Planning, Industry & Environment

Ms Deanne Forrest
Project Director – M12 Motorway
Transport for NSW
PO Box K659
Haymarket NSW 1240

16/11/2021

Dear Ms Forrest

M12 Motorway (SSI-9364)
Low Impact Submission Work Submission

I refer to your submission received on 1 November 2021, requesting the Planning Secretary's determination of low impact works to enable archaeological salvage under the conditions of approval for SSI 9364. The Department has completed its review of the request.

I note that consultation on the Job Environmental Analysis (JEA), including low impact works (dated 12 November 2021), occurred with EES (Biodiversity and Conservation Division) who raised no comments or concerns in relation the potential biodiversity impacts and proposed mitigation measures identified.

Accordingly, as nominee of the Planning Secretary, I have determined that the works outlined in your submission are not construction works, and that you have completed the relevant consultation required under the definitions pursuant to SSI 9364. Therefore, the works outlined in your submission are considered low-impact works.

The Department may review this determination if the low impact works are not carried out in accordance with the information provided in the submission and result in non-compliance with a condition or definition pursuant to SSI 9364.

Please make the submission and this letter publicly available on the project website in accordance with the requirements of condition B10.

If you wish to discuss the matter further, please contact Lee McCourt on 8289 6969.

Yours sincerely

Jake Shackleton
Director – Infrastructure Management

As nominee of the Planning Secretary

Mr Jake Shackleton
Director – Infrastructure Management DPIE
Department of Planning Industry and Environment
4 Parramatta Square
Parramatta NSW 2150

Dear Mr Shackleton

Re: SSI 9364 - M12 Motorway – Low Impact Work (Archaeological salvage)

The M12 project is commencing Aboriginal archaeological salvage, which is considered Low Impact Work as per the definition in the M12 Infrastructure Approval. The relevant section of the definition is as follows:

> *(h) archaeological and cultural salvage undertaken in accordance with a strategy or salvage operation required by the conditions of this approval*

In some cases, archaeological salvage activities will be undertaken within mapped areas of threatened ecological communities (TEC) that would affect grasses and groundcovers. No trees or shrubs would be impacted by the salvage work.

In accordance with the definition, activities that may affect or potentially affect TEC are not considered Low Impact Work, unless otherwise determined by the Planning Secretary in consultation with the relevant agency (paragraph 2, part (a.) of the definition).

Details of the archaeological salvage including proposed management and mitigation measures relating to TEC are included in the attached Job Environmental Analysis prepared by TfNSW's heritage contractor (Attachment A). The Job Environmental Analysis has been amended to address DPIE's Request for Informtation dated 11 November 2021.

TfNSW has consulted with the Environment Energy and Science group (EES) regarding the archaeological salvage activities within TEC. EES raised no comments or concerns in relation to the potential biodiversity impacts and proposed mitigation measures identified. Please refer to Attachment B of this letter.

TfNSW requests that DPIE provides agreement that the archaeological salvage activities as outlined in Attachment A are determined to be Low Impact Work. If you have any further questions, I would be pleased to take your call on 0476 828 524.

Yours sincerely

Suzette Graham
Senior Environment and Sustainability Manager
Date: 12 November 2021

Transport for NSW
7 Harvest Street, Macquarie Park NSW 2113 | PO Box K659, Haymarket NSW 1240
T 02 8202 2200 | **F** 02 8202 2209 | **W** transport.nsw.gov.au | ABN 18 804 239 602

Attachment A – Job Environmental Analysis

Job Environmental Analysis (including Low Impact Work Statement)

Kelleher Nightingale Consulting Pty Ltd Level 10, 25 Bligh Street, Sydney NSW 2000

JEA No: 1

Revision No: 3	**Name of person preparing JEA:** Matthew Kelleher (DIR)	**Signature:**	**Date:** 12/11/2021
Date issued: 12/11/2021	**Approval:** Alison Nightingale	**Signature:**	**Date:** 12/11/2021

Job Description:	Archaeological salvage excavation at eight Aboriginal sites for the M12 Motorway Project. Salvage excavation includes; • Phase 1 salvage: A series of 1 m^2 squares will be excavated on a transect grid at regular intervals overlain on each site to mark the spread of lithics and related geomorphic activity. This will build on previous test excavation results. • Phase 2 salvage: Open area salvage of significant deposit follows the Phase 1 assessment. Additional contiguous 1 m^2 squares, constituting an open area, will be excavated around information bearing deposits along the excavation grid. It is anticipated that each site would require 20-50 m^2 of excavation for open area salvage, however the area required for salvage could be a maximum of 200 m^2 in some locations.
Location:	Identified locations at eight Aboriginal site locations within M12 Motorway Project (SSI-9364) construction footprint as shown on Figures 1-7
Low Impact Works Justification	Archaeological salvage excavation at the identified Aboriginal sites is considered to be Low Impact Work, as per the definition provided in the M12 Infrastructure Approval, in particular as included in section (h) of the definition: ***"(h) archaeological and cultural salvage undertaken in accordance with a strategy or salvage operation required by the conditions of this approval"*** Some of the archaeological salvage will take place in areas identified as Threatened Ecological Communities (TEC). No trees or shrubs will require removal or be otherwise impacted or affected by the salvage work, however grasses and groundcover species are likely to be impacted. No threatened flora species will be affected by the archaeological salvage work. Salvage will also occur in areas mapped as Grey Headed Flying Fox foraging habitat, however would not impact on trees or tree canopies. Mitigation measures have been included in Table 2 of this JEA to mitigate impacts on flora and fauna where possible.

Activity	Potential Risk / Hazards	Impact	C	L	Risk Rating	Controls	Responsibility	C	L	Residual Risk rating
Archaeological excavation	Noise generation	Existing residences affected by noise from archaeological excavation	5	C	L	■ Use of manual hand tools only (no power tools) ■ Work limited to the M12 construction hours ■ 7:00 am to 6:00 pm Mondays to Fridays, inclusive, ■ 8:00 am to 6:00 pm Saturdays; and ■ At no time on Sundays or public holidays. ■ Minimise raised voices – use mobile phone to communicate with distant team members	All personnel	5	D	L

Activity	Potential Risk / Hazards	Impact	C	L	Risk Rating	Controls	Responsibility	C	L	Residual Risk rating
Archaeological excavation	Sediment dispersal off site	Soil from site tracked onto public/private roads	5	C	L	■ Vehicles are to be inspected prior to entering roadway and any excess soil/mud to be removed. ■ Vehicle movements to use existing tracks/access routes where possible and movements to be minimised during wet weather to reduce sediment tracking from vehicle tyres	All drivers	5	E	L
	Contaminated Material (biological) migration off site	Contaminated soil moved off site	5	C	L	■ Wash down vehicles and equipment at existing location prior to moving to new location.	All personnel	5	E	L
	Waste generation/classification	Poor or inappropriate disposal may result in pollution of the environment	5	E	L	■ Waste receptacles to be provided ■ Daily inspection to be conducted to ensure that the site is left in a rubbish free state ■ Use of waste generating products to be keep to a minimum to minimise waste ■ Site to be inspected for waste at the completion of the works	Supervisor	5	E	L
	Refuelling of vehicle/ plant	Fuel spill during refuelling	5	C	L	■ No refuelling of vehicle/plant on site	All personnel	5	E	L
	Erosion and Sediment wash	Soil from sieving process temporarily held on site prior to backfilling	5	C	L	■ Sediment controls to be in place, correctly installed and functioning correctly at all times ■ Allow for rainwater within control calculations • Erosion and sediment control measures are to be implemented and maintained to: - Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets - Reduce water velocity and capture sediment on site - Minimise the amount of material transported from site to surrounding pavement surfaces - Divert clean water around the site. • Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) with maintenance and/or modifications made as necessary. Inspections and/or maintenance during wet-weather maybe increased where necessary • Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised. • Work areas are to be stabilised progressively during the works. ■ A progressive erosion and sediment control plan is to be prepared for the works as required (refer Figure 8 and Figure 9 for general arrangement plan and sediment fence set up). ■ Vehicle movements to use existing tracks/access routes where possible and movements to be minimised during wet weather to reduce sediment disturbance from vehicle tyres	Supervisor	5	E	L
	Clearing of vegetation Potential impact to threatened flora and fauna	Clearing or trimming of vegetation may cause	5	D	L	■ Environmentally Sensitive areas have been identified in the vicinity of archaeological sites (refer Table 1 and Figures 1-7). ■ Refer to Table 2 for site-specific controls	Supervisor	5	D	L

Activity	Potential Risk / Hazards	Impact	C	L	Risk Rating	Controls	Responsibility	C	L	Residual Risk rating
		damage to ecology, habitat or threatened fauna species				■ All access routes to and from site must not damage vegetation ■ Avoid activities in aquatic habitats and riparian zones as much as practicable ■ Establish exclusion zones and set up exclusion fencing around sensitive areas where required ■ Keep vehicles and machinery away from the banks of a waterway where possible ■ Do not park vehicles and plant or store equipment and materials near sensitive vegetation or within the dripline of trees				
Travel	Waterway crossing	Crossing water impacts on environment	5	C	L	■ No water crossing allowed ■ No crossing of dry creek beds allowed	All personnel	5	D	L
	Access constraint	Establishment of new access routes potentially impact on vegetation or fauna	5	C	L	■ Ensure safe access to each site is organised in advance ■ If an access constraint is identified, establish agreed access route in consultation with TfNSW and/or property owners/residents as appropriate	Supervisor	5	D	L
	Impact on vegetation and fauna	Access routes impact on vegetation or fauna	5	C	L	■ Ensure all access tracks remain on existing trackway; no new tracks ■ No vegetation or fauna is to be damaged or removed ■ Environmentally Sensitive areas have been identified in the vicinity of the archaeological sites (refer Table 1 and Figures 1-7). Refer to Table 2 for site-specific controls	All personnel	5	D	L

JEA Risk Matrix

			Determine the Consequence (C)				
		Environment	5 Limited impact to minimal area	4 Reversible, short-medium term impact to local area.	3 Reversible medium term impact local impact.	2 Medium to long term widespread impact.	1 Long term, widespread, impacts.
Determine the Likelihood (L)	A	Common/ frequent occurrence	**High**	**High**	**Extreme**	**Extreme**	**Extreme**
	B	Will probably occur in most circumstances	**Moderate**	**High**	**High**	**Extreme**	**Extreme**
	C	Might occur at some time	**Low**	**Moderate**	**High**	**Extreme**	**Extreme**
	D	Not likely to occur	**Low**	**Low**	**Moderate**	**High**	**Extreme**
	E	May only occur in exceptional circumstances	**Low**	**Low**	**Moderate**	**High**	**High**

Step 1 Determine the severity of the consequences
Step 2 Determine the likelihood that the hazard will cause an incident
Step 3 Analyse the TRUE RISK (Extreme, High, Moderate, Low)

Step 4 Develop control measures, using hierarchy of controls
Step 5 Determine RESIDUAL RISK (Steps 1-3 above)
Note: Significant risks are those determined as being Extreme or High

JEA Sign off Sheet

JOB ENVIRONMENTAL ANALYSIS - SIGN OFF SHEET					JEA No: 1
ALL PERSONNEL UNDERTAKING THE WORK TASK MUST SIGN BELOW					
I fully understand the requirements of this JEA. **Person conducting the JEA Training: Alison Nightingale, Matthew Kelleher, Mark Rawson, Tristram Miller**					
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
Name: (print)		Signature:		Date:	/ /
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Table 1 lists the identified Aboriginal archaeological sites requiring salvage excavation. Specific proposed Phase 2 salvage excavation locations within each site are shown in Figures 1-7 (NB. Phase 2 salvage at CCW, KCW and CHRP may be undertaken at any of the existing test square locations). Figures 1-7 also show the location of test excavations undertaken as part of the assessment for the EIS. The density of artefacts at each test excavation area will guide the selection of Phase 1 and Phase 2 salvage excavations. Table 1 also lists the environmentally sensitive areas (Threatened fauna habitat, threatened fauna species, threatened flora, threatened ecological communities (BC Act) and Non Aboriginal Heritage areas where relevant) in the immediate vicinity of the proposed salvage locations at each site, as identified on Figures 1-7.

Table 2 lists additional proposed mitigation measures where salvage works are proposed within or in close vicinity to the identified environmentally sensitive areas.

Table 1 –Aboriginal sites requiring salvage excavation and identified environmentally sensitive areas

Site Name	Salvage to occur in Environmentally Sensitive areas?	Nature and extent of impact at proposed Phase 2 salvage location(s)	Additional proposed mitigation measures
CCW	• None	No identified environmentally sensitive areas in vicinity of existing test square locations as shown on Figure 1. There is a small area of TEC (Swamp-Oak Floodplain Forest) located within this site, however salvage excavations will not be undertaken within the area of TEC at this site.	N/A
BWB	• Non Aboriginal Heritage • River-Flat Eucalypt Forest on Coastal Floodplains (TEC) • Swamp oak floodplain forest (TEC)	Salvage at the proposed Phase 2 location as shown on Figure 2 intersects an area of Non Aboriginal Heritage sensitivity (McGarvie Smith Farm). No structures associated with McGarvie Smith Farm are located within the salvage area. Upper limit of disturbance at proposed Phase 2 location is 50m^2. No identified items of Non Aboriginal Heritage would be impacted or affected by the salvage work. There is likely to be disturbance to the grasses and groundcovers in areas mapped as TEC in this location. At the access gate on the eastern side of this site, there is a number of *Eucalypt spp.* seedlings and young trees (up to about 1 metre high) that have grown through or are directly adjacent the gate. Opening the gate and moving required equipment to the investigation locations, is likely to result in impacts to these plants. The gate will only be moved as much as needed to pass equipment through to minimise impacts to these plants.	See Table 2
BCW	• Non Aboriginal Heritage • Cumberland Plain Woodland in the Sydney Basin Bioregion (TEC) • Grey Headed Flying Fox potential foraging habitat	Salvage at the proposed Phase 2 location as shown on Figure 3 intersects an area of Non Aboriginal Heritage sensitivity (McMasters Field Station/McMasters Farm). Upper limit of disturbance at proposed Phase 2 location is 100m^2. No identified items of Non Aboriginal Heritage would be impacted or affected by the salvage work. There is likely to be disturbance to the grasses and groundcovers in areas mapped as TEC (Cumberland Plain Woodland) at this site. Salvage will also occur in areas mapped as Grey Headed Flying Fox foraging habitat, however would be limited to ground disturbance only. There is a small area of River Flat Eucalypt Forest (TEC) and Cumberland Plain Land Snail habitat mapped at the east of the site. No salvage would be undertaken in this area.	See Table 2
SCW T1	• None	No identified environmentally sensitive areas in vicinity of proposed Phase 2 locations as shown on Figure 4.	N/A

SCW T2	• Non Aboriginal Heritage	Salvage at the proposed Phase 2 location as shown on Figure 4 intersects an area of Non Aboriginal Heritage sensitivity (Fleurs Radio Telescope site). Upper limit of disturbance at proposed Phase 2 location is 140m^2. No identified items of Non Aboriginal Heritage would be impacted or affected by the salvage work.	See Table 2
SCE	• Cumberland Plain Woodland in the Sydney Basin Bioregion (TEC) • Hollow Bearing Tree 10m buffer • Grey Headed Flying Fox potential foraging habitat	Salvage at the proposed Phase 2 locations as shown in Figure 5 intersects environmentally sensitive areas. Upper limit of disturbance at proposed Phase 2 locations (combined total) is 200m^2. There is likely to be disturbance to the grasses and groundcovers in areas mapped as TEC in this location. Salvage will also occur in areas mapped as Grey Headed Flying Fox foraging habitat, however would be limited to ground disturbance only.	See Table 2
KCW	• None	No identified environmentally sensitive areas in vicinity of existing test square locations as shown on Figure 6	N/A
CHRP	• Cumberland Plain Woodland in the Sydney Basin Bioregion (TEC) • Hollow Bearing Tree 10m buffer • Grey Headed Flying Fox potential foraging habitat • Grey Headed Flying Fox record 10m buffer	Salvage at the existing test square locations as shown in Figure 7 intersects environmentally sensitive areas. Upper limit of disturbance for Phase 2 excavation is 100m^2. There is likely to be disturbance to the grasses and groundcovers in areas mapped as TEC in this location. Salvage will also occur in areas mapped as Grey Headed Flying Fox foraging habitat, however would be limited to ground disturbance only.	See Table 2

Table 2 – Additional proposed mitigation measures

<table>
<tr><th>Sites</th><th>Additional Proposed Mitigation measures</th></tr>
<tr><td>BWB
BCW
SCW T2
SCE
CHRP</td><td>
General controls

Parking of vehicles and storage of equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees.
Works are not to harm threatened flora or fauna
Identify sensitive areas on Figures 1-7 where they are in proximity to the proposed salvage locations. Ensure workers are aware of sensitive area locations and know to avoid these areas.
Where excavation is expected to come within 10 metre buffer zones of identified sensitive areas (e.g. hollow bearing trees or trees within TEC), initiate exclusion zone protocol as follows:
Mark exclusion zones on a suitable plan as required to prevent damage to native vegetation and fauna habitats and prevent the distribution of pests, weeds and disease

Mark out exclusion zones on site with temporary markings such as pegs or paint and where possible use a qualified surveyor
Erect signs to inform personnel of the purpose of exclusion zone fencing
Ensure all exclusion zones are regularly inspected and repairs to fencing are made where required

Flora and fauna mitigation and management measures
Pits would be located in grassed areas. No trees or shrubs are expected to require removal or be otherwise impacted or affected by the salvage work.
Additional mitigation measures to be implemented are outlined below.
<table>
<tr><td>Vegetation</td><td>All archaeological salvage excavation will be planned and carried out within the Project boundary to ensure that there is no damage to any vegetation outside the specified clearing limits.</td></tr>
<tr><td>Vegetation</td><td>Damage or destruction of threatened flora species and trees which have been identified for preservation will be minimised by:
(i) installing fencing around trees clear of the canopy line
(ii) ensuring no materials are stockpiled and no vehicles are parked under the canopy
(iii) avoiding excavation or the placing of fill near any tree without advice from an ecologist
(iv) routing haul roads and access tracks clear of the canopy.</td></tr>
<tr><td>Weeds and pathogens</td><td>Works will be carried out such that no noxious weeds are imported to the site or around the site, including the washing of wheels of all plant prior to transportation to site.</td></tr>
<tr><td>Stockpile management</td><td>Stockpiles will be located outside of the tree protection zone of trees or native vegetation identified for retention. Tree protection zones will be delineated in accordance with AS 4970 – Protection of Trees on Development Sites.</td></tr>
<tr><td>Stockpile management</td><td>Stockpiles will be located at least 5 metres from likely areas of concentrated water flows and at least 10 metres from waterways that are classified as Class 1 and Class 2 from the DPI Fisheries guideline “Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings”.</td></tr>
</table>
Threatened flora or fauna species or TEC unexpectedly encountered during construction activities
If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the unexpected finds procedure outlined in Figure 10 of this JEA. The unexpected finds procedure is in accordance with TfNSW’s Biodiversity Guidelines: Protecting and Managing biodiversity on RTA projects and has been amended to be specific to the Aboriginal archaeological salvage.

Non-Aboriginal heritage (including at and in the vicinity of the Fleurs Radio Telescope Site)
If any unexpected heritage finds or sub-surface structures (e.g. cables) are identified during the salvage work, works will be stopped in the area. TfNSW will be notified immediately and further excavation work will not continue until TfNSW has provided instruction to do so.
</td></tr>
</table>

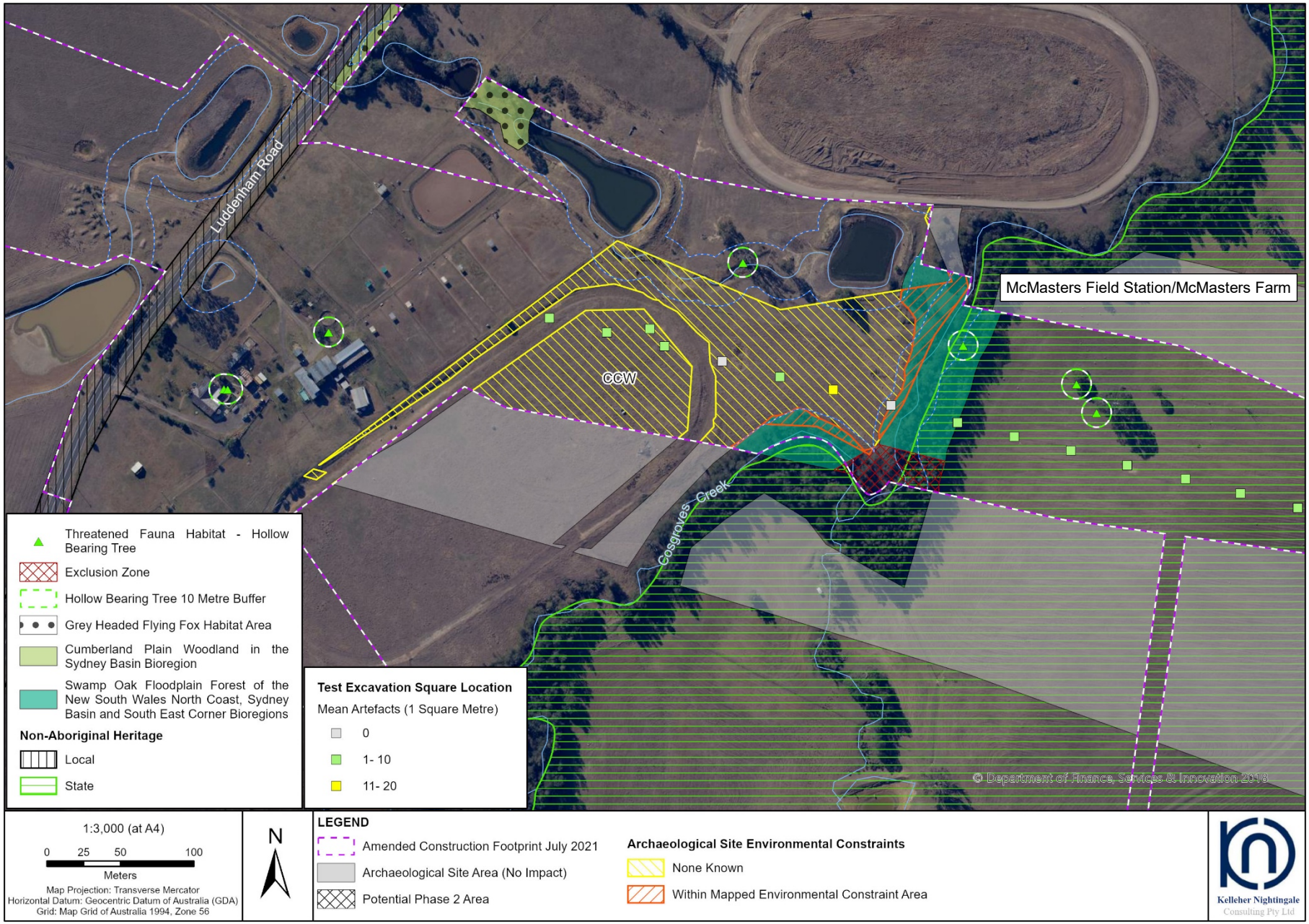


Figure 1. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal site CCW)
Note: Test excavation square locations previously undertaken during EIS

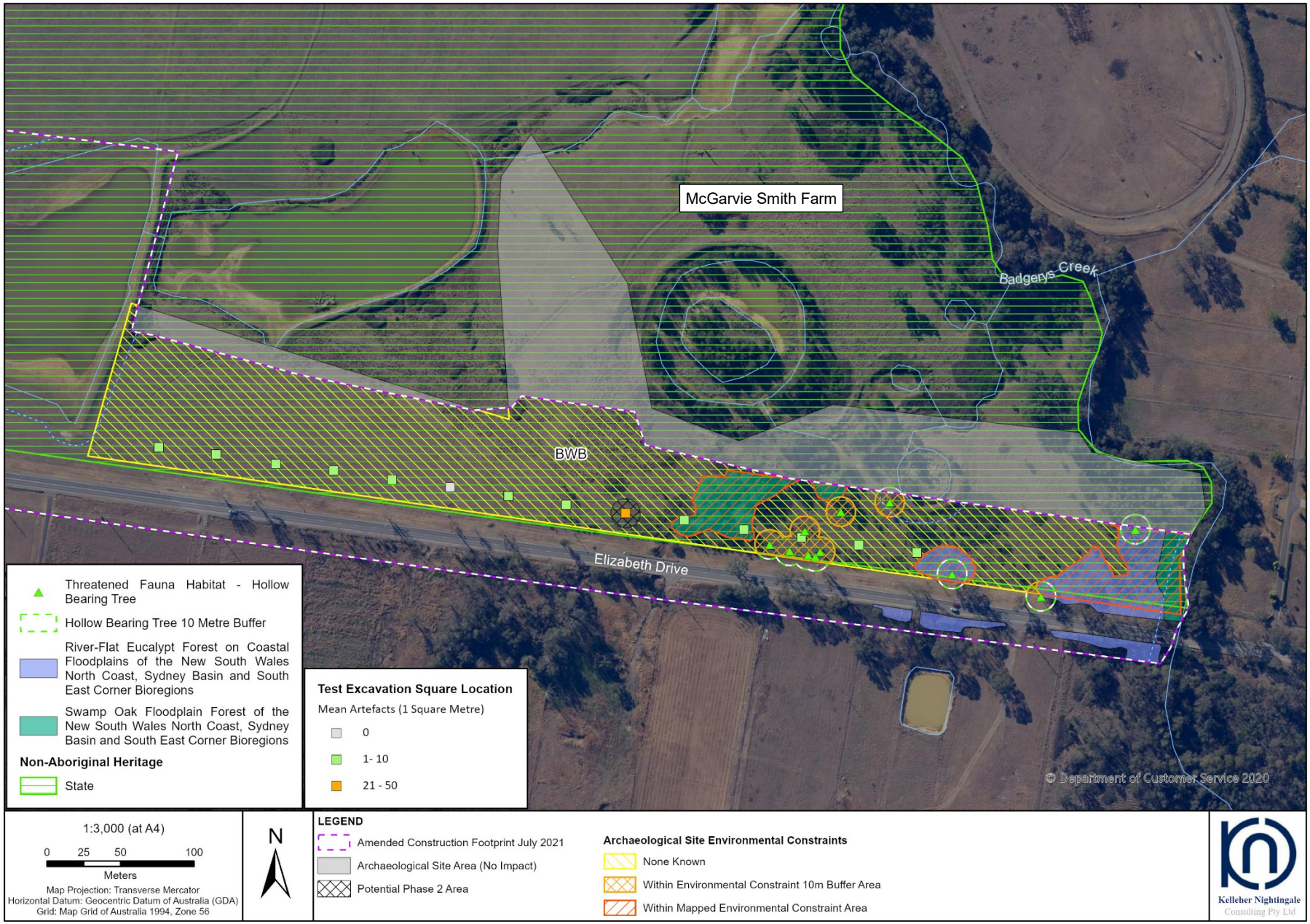


Figure 2. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal site BWB)
Note: Test excavation square locations previously undertaken during EIS

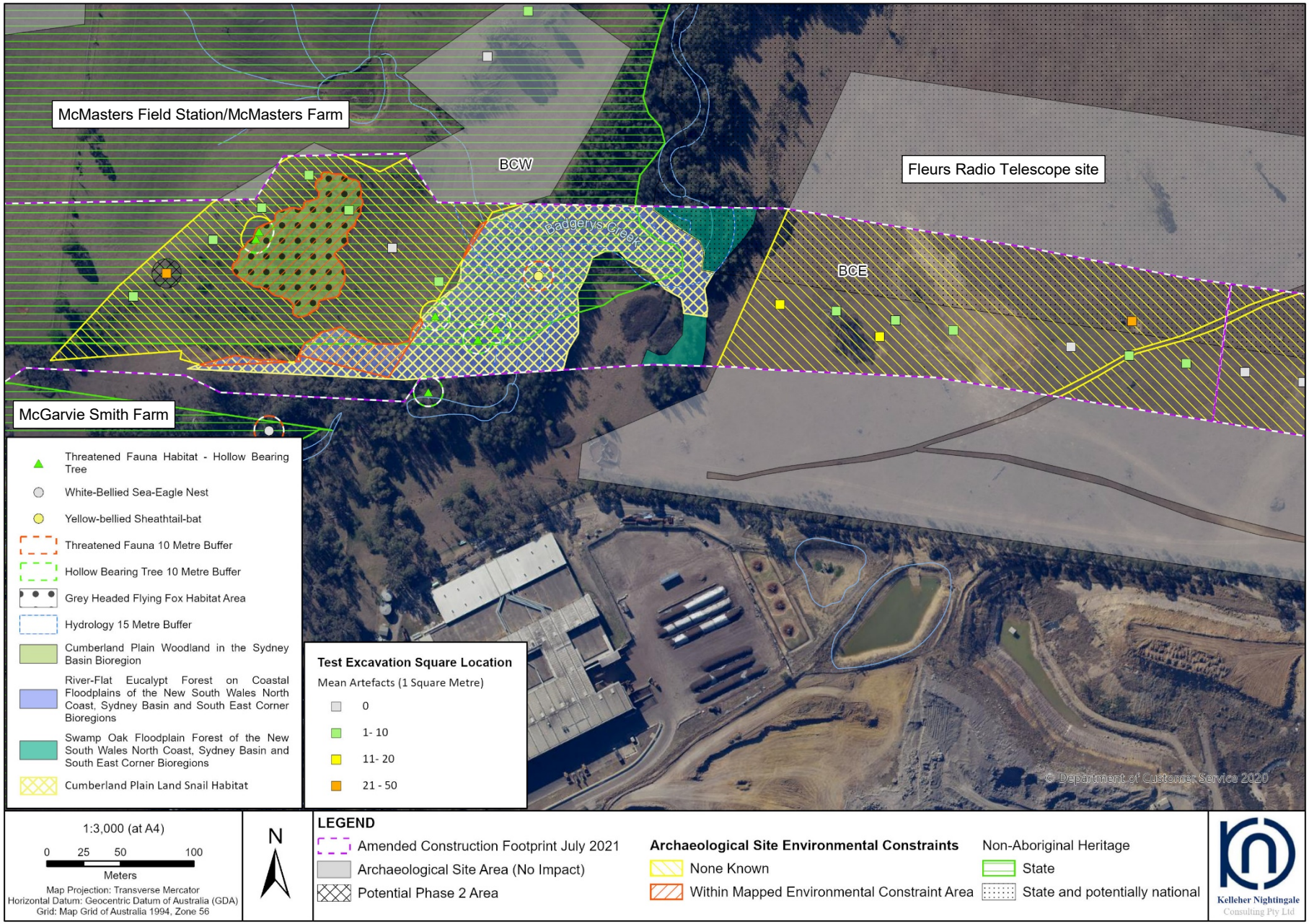


Figure 3. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal site BCW)
Note: Test excavation square locations previously undertaken during EIS

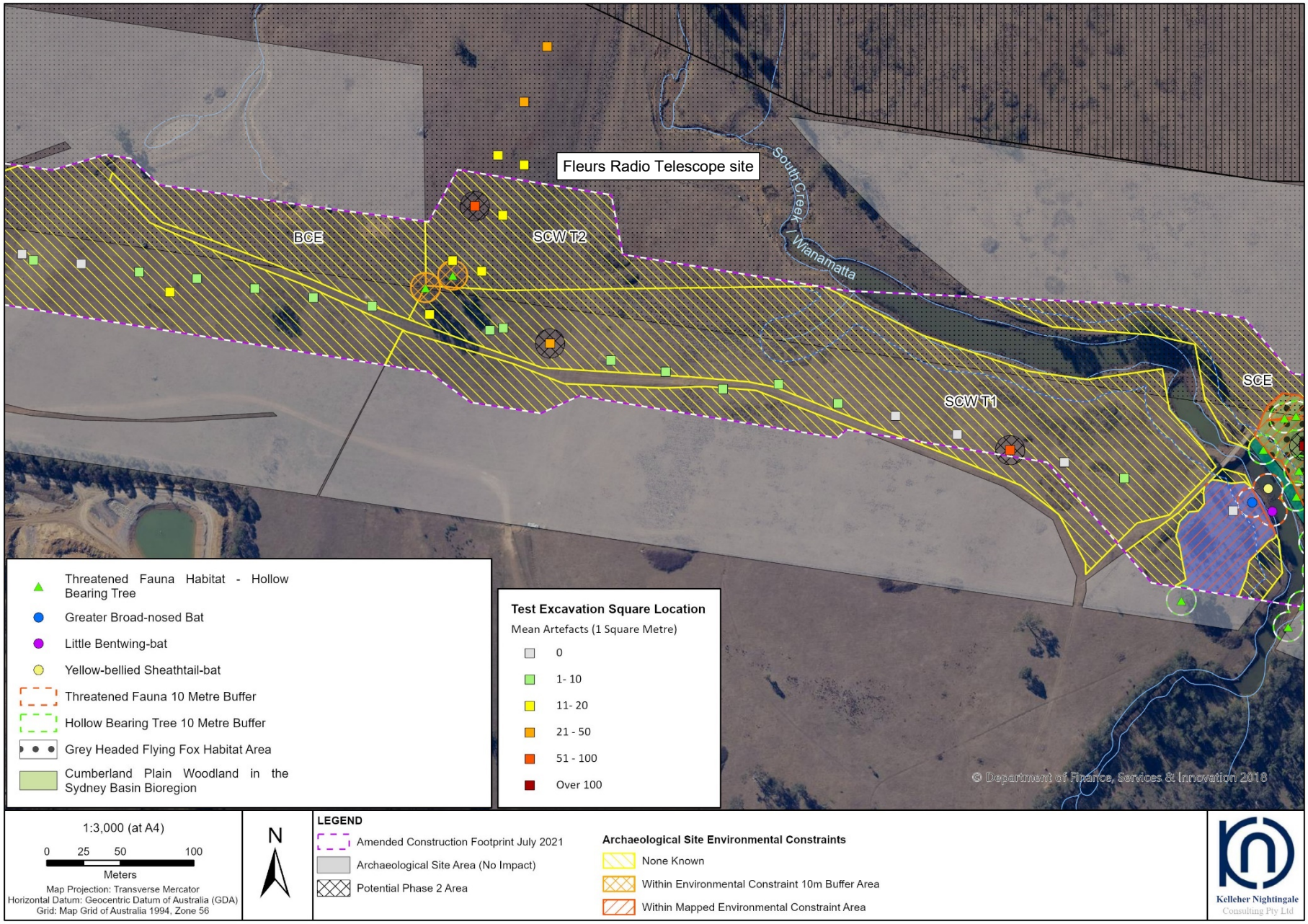


Figure 4. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal sites SCW T1 and SCW T2)
Note: Test excavation square locations previously undertaken during EIS

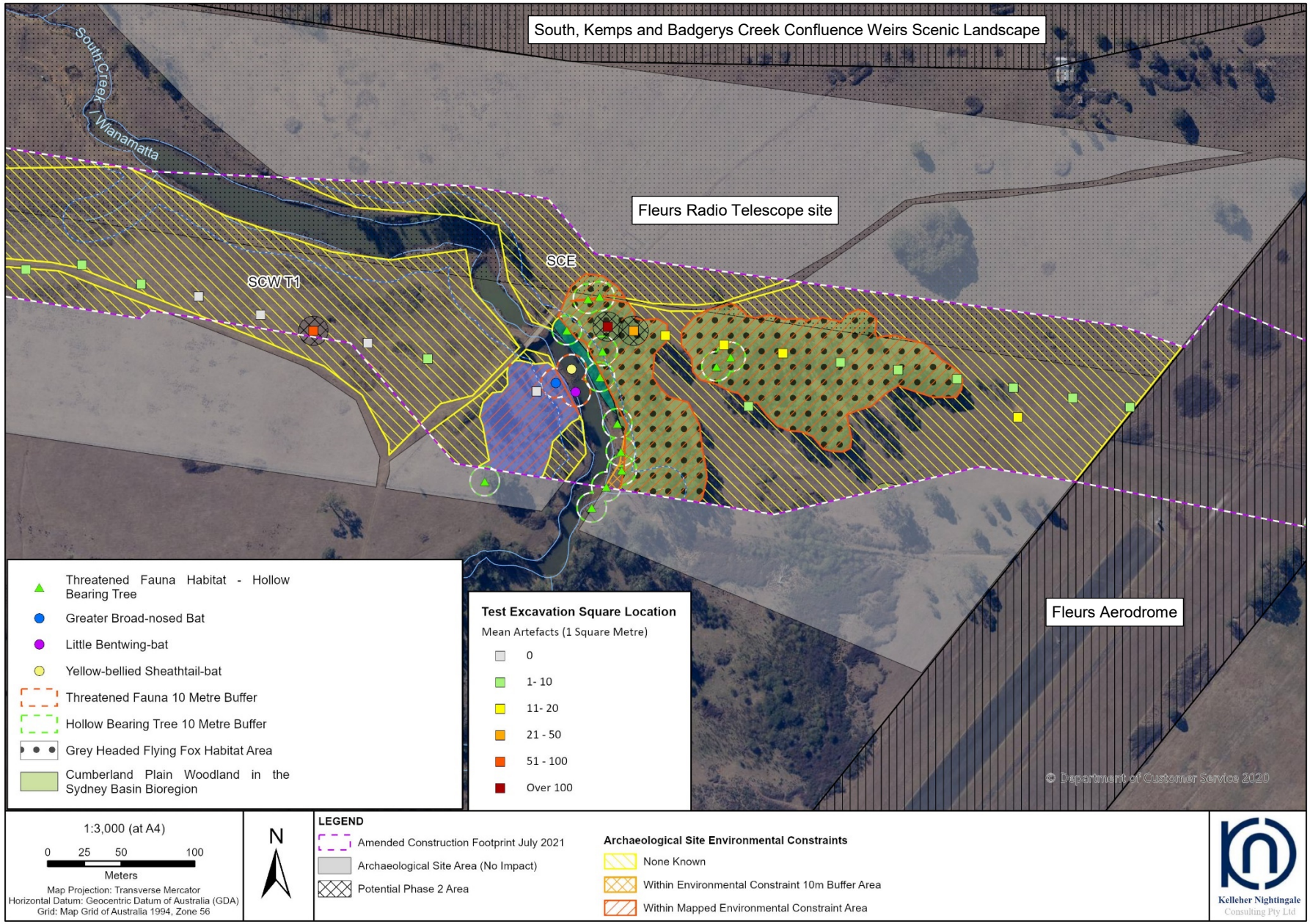


Figure 5. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal site SCE)
Note: Test excavation square locations previously undertaken during EIS

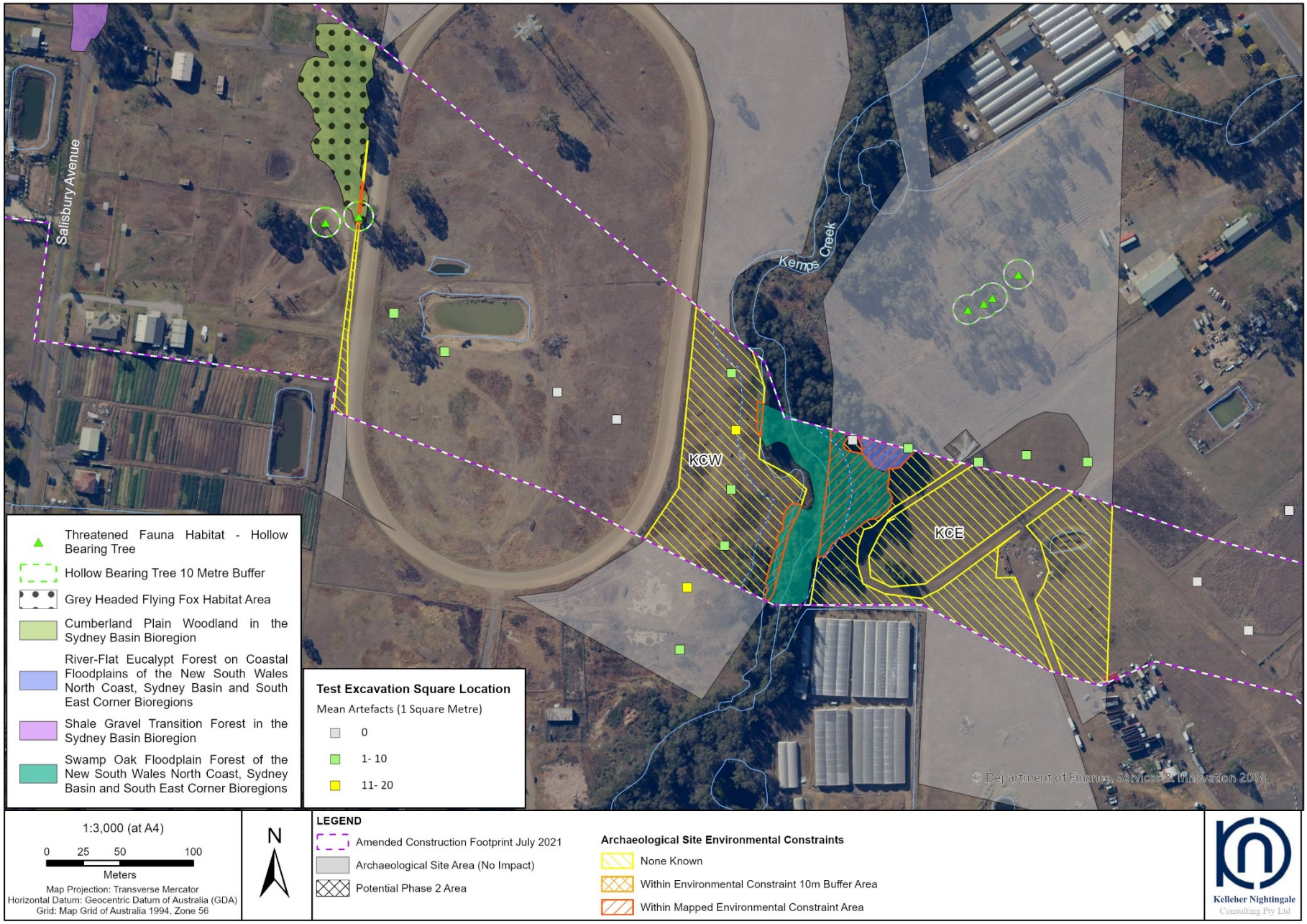


Figure 6. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal site KCW)
Note: Test excavation square locations previously undertaken during EIS

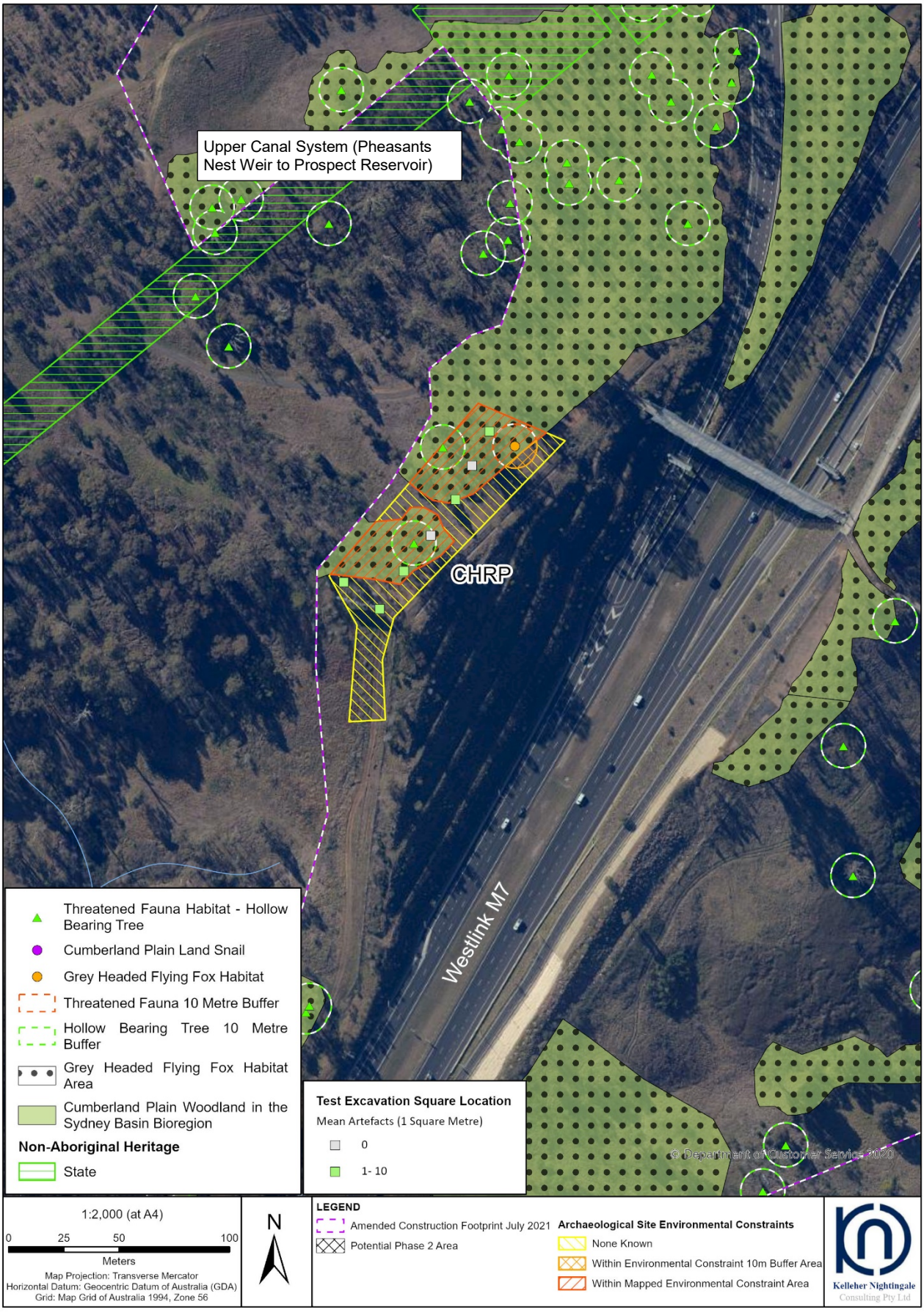
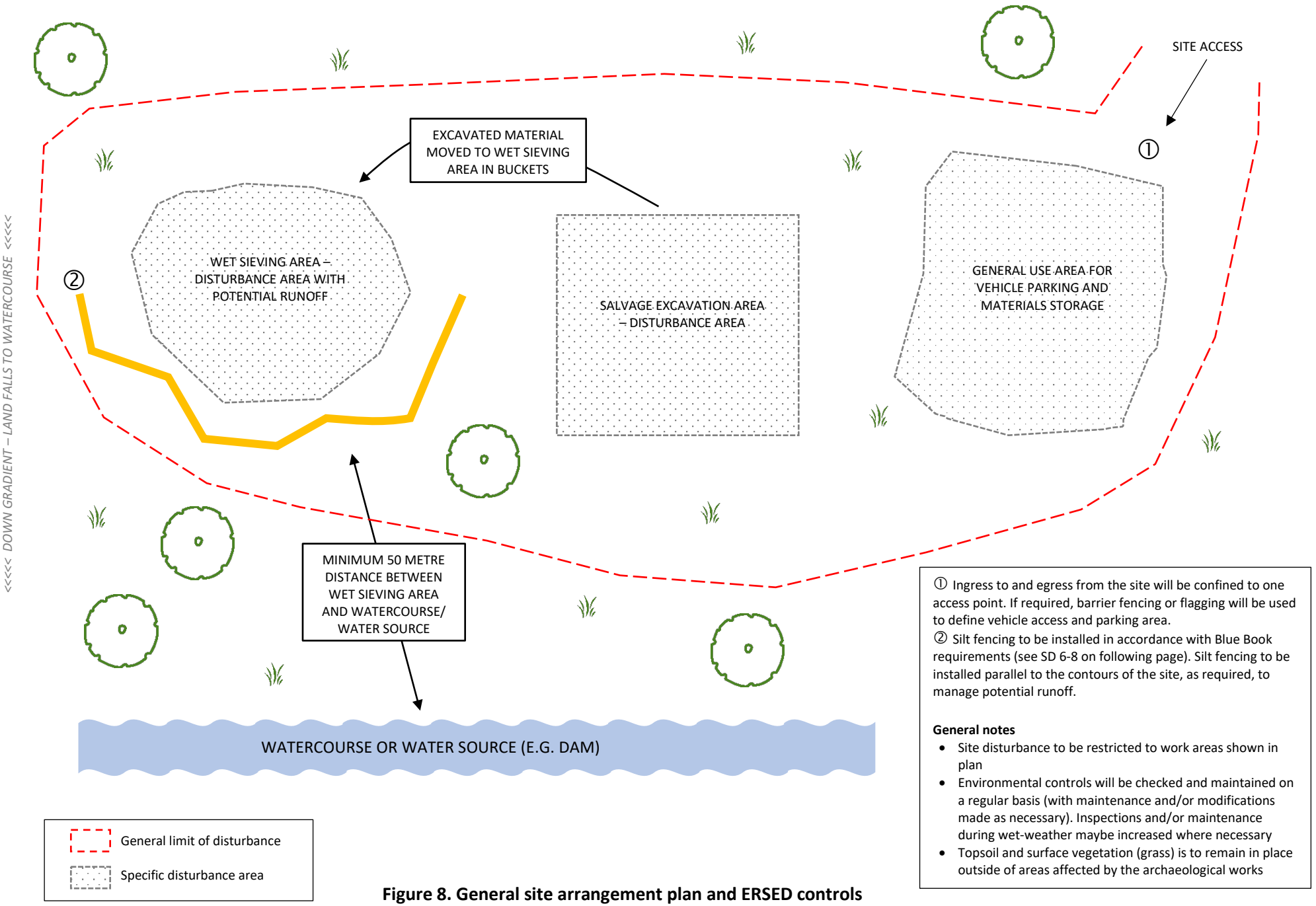


Figure 7. Aboriginal archaeological salvage and environmentally sensitive areas (Aboriginal site CHRP)
Note: Test excavation square locations previously undertaken during EIS

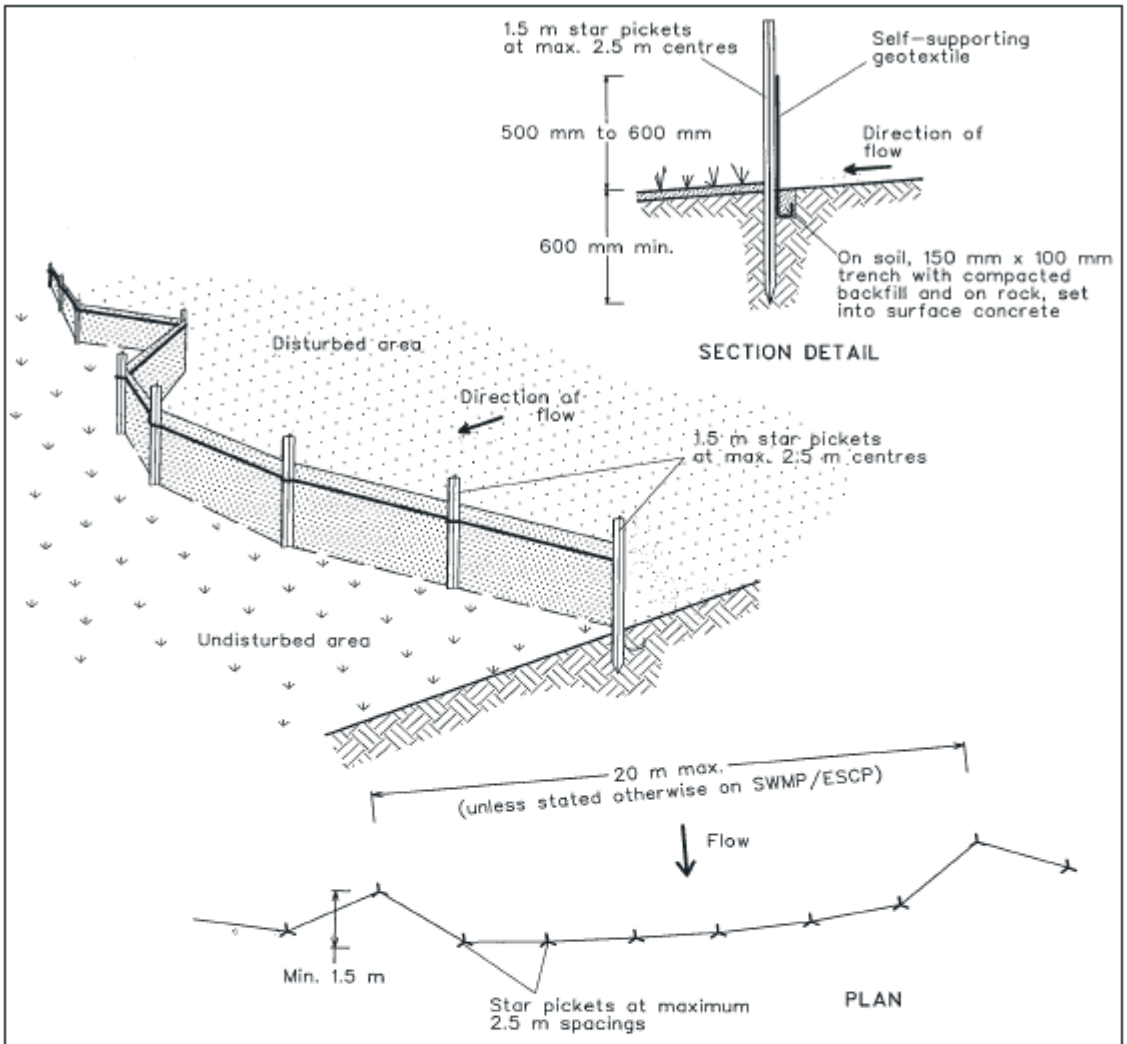


① Ingress to and egress from the site will be confined to one access point. If required, barrier fencing or flagging will be used to define vehicle access and parking area.
② Silt fencing to be installed in accordance with Blue Book requirements (see SD 6-8 on following page). Silt fencing to be installed parallel to the contours of the site, as required, to manage potential runoff.

General notes

- Site disturbance to be restricted to work areas shown in plan
- Environmental controls will be checked and maintained on a regular basis (with maintenance and/or modifications made as necessary). Inspections and/or maintenance during wet-weather maybe increased where necessary
- Topsoil and surface vegetation (grass) is to remain in place outside of areas affected by the archaeological works

Figure 8. General site arrangement plan and ERSED controls



Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE **SD 6-8**

Figure 9: Requirements for silt/sediment fencing at wet sieving area.
Standard drawing 6-8, NSW Government "Blue Book" *Managing Urban Stormwater: Soils and Construction*

Unexpected finds procedure for threatened flora, threatened fauna and TEC

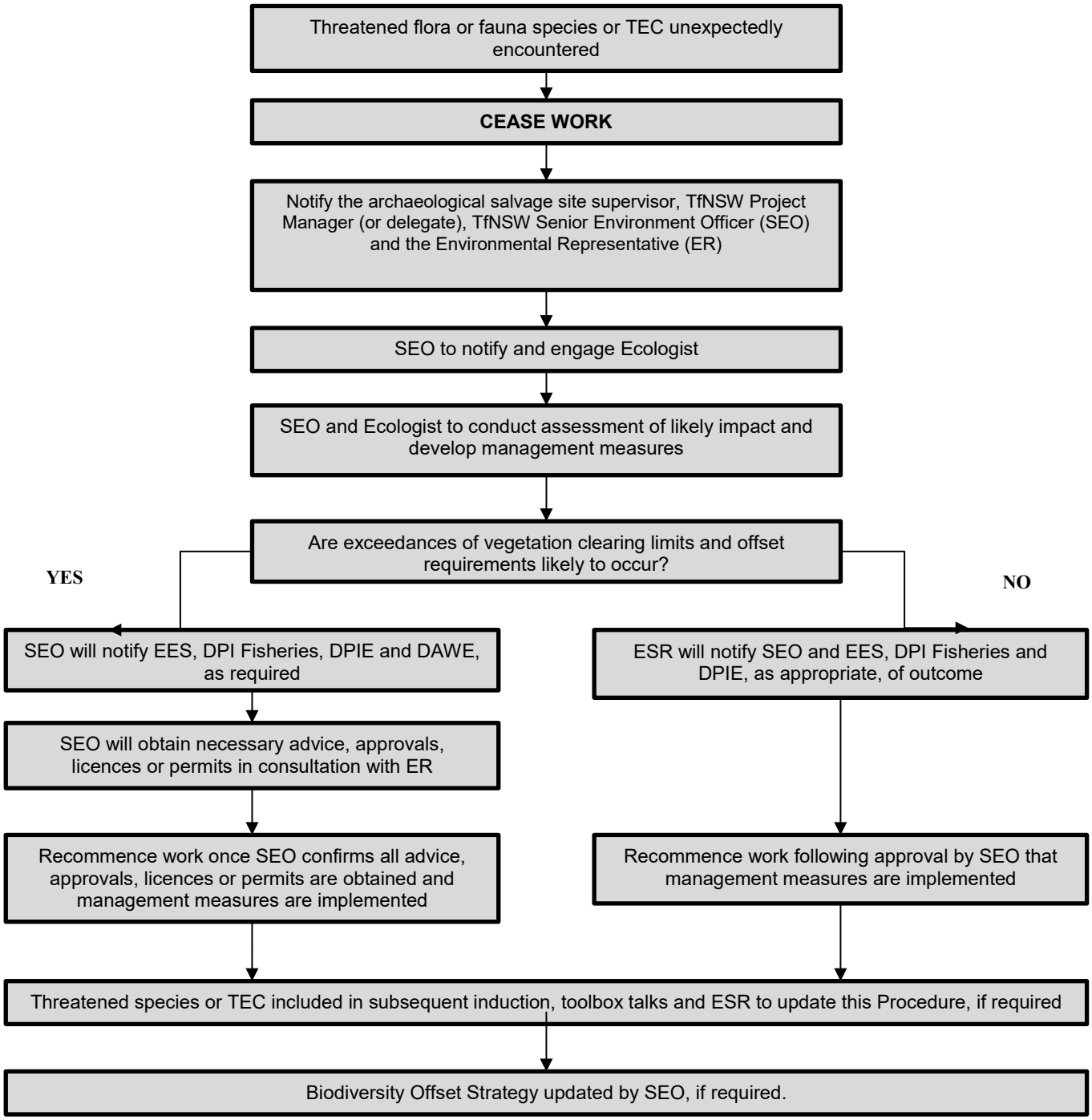


Figure 10: Procedure in the event that threatened flora or fauna species or TEC is unexpectedly discovered on site

Attachment B – EES consultation

Planning, Industry & Environment

Our ref: DOC21/916060

Shannon Schofield
Senior Environment and Sustainability Officer
Sydney Infrastructure Development
Transport for NSW
27 Argyle Street
Parramatta NSW 2150

Subject: M12 Motorway – Job Environmental Analysis – Aboriginal Archaeological Salvage

Thank you for your email received 18 October 2021 requesting comment from Environment Energy and Science (EES) regarding the M12 Motorway – Job Environmental Analysis – Aboriginal Archaeological Salvage prepared in accordance with Conditions of Approval for the M12 Motorway (SSI 9364).

EES has reviewed the Job Environmental Analysis for archaeological salvage prepared by Kelleher Nightingale Consulting Pty Ltd (dated 11/10/2021) and raises no comments or concerns in relation the potential biodiversity impacts and proposed mitigation measures identified.

Should you have any queries regarding this matter, please contact Shaun Hunt, Senior Conservation Planning Officer via shaun.hunt@environment.nsw.gov.au or 02 8275 1617.

Yours sincerely

S. Harrison

27/10/21

Susan Harrison

Senior Team Leader Planning
Greater Sydney Branch
Biodiversity and Conservation