

Guide to Preparing a Review of Environmental Factors (REF)

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About this Guide

Hi, I'm Dr Emma McIntyre, an environmental scientist and GIS consultant who specialises in streamlining environmental projects for a wide range of clients.

I have over 20 years' experience working with local government, state government, utilities, mining companies and private businesses to prepare Review of Environmental Factors (REF) reports for a wide range of projects.

I have prepared this *Guide to Preparing a Review of Environmental Factors (REF)* to hopefully answer some common questions around this type of environmental impact assessment.

Please see my website for other resources that may assist you, including a generic REF template and links to resources to help you complete your assessment.

Happy reading!

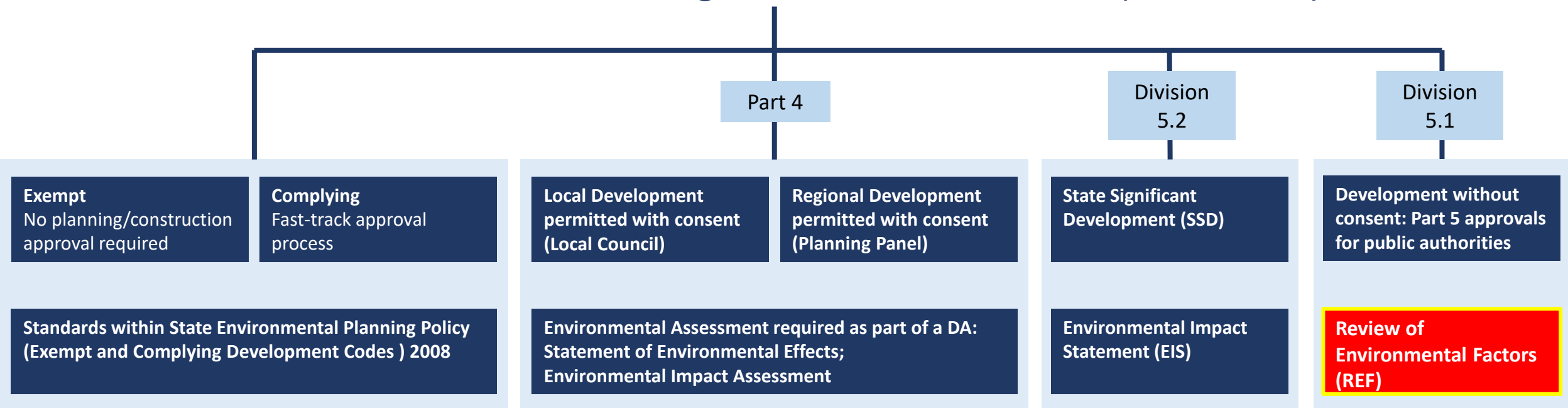
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When is an REF required?

Guided by legislation:

NSW Environmental Planning and Assessment Act (EP&A Act) 1979



Next slide

When is an REF required?

Activity to be assessed under Part 5 of EP&A Act

Yes

Is the proposal an 'activity'?

Yes

Is the 'proponent' also the 'determining authority'?

Yes

Prepare an REF

'Activity' is defined in the EP&A Act as:

- the use of land;
- the subdivision of land;
- the erection of a building;
- the carrying out of a work;
- the demolition of a building or work.

'Proponent' is defined as the person proposing to carry out the activity

'Determining Authority' means the Minister or public authority whose approval is required in order for the activity to be carried out.

- The type of environmental impact assessment required under Division 5.1 of the EP&A Act.
- Examines the **potential environmental impacts** of a proposed activity.
- Factors that must be assessed are defined in s228 of the *Environmental Planning and Assessment Regulation 2000*.
- Risk-based assessment which considers:
 - The location and existing environmental factors of the proposed activity;
 - The potential impacts for the proposed activity on those environmental factors;
 - Potential for successful impact mitigation;
 - Community and stakeholder expectations.

Step 1: Define the subject site/ study area for the REF:

- Site of the proposed activity;
- Consider need for access to site, site compounds etc;
- Consider allowing for a “buffer” to assess all potential impacts.

Example: REF Study Area includes proposed fence replacement alongside the road, as well as site compound area and buffer.



Step 2: Data Audit

- Cadastre details
- LEP zoning and overlays (eg flood prone land, riparian land, ecological sensitivity, heritage items, potential contaminated land)
- SEPPs (SEPP Infrastructure, Coastal SEPP, Koala Habitat)
- Soils: soil types, soil salinity, potential acid sulfate soils
- Biodiversity: Vegetation communities, endangered ecological communities, threatened species records
- Heritage: Aboriginal and non-Aboriginal heritage

See the “REF Data Audit Checklist” on my website

Step 3: Database searches

- NSW Bionet Atlas:

https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx

- EPBC Protected Matters:

<https://www.environment.gov.au/epbc/protected-matters-search-tool>

- SVTM/VIS Mapping:

<https://www.environment.nsw.gov.au/vegetation/state-vegetation-type-map.htm>

- AHIMS Search

<https://www.environment.nsw.gov.au/awssapp/login.aspx>

See “Help with REF Database searches” on my website

Step 4: Consider Existing Environment & Impact Assessment

1. Landform, Geology and Soils

- Describe the geology and soil types, slope, overall topography
- Will the works require excavation or land disturbance? If so how big an area is likely to be disturbed?
- Will the works result in permanent changes to surface slope or topography?
- Is there a potential risk of soil erosion?
- Is there potential for works to encounter any contaminated material?
- Are there acid sulfate soils within or near your work area? Could the proposed works result in disturbance of acid sulfate soils?

Step 4: Consider Existing Environment & Impact Assessment

2. Water Quality and Hydrology

- Are the works located near a waterway?
- Do the works involve a creek crossing?
- Are the works located within a floodplain and/or land identified as flood prone land?
- Will the works intercept groundwater?
- Which catchment is the proposed activity in, and where does the site drain to?
- Is a Controlled Activity Approval (under *Water Management Act 2000*) required?

Step 4: Consider Existing Environment & Impact Assessment

3. Biodiversity

(i) Records within 10km of study area of:

- Threatened Flora;
- Threatened Fauna;
- Vegetation Communities and Endangered Ecological Communities.

(Sources: NSW Bionet Atlas search; EPBC Protected Matters Search)

(ii) Consider:

- The likelihood of each species to occur within the vicinity of the subject site- based on available habitat;
- The potential impact of the proposed activity on these species.
- The requirement for a *Test of Significance* under s7.3 of the *Biodiversity Conservation Act 2016*.

Step 4: Consider Existing Environment & Impact Assessment

4. Aboriginal Heritage

- Consider if there are any Aboriginal objects or sites in the vicinity of the subject site;
- Is the proposed activity a 'low impact activity'?
- Is an AHIP required?

(Source: AHIMS search)

Step 4: Consider Existing Environment & Impact Assessment

5. Non-Aboriginal Heritage

- Consider if there are any non-Aboriginal heritage sites in the vicinity of the subject site;
- Will the proposed activity have any impact on these sites?

(Source: LEP Heritage layer, State Heritage Register)

Step 4: Consider Existing Environment & Impact Assessment

6. Noise and Vibration

- What are the sources of noise/vibration of the proposed activity?
- Are the works to be undertaken during standard work hours?
 - Monday to Friday 7am-6pm
 - Saturday 8am-1pm
 - Sundays and Public Holidays: No work
- Are there residential properties or other sensitive land uses or areas that may be affected by noise from the proposal during construction? (ie schools, nursing homes, residential areas)

Step 4: Consider Existing Environment & Impact Assessment

7. Air Quality

- Could the works result in dust generation?
- Could the works generate odours (during construction or operation)?
- Will the works involve use of fuel driven heavy machinery or equipment?
- Are the works located in an area or adjacent to land uses that may be highly sensitive to dust, odours, or emissions? (eg schools, hospitals, nursing homes)

Step 4: Consider Existing Environment & Impact Assessment

8. Waste and Chemical Management

- Identify sources of waste generated during the proposed activity.
- What types and volumes of waste are anticipated?
- Where and how will they be disposed?

Step 4: Consider Existing Environment & Impact Assessment

9. Traffic and Access

- Will traffic and/or pedestrian access be affected by the proposed activity?
- Will access to private properties be affected?
- What will be the duration of any disturbance?
- Consider who may need to be notified.

Step 4: Consider Existing Environment & Impact Assessment

10. Visual Amenity/ Landscape

- Will the proposed activity affect the visual amenity and/or landscape?
- What will be the timeframe/duration of any impact?
- Who will need to be notified?

Step 4: Consider Existing Environment & Impact Assessment

11. Socio-Economic Factors

- Will the proposed activity affect local residents or the wider local community?

Step 4: Consider Existing Environment & Impact Assessment

12. Cumulative Impacts

- Are there any other works happening in the vicinity of the proposed activity?
- What will be the cumulative impact on the region?

Step 5: Clause 228 Factors

- Complete the table to satisfy requirements of s22 of the EP&A Regulation.

Note: this table may form an appendix to your REF document.

Step 6: Environmental Safeguards and Mitigation Measures

- Consider the Standard Environmental Safeguards to be implemented by your organisation;
- List any additional mitigation measures to be implemented to address potential impacts identified.

See “Safeguards and Mitigation Measures” on my website

Step 7: Consultation

- Consider which stakeholders need to be consulted;
- Guided by ISEPP;
- Consult with internal Council environmental officer.



Step 8: Conclusion

- Provide a brief summary of the findings of the REF;
- Consider whether:
 - There is likely to be a significant impact on the environment (if so, an EIS is required);
 - There is likely to be a significant effect of threatened species, populations, ecological communities or their habitats (if so, an SIS is required);
 - The activity is in respect of land that is, or is part of, critical habitat (if so an SIS is required).

Step 9: REF Determination

- Declaration by the proponent that the information contained in the REF is neither false nor misleading;
- Acknowledgement by the person who prepared the REF that all potential impacts of the proposed activity have been assessed to the fullest extent possible.

A Final Note

- Ensure you have covered all items on the REF Checklist
- Have you assessed to the fullest extent possible all potential impacts of your proposed activity?
- Do you need to refer the proposed activity to any other agencies, or do you need any additional specialist assessments?

Contact me for more information
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