community.

In reference to the magnitude of likely loss (i.e. ~0.03 ha of Coastal Swamp Oak Forest) and the high certainty of success in standard mitigation measures applied to prevent harm or modification to adjacent or downstream occurrences of MNES (e.g. sediment and erosion control measures), it is considered that an assessment performed in accordance with these significance criteria is unlikely to indicate a potential for a significant impact on listed threatened ecological communities including any threatened or migratory species dependent on or associated with these ecological communities. On this basis, it is considered that the external works would be regarded as an action having an impact consistent with Section 68(2) of the EPBC Act (i.e. person thinks the proposed action is not a controlled action) and accordingly is not required to refer the action (i.e. "may refer the proposal to the Minister for the Minister's decision whether or not the action is a controlled action"), as would be the case under Section 68(1) of this Act.



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## Conclusion

The impacts of external works shown at each of the eight locations indicated in the Northrop plans C700 to 708 (7 September 2020) are considered to represent low environmental risk as the impacts are likely to be minor and inconsequential on threatened species, ecological communities, migratory species and their habitats. The extent of loss either individually or cumulatively is not likely to result in a significant impact when assessed under Division 5 of the EP&A Act (i.e. REF) and is not likely to require referral under the EPBC Act as the works would not likely be regarded as a controlled action.

Standard mitigation measures such as sediment and erosion controls are likely to provide effective relief from any downstream impacts on sensitive environments such as Coastal Wetlands (i.e. located downstream of Locations 6 to 8). The impacts of these external works, while within the proximity mapping of Coastal Wetlands, are likely to remain localised and be temporary with no expectation of a lasting impact of consequence on nearby sensitive environments.



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