



Erosion and Sedimentation Management Procedure

1 Introduction

Erosion and sedimentation management is a critical compliance issue for all main road construction projects. Construction activities can disturb soils, change landforms and alter natural drainage patterns. These disturbances, if not managed properly throughout all stages of a project, can result in soil erosion and subsequent water pollution which may impact on surrounding environments.

The RTA is committed to improved performance in erosion and sedimentation control. The use of this procedure meets part of the RTA Chief Executive's (CE's) commitments to the Director-General Department of Environment, Climate Change and Water regarding improving performance in erosion and sedimentation control. The use of this procedure assists with fulfilling the RTA CE's commitments to:

1. Develop a procedure to identify high risk erosion and sedimentation control projects in the concept phase of project development.
2. Establish a Panel of soil conservation consultants to assist with the management of identified high risk projects.
3. Develop a process to inform the NSW Department of Environment, Climate Change and Water (DECCW) of identified high risk projects for erosion and sedimentation control prior to construction works commencing.

Breaches of environmental legislation are likely to occur at sites where appropriate controls for high risk areas have not been identified, and constraints to the installation of designed controls have not been considered prior to construction. Once construction has commenced retrofitting of erosion and sedimentation controls to properly manage site constraints can be complex, time consuming and expensive.

Early identification of high risk areas and activities provides for the detailed assessment of risks, opportunities to eliminate risks, and the development of practical and effective mitigation measures for risks that cannot be eliminated.

Application of this Procedure

This procedure is to be applied to all major infrastructure development projects that are managed through RTA ProjectPack. This is generally projects that exceed \$10 million in contract value or projects that exceed \$5 million and have been identified as high risk or complex (following ProjectPack Procedure ICLMI-TPO-201). This procedure may be applied to any other main road construction project that has been identified as potentially high risk for erosion and sedimentation control by the Project Development Manager or the Senior Environmental Officer/Environmental Services Manager.

2 Objectives

The primary objective of this procedure is to provide a framework to identify, eliminate and mitigate erosion and sedimentation risks associated with RTA road development and upgrade projects. The objectives of this procedure are to:

- Identify projects that pose a high risk for erosion and sedimentation control as early as possible in project development.

- Plan and develop preliminary designs for erosion and sediment controls and management measures in the concept phase for high risk projects.
- Identify risks, being potential constraints to the implementation of planned erosion and sedimentation controls.
- Eliminate risks where possible.
- Develop mitigation measures to manage risks that cannot be eliminated as part of the design.
- Ensure professional expertise is used from the RTA Panel of Registered Soil Conservation Consultants to assist project development teams on high risk projects.
- Inform the environmental impact assessment and detailed design phases.
- Ensure that projects with high risks have enhanced management including the use of RTA Registered Soil Conservation Consultants during the construction phase.
- Inform the NSW DECCW of projects with high risk before construction works start.
- Promote effective transfer of knowledge between the concept, detailed design, construction and operational phases of a project.

3 Relevant Policy and Performance Standards

This procedure relates to:

- RTA's Environmental Policy Statement.
- NSW Protection of the Environment Operations Act 1997 (POEO Act).
- Managing Urban Stormwater – Soils and Construction, Volume 1, 4th edition, (Landcom, 2004) – Blue Book 1.
- Managing Urban Stormwater – Soils and Construction, Volume 2D, Main Road Construction (DECCW, 2009) – Blue Book 2.

4 Requirements of this Procedure

A flowchart of this procedure's requirements at each project phase is shown in Figure 1. The requirements are summarised below.

4.1 Concept stage

4.1.1 Preliminary Erosion and Sedimentation Assessment (PESA - Attachments 1a and 1b)

Project Development Managers must complete the PESA, in consultation with the Senior Environment Officer or Environmental Services Manager, to determine if the project poses a high risk for erosion and sedimentation control. This assessment is used to identify projects that require specialised expertise to assist with designing controls and assessing risk.

Projects that are identified as high risk in the PESA require the appointment of a Soil Conservation Consultant to assist in the preparation of an Erosion and Sedimentation Management Report (ESMR - see Section 4.1.2).

Projects that are assessed as not posing a high risk in the PESA are not required to contract a Soil Conservation Consultant to complete an ESMR in the concept phase. Erosion and sedimentation risk for these projects will be further assessed in the environmental impact assessment and controls will be designed as part of the primary and progressive Erosion and Sedimentation Control Plans for all works.

Purpose

The PESA is a screening tool to ensure that potentially high risk projects are identified as early as possible in project development. The PESA identifies projects that require additional consideration of erosion and

sedimentation control design in the concept phase to ensure that constraints are identified early and can be eliminated or mitigated through concept design and detailed design before the project is commenced.

The appointment of a RTA Registered Soil Conservation Consultant provides expertise to the project development team to ensure that controls are designed to the requirements of the Blue Book. The Registered Soil Conservation Consultant also provides specific experience to determine if controls are going to be effective in the construction phase.

4.1.2 Specification for Concept Phase Erosion and Sedimentation Control Design (Attachment 2)

All projects that are identified as posing high risk in the PESA must contract a RTA Registered Soil Conservation Consultant to work with the concept design team to prepare preliminary design of major erosion and sedimentation controls, assess erosion and sedimentation risks in the design, and methods to eliminate and mitigate risks.

Purpose

- To contract an expert soil conservation consultant from the RTA Panel to work with the concept design team.
- To develop concept designs for major erosion and sedimentation control measures. Major control measures will include:
 - Up-gradient stormwater diversions to ensure clean water does not enter the construction site.
 - Temporary cross drainage to transfer clean water through and/or around the site through all construction phases.
 - Sedimentation basins, as required, designed in accordance with the sizing criteria in Blue Book 2d (eg: 80/85th percentile 5-day rainfall event capture for non-sensitive/sensitive receiving environments – consideration may be given to designing larger sedimentation basins to manage runoff to particularly sensitive receiving environments or for particularly high risk activities).
- To assess constraints (risks) to the installation and operation of major controls through all construction phases.
- To eliminate risks where possible.
- To design preliminary compensatory measures where risks cannot be eliminated.
- To report the findings in an Erosion and Sedimentation Management Report.

The project development team must review the report to ensure that proposed controls and strategies can be effectively implemented on the construction site. The project development team can then work with the soil conservation consultant to eliminate risks where possible (eg purchase/lease adequate land to construct designed sedimentation controls such as temporary basins).

Where risks cannot be eliminated, alternative mitigation measures must be designed and documented to manage the risk. This may include augmentation of erosion controls in specific sub-catchments where designed controls cannot be installed due to constraints (eg where land is not available to construct a sedimentation basin).

The soil conservation consultant will prepare an Erosion and Sedimentation Management Report (ESMR). The ESMR will describe:

- The risk management process used (ie workshops, meetings or other)
- The design documentation used in the risk assessment (eg drawings used and dates of drawings)
- The control measures recommended to manage identified risks.

The ESMR will provide detailed information on erosion and sedimentation management to subsequent phases of the project including:

- Environmental impact assessment (EIA).
- Project Environmental Management Plan implemented through:

- Detailed design
- Tendering
- Construction.

4.2 Environmental Impact Assessment (EIA)

The PESA and ESMR are to be provided to the team preparing the EIA. This will ensure that detailed information is provided on the sensitivity of the receiving environment, erosion and sedimentation risks and proposed mitigation measures.

When describing mitigation measures in the EIA, It should be noted that the concept designs provided in the ESMR have been prepared for concept phase risk assessment purposes and that innovation through detailed design and construction planning may result in design changes.

4.3 Detailed Design Phase

The ESMR identifies the preliminary erosion and sedimentation control design and where risks require further management. The detailed design team should ensure that the preliminary erosion and sedimentation control design can be implemented in the construction phase as changes are made to the design. The detailed design team should consider all identified risks and work to eliminate them through design changes where possible.

4.3.1 20% Detailed Design Stage Assessment (Attachment 3)

The 20% Detailed Design Stage Assessment is to be completed by the Project Implementation Manager for all projects where an ESMR was developed in the concept phase.

The 20% Detailed Design Stage Assessment must take into account changes that have been made during the detailed design of the project. Projects that have been able to eliminate risks by making designed controls effective may be no longer classed as high risk. During detailed design, requirements for construction staging may have restricted the effectiveness of some controls and the project may be assessed as high risk.

Projects assessed as having high risk in the 20% Detailed Design Stage Assessment must:

- Work to eliminate risks through detailed design.
- Clearly describe the mitigation measures required during construction to manage risks that cannot be eliminated,

4.3.2 80% Detailed Design Stage Assessment (Attachment 4a)

The 80% Detailed Design Stage Assessment is to be completed by the Project Implementation Manager for all projects where an ESMR was developed in the concept phase.

The 80% Detailed Design Stage Assessment must take into account changes that have been made during the detailed design of the project. Projects that have been able to eliminate risks by making designed controls effective may be no longer classed as high risk. During detailed design, requirements for construction staging may have restricted the effectiveness of some controls and the project may change to high risk.

Projects assessed as having high risk in the 80% Detailed Design Stage Assessment must:

- Clearly describe the mitigation measures required during construction to manage the risks.
- Contract a RTA registered soil conservation consultant to provide an enhanced level of site management for in the construction phase. The model scope of works is outlined in Attachment 4b.
- Notify the NSW DECC that the project is high risk on the award of tender. A pro-forma DECC notification letter is included as Attachment 4c.
- Notify the RTA's Senior Environmental Specialist (Land Management) for inclusion on the RTA register of high risk projects.

5 Attachments

- Attachment 1a – Preliminary Erosion and Sedimentation Assessment
- Attachment 1b – Assessment of Erosion Hazard
- Attachment 2 – RTA Model Scope of Works for Erosion and Sedimentation Management Report
- Attachment 3 – 20% Detailed Design Stage Requirements
- Attachment 4a – 80% Detailed Design Stage Requirements
- Attachment 4b – Model Scope of Works for RTA Registered Soil Conservation Consultants
- Attachment 4c – Pro-Forma DECC High Risk Project Notification Letter

6 Definitions and Acronyms

CEMP / PEMP	Contractor / Construction / Project Environmental Management Plan
DCM	Design, construct and maintain contract
DECCW	Department of Environment, Climate Change and Water
DoP	Department of Planning
EIA	Environmental Impact Assessment
ESCP	Erosion and Sediment Control Plan
ESMR	Erosion and Sedimentation Management Report
PDM	Project Development Manager
PESA	Preliminary Erosion and Sedimentation Assessment
PMI	Project Manager Implementation
SEO	Senior Environmental Officer

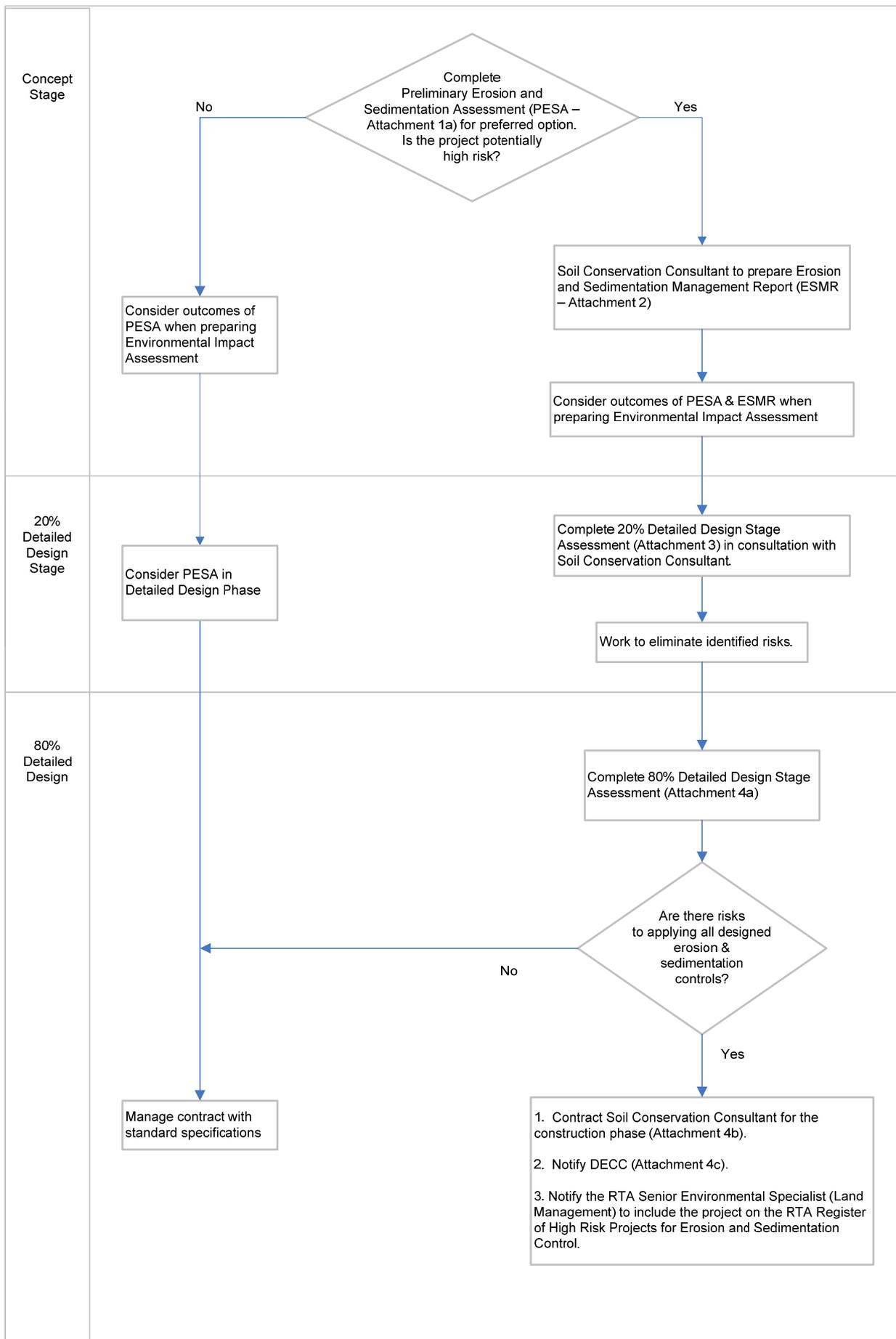


Figure 1: RTA's Project Erosion and Sedimentation Management Overview

Attachment 1a: Preliminary Erosion and Sedimentation Assessment

This assessment is to be completed in the concept design phase by the Project Development Manager (PDM) in consultation with the Senior Environment Officer (SEO) or Environmental Services Manager (ESM). If the answer to any of the questions is "Yes", the project is considered potentially high risk and a soil conservation consultant is to be engaged in the concept design phase to prepare an Erosion and Sedimentation Management Report.

Table 1a.1: Preliminary Erosion and Sedimentation Assessment

Project Name:		Project Location and Size:	
Estimated Timing / Duration of Works:		Description of Works:	
Triggers		Yes / No	Comments to support decision
1. Does the complexity or size of the project result in it being inherently high risk as ongoing installation and maintenance of controls will require extensive coordinated resources? (Note: This question allows PDMs to quickly classify some major projects as potentially high risk. An answer of 'Yes' provides the opportunity to proceed directly to appoint of a soil conservation consultant without further assessment).			
2. Assess the erosion hazard of each catchment area to be disturbed for the proposed project using Attachment 1b. Are any of the proposed construction areas defined as "High Erosion Hazard"?			
3. Are there known site constraints that limit the implementation of appropriate erosion and sedimentation control measures? - For example (but not limited to); are sedimentation controls such as basins required in locations where land is not available?			
4. Are there identified sensitive receiving environments that will receive stormwater discharge from the construction project? Examples of sensitive environments include: <ul style="list-style-type: none"> • Listed wetland (SEPP14) • State and National Parks • Littoral Rainforest (SEPP 26) • Drinking water catchments 			

Is the answer to any of the questions "Yes"?

Yes If "Yes", a soil conservation consultant is to be engaged in the concept design phase to prepare an Erosion and Sedimentation Management Report (model brief at Attachment 2).

No If "No", include this assessment in the environmental impact assessment.

Assessment prepared by Project Development Manager SIGNATURE: DATE:	Assessment reviewed by SEO or ESM SIGNATURE: DATE:
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Attachment 1b: Erosion Hazard Assessment

The following assessment methodology is derived from Blue Book I - *"Managing Urban Stormwater – Soils and Construction"*; Landcom, 2004.

The potential erosion hazard of each catchment to be disturbed can be simply determined using Figure 1b.1 below, based on:

1. The R-factor is a measure of rainfall erosivity that relates to the project's geographical location. (Refer to maps within Appendix B of the Blue Book).

The Blue Book, including appendix B, is available on the RTA intranet site at:

<http://home.rta.nsw.gov.au/org/ceo/envb/documents/managingurbanstormwater.pdf>

2. The Slope (%) is the typical upper slope gradient of the site landform. If proposed earthworks are likely to increase upper slope gradients compared to the existing topography, then the higher slope gradient should be used. The slope of specific cut or fill batters should not be used for this assessment – cut and fill batters should be protected with up-gradient stormwater diversion drains and drainage controls at the base (and mid-slope in some cases) to control stormwater velocity and erosion potential.

Sites below the A line of Figure 1b.1 have low potential erosion hazard and sites above the A line have high erosion hazard.

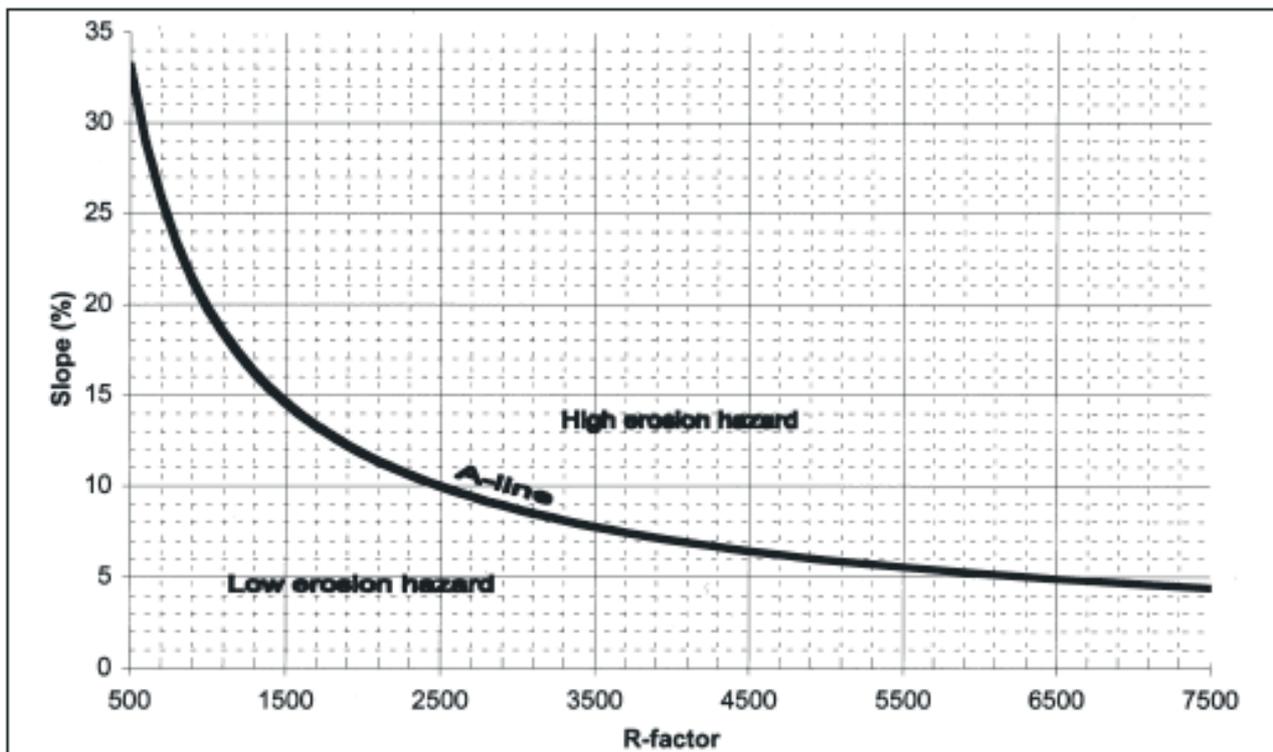


Figure 1b.1: Assessment of potential erosion hazard

(reference: *Managing Urban Stormwater – Soils and Construction*, Landcom, 2004)

Attachment 2: Specification for Concept Phase Erosion and Sedimentation Control Design

Guide Notes

This model scope of works is for use by RTA Project Development Managers when contracting RTA registered soil conservation consultants in the concept development phase of projects. This is for all projects identified as potentially high risk for erosion and sedimentation control in the Preliminary Erosion and Sedimentation Assessment (Attachment 1a). A standard RTA contract should be used to engage the soil conservation consultant.

This model scope of works should be used to request a proposal from one of the RTA Soil Conservation Panel Consultants that are listed on the RTA Contractor Registration Scheme under Category S, which can be viewed on the RTA internet site at:

<http://whome.rta.nsw.gov.au/doingbusinesswithus/tenderscontracts/registeredcontractors.html>.

The soil conservation consultant is required to work in collaboration with the concept design team. The role of the soil conservation consultant is not to prepare drainage design for the project but to ensure preliminary designs for major erosion and sedimentation controls are appropriate and manage the risks to installation and operation of designed controls.

Note: Due to limited professional resources in industry, it is possible that a soil conservation consultant is not available to be contracted to the Concept Design team to prepare the Erosion and Sedimentation Management Report. If this is the case, the Project Development Manager must consult with the Senior Environment Specialist (Land Management) to determine the appropriate course of action.

Purpose

- To contract an expert soil conservation consultant from the RTA Panel to work with the concept design team.
- To develop concept designs for major erosion and sedimentation control measures. Major control measures will include:
 - Up-gradient stormwater diversions to ensure clean water does not enter the construction site.
 - Temporary cross drainage to transfer clean water through and/or around the site through all construction phases.
 - Sedimentation basins, as required, designed in accordance with the sizing criteria in Blue Book 2d (eg: 80/85th percentile 5-day rainfall event capture for non-sensitive/sensitive receiving environments – consideration may be given to designing larger sedimentation basins to manage runoff to particularly sensitive receiving environments or for particularly high risk activities).
- To assess constraints (risks) to the installation and operation of major controls through all construction phases.
- To eliminate risks where possible.
- To design preliminary compensatory measures where risks cannot be eliminated.
- To report the findings in an Erosion and Sedimentation Management Report.

Background Information Required

In consultation with the concept design team, the soil conservation consultant is to ensure that the following information is available and accurate:

1. The planned total disturbed area required for construction. This should include land required for installation of sedimentation basins, stormwater diversion drains and scour protection works.

2. The identified project sub-catchments: Identify all sub-catchments that will be impacted by the proposed works. The concept design must be assessed to determine potential construction staging and changes to individual catchment sizes through all phases of earthworks and construction.
3. The sub-catchment characteristics such as the:
 - Sensitivity of the receiving environments for each sub-catchment.
 - Soil types to be encountered.
 - Topography of disturbed areas of the site within each catchment through the construction phases.
 - Direction of runoff and drainage points during each stage of construction.
 - Likely soil loss from each road construction sub-catchment using the Revised Universal Soil Loss Equation (RUSLE).

Preparation of the Erosion and Sedimentation Management Report (ESMR)

Develop Preliminary Erosion and Sedimentation Control Design

Design for the following major controls:

- Up-gradient stormwater diversions to ensure clean water does not enter the construction site.
- Temporary cross drainage to transfer clean water through and/or around the site through all construction phases.
- Sedimentation basins, as required, designed in accordance with the sizing criteria in Blue Book 2d (80/85th percentile 5-day rainfall event capture for non-sensitive/sensitive receiving environments – consideration may be given to designing larger sedimentation basins to manage runoff to particularly sensitive receiving environments or for particularly high risk activities).

In collaboration with the concept design team, prepare a preliminary design (drawings and associated calculations and reasoning) for the major controls for each catchment at each construction stage. The design shall comply with the requirements of the Blue Book Volumes 1 & 2d. Design drawings must be clear and legible.

Determine Risks to Implementing Erosion and Sedimentation Control Designs

In consultation with the project development team, identify risks to the effective installation, operation or maintenance of major controls, including but not limited to:

- Can major controls be effectively installed prior to ground disturbance and maintained through all construction phases?
- Is land available to construct the designed sedimentation basins and/or other sedimentation controls?
- Can stormwater from the site be effectively diverted to sedimentation basins and other sedimentation controls in the early earthworks stage, and through all construction phases?
- Are planned sedimentation controls dependant on effective erosion controls?

Eliminate Risks

Work with the project development team to eliminate the identified project risks through design changes, construction methodology and land purchase and/or leasing.

Recommend Mitigation Measures to Manage Identified Erosion and Sedimentation Risks

For all identified erosion and sedimentation control risks that cannot be eliminated, mitigation measures for managing the specific sub-catchment must be designed and documented in the ESMR and noted in a summary table (e.g. Table 2.1).

Outputs

Prepare an Erosion and Sedimentation Management Report (ESMR) that includes the following:

- Purpose
- Scope, including a list of the reference documents used to do the design, risk assessment and report.
- Record of meetings and workshops attended
- Preliminary erosion and sedimentation management drawings
- Assessment of risks to implementing the preliminary design
- Summary of mitigation measures where design controls cannot be effectively implemented (eg: Table 2.1 or equivalent).

RTA inputs

The RTA will make the following material, information and resources available to the consultant:

1. Project scope that includes the details of the preferred option
2. Constructability report or Construction Staging Plans, where available
3. Stormwater drainage design report, where available
4. Maps and aerial photographs, where available
5. Completed Preliminary Erosion and Sedimentation Assessment (PESA – Attachment 1a)
6. Hydrology or hydraulic assessments, where available
7. Soil surveys or data, where available
8. Any requirements provided in feedback from regulatory agencies

Table 2.1: Recommended Table Format - Summary of Mitigation Measures to Manage Erosion and Sedimentation Control Risks

Identified risk	Location on project (chainage)	Receiving catchment	Comments on identified risk	Proposed alternative control measures (reference detail provided in the ESMR)

Attachment 3: 20% Detailed Design Stage

Purpose

All projects that have had an erosion and Sedimentation Management Report (ESMR) must be reviewed at the 20% and 80% detailed design stage. This is to ensure that the impact of changes during detailed design on erosion and sedimentation controls are considered and appropriate mitigation measures determined.

Projects that have been able to eliminate previously identified risks for major controls, by making designed controls effective, may be no longer classed as high risk. During detailed design, requirements for construction staging may have restricted the effectiveness of some controls and the project may be assessed as high risk.

Required Actions

The 20% Detailed Design Stage Assessment is to be completed for all projects where an ESMR was developed in the Concept Development Phase.

Table 3.1 is to be completed by the Project Implementation Manager and approved by the Regional Senior Environment Officer or Environmental Services Manager.

The Project Implementation Manager must seek assistance from a Soil Conservation Consultant to finalise this assessment

Where identified risks cannot be eliminated through detailed design more intensive management of erosion and sedimentation control will be required during construction. Where risks are identified, but cannot be eliminated, mitigation measures for managing the specific sub-catchment must be designed and documented in the summary table (e.g. Table 3.2).

The 20% Detailed Design Stage Assessment identifies risks that require further management through the detailed design process. Projects identified as having high risk for erosion and sedimentation control at the 20% Detailed Design Stage should work to eliminate risks prior to the final risk assessment at the 80% Detailed Design Phase (Attachment 4a).

Table 3.1: 20% Detailed Design Stage Assessment

Project Name:	Project Location:	
Estimated Timing / Duration of Works:	Description of Works:	
Category 1 – Project Level Risk	Yes / No	Comments to support decision
1. Does the complexity or size of the project allow erosion and sedimentation controls to be designed and managed without specialist expertise?		
Category 2 – Catchment Specific risks	Yes / No	
2. Are up-gradient stormwater diversions designed and can be fully operational prior to ground disturbance?		
3. Is temporary cross drainage to transfer clean stormwater through and/or around the site designed and assessed as possible to put in place prior to early earthworks and maintain through all construction phases?		
4. Are sedimentation basins designed in accordance with Blue Book 2 (80/85th percentile rainfall event capture for non-sensitive/sensitive receiving environments) and land is available for their installation?		
5. Can designed sedimentation controls (eg basins) be constructed prior to ground disturbance and early earthworks?		
6. Can stormwater from the site be effectively diverted to designed sedimentation controls in the early earthworks stage, and through all construction phases?		
7. Are there designed erosion control measures for the catchment to prevent soil loss in accordance with Blue Book Volumes 1 & 2d that may be effectively implemented on the site?		
8. Can the Site be stabilised with cover crops – eg there are no severe climatic conditions that may limit the growth of cover crops and permanent vegetation?		

If you have answered 'No' to any question the project is assessed as having high risk.

- High Risk
1. Detailed Design Team to work to eliminate identified risks, where feasible.
 2. Mitigation measures to manage risks that cannot be eliminated to be documented in Table 3.2
 3. Complete 80% Detailed Design Stage Assessment (Attachment 4a)

- Not High Risk
1. Detailed Design Team to ensure preliminary erosion and sedimentation control designs can be implemented during construction.
 2. Complete 80% Detailed Design Stage Assessment (Attachment 4a)

Pre-tender Stage Assessment approved by Project Implementation Manager	Pre-tender Stage Assessment reviewed by SEO or ESM
SIGNATURE:	SIGNATURE:
DATE:	DATE:

Table 3.2: Recommended Table Format - Summary of Identified Erosion and Sedimentation Control Risks

Identified risk	Location on project (chainage)	Receiving catchment	Comments on identified risk	Proposed alternative control measures

Attachment 4a: 80% Detailed Design Stage

Purpose

All projects that have had an erosion and Sedimentation Management Report (ESMR) must be reviewed at the 20% and 80% detailed design stage. This is to ensure that the impact of changes during detailed design on erosion and sedimentation controls are considered and appropriate mitigation measures determined.

Projects that have been able to eliminate previously identified risks for major controls, by making designed controls effective, may be no longer classed as high risk. During detailed design, requirements for construction staging may have restricted the effectiveness of some controls and the project may be assessed as high risk.

Required Actions

The 80% Detailed Design Stage Assessment is to be completed for all projects where an ESMR was developed in the Concept Development Phase.

Table 4a.1 is to be completed by the Project Implementation Manager and approved by the Regional Senior Environment Officer or Environmental Services Manager. The Project Implementation Manager may seek assistance from a Soil Conservation Consultant to finalise this assessment.

The requirements for projects identified as having high risk for erosion and sedimentation control at the completion of detailed design phase are:

1. To provide an enhanced level of site management for erosion and sedimentation control in the construction phase by contracting a RTA registered soil conservation consultant. The model scope of works for contracting soil conservation consultants is outlined in Attachment 4b.
2. To notify the NSW Department of Environment and Climate Change (DECC) that the project is high risk on the award of tender. A pro-forma DECC notification letter is included as Attachment 4c. This notification is required to meet a RTA Chief Executive commitment to the Director-General DECC regarding the notification of high risk projects.
3. Notify the RTA's Senior Environmental Specialist (Land Management) for inclusion on the RTA register of high risk projects.

Table 4a.1: Pre-Tender Risk Assessment

Project Name:	Project Location:	
Estimated Timing / Duration of Works:	Description of Works:	
Category 1 – Project Level Risk	Yes / No	Comments
1. Does the complexity or size of the project allow erosion and sedimentation controls to be designed and managed without specialist expertise?		
Category 2 – Catchment Specific risks	Yes / No	Comments
2. Are up-gradient stormwater diversions designed and can be fully operational prior to ground disturbance?		
3. Is temporary cross drainage to transfer clean stormwater through and/or around the site designed and assessed as possible to put in place prior to early earthworks and maintain through all construction phases?		
4. Are sedimentation basins designed in accordance with Blue Book 2 (80/85th percentile rainfall event capture for non-sensitive/sensitive receiving environments) and land is available for their installation?		
5. Can designed sedimentation controls (eg basins) be constructed prior to ground disturbance and early earthworks?		
6. Can stormwater from the site be effectively diverted to designed sedimentation controls in the early earthworks stage, and through all construction phases?		
7. Are there designed erosion control measures for the catchment to prevent soil loss in accordance with Blue Book Volumes 1 & 2d that may be effectively implemented on the site?		
8. Can the Site be stabilised with cover crops – eg there are no severe climatic conditions that may limit the growth of cover crops and permanent vegetation?		

If you have answered 'No' to any question the project is assessed as high risk.

- High Risk
1. Contract soil conservation consultant (model scope of works at Attachment 4b)
 2. Notify DECC (model letter at Attachment 4c).
 3. Notify the RTA's Senior Environmental Specialist (Land Management) for inclusion on the RTA register of high risk projects.
- Not High Risk
1. PMI considers appointing a soil conservation consultant to assist with complex or resource intensive projects.
 2. No requirement to notify DECC.

Pre-tender Stage Assessment approved by Project Implementation Manager	Pre-tender Stage Assessment reviewed by SEO or ESM
SIGNATURE:	SIGNATURE:
DATE:	DATE:

Table 4.2: Recommended Table Format - Summary of Identified Erosion and Sedimentation Control Risks

Identified risk	Location on project (chainage)	Receiving catchment	Comments on identified risk	Proposed alternative control measures

Attachment 4b: Model Scope of Works for Soil Conservation Consultants for the Construction Phase

Required Actions

RTA Project Implementation Manager is to ensure that a soil conservation consultant is engaged by either the RTA or the Contractor for all high risk projects. This is regardless of contract delivery through construct-only, DCM or Alliance arrangements.

The list of RTA registered soil conservation consultants is provided on the RTA internet site at: <http://whome.rta.nsw.gov.au/doingbusinesswithus/tenderscontracts/registeredcontractors.html>

Comments on Engaging Soil Conservation Consultants

The role of the soil conservation consultant is to verify that erosion and sedimentation controls are designed, implemented and maintained to the standard of Blue Book Volumes 1 and 2D. In some cases, the soil conservation consultant may be called upon to give expert evidence to DECCW and/or the RTA to verify site performance.

It is the RTA Implementation Managers discretion to decide if the consultant will be engaged directly by RTA or by the Contractor. Both scenarios have advantages for effective site management. If the consultant is engaged by the RTA, then there is assurance that advice is provided independently. If the consultant is engaged by the Contractor they will be able to work much closer with the Contractor team to drive improved understanding and performance.

RTA Implementation Managers should seek advice from RTA Senior Environmental Advisors or Environmental Services Managers in making this decision.

Model Scope of Works

The minimum scope of works for the soil conservation consultant is to:

1. Report the findings of all actions below directly to both the Contractor and RTA Project Manager, regardless of who has engaged the Soil Conservation Consultant.
2. Review contractor's primary erosion and sedimentation control plans to ensure erosion and sedimentation control designs are appropriate and outline any concerns to the RTA and Contractor for action.*
3. Review specification hold point release to commence works in any catchment identified as high risk.
4. Agree to a schedule of inspection and undertake regular site inspections. Minimum scope of inspections is to:
 - Review and provide comment on design changes or proposed designs for erosion and sedimentation controls.
 - Identify emerging high risk activities and/or locations and recommend corrective actions to eliminate or mitigate risks.
 - Review progressive ESCP's in identified high risk areas to ensure they are up to date and reflect the current site conditions.*
 - Ensure controls are adequately installed and maintained on site.
 - Develop action lists for continued management of erosion and sedimentation control on the site.
 - Provide training within the project team that describes requirements for managing identified site risks.

* The above is the minimum scope of works required. The consultant may be engaged to directly prepare and update the primary and progressive erosion and sedimentation control plans for the works on behalf of the Contractor.

Attachment 4c: Pro-forma High Risk Project DECCW Notification Letter

Complete and send to relevant DECCW Regional Manager and DECCW Manager Metropolitan Infrastructure.

Dear

Notification of High Risk Projects for Erosion and Sedimentation

The purpose of this letter is to advise that the RTA project [name] is identified as having a "high risk" in respect of erosion and sedimentation management.

This project is located at in RTA'sregion. RTA's project manager for the implementation phase of this project is [name], who may be contacted on [phone no]. The Senior Environmental Officer with responsibility for the construction phase is [name] [phone no].

*[RTA advises that [consultant name] has been/will be engaged to assist with erosion and sediment management in the implementation phase of this project]

or

*[A member of the RTA's panel of registered soil conservation consultant will be engaged to assist with erosion and sedimentation management in the implementation phase of this project]

Yours sincerely

RTA Project Manager