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Tahmoor Coal Pty Ltd

EROSION AND SEDIMENT CONTROL PLAN

Myrtle Creek CMAP

March 2019

Tahmoor Coal Pty Ltd

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Myrtle Creek CMAP

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Contents

Contents	3
1 Introduction.....	4
1.1 Introduction	4
1.2 Project Background	4
1.3 Scope	4
1.4 Objectives	5
1.5 Statutory Requirements	5
2 Site Characteristics	6
2.1 Hydrology.....	6
2.2 Soils.....	7
2.3 Vegetation.....	7
3 Control Methods	7
3.1 General Principles.....	7
3.2 Disturbance Minimisation	8
3.3 Site Access Construction and Controls	8
3.4 Site Construction	8
3.5 Site Compound	9
3.6 Material Storage.....	9
3.7 Chemical Use and Storage	9
3.8 Topsoil Stockpiling.....	9
3.9 Clean-Water Diversion.....	9
3.10 Catch Drains / Roll over	10
3.11 Sediment Fences	10
3.12 Dirty-Water Disposal	10
3.13 Site Rehabilitation	10
4 Inspection and Monitoring	10
4.1 Inspections	10
4.2 Maintenance	11
4.3 Environmental Reporting.....	11
4.4 Weather Monitoring.....	12
5 Inductions and Training.....	12
6 Roles and Responsibilities	12
Appendix A	13
SEEC Erosion and Sediment Control Plan	13
Appendix B	14
Proposed Site Layout.....	14

1 Introduction

1.1 Introduction

Tahmoor Coal Mine (**Tahmoor Mine**) is an underground coal mine located approximately 75km south of Sydney in New South Wales, Australia.

Tahmoor Mine has been operated by Tahmoor Coal Pty Ltd (**Tahmoor Coal**) since the mine commenced in 1979 and via longwall mining methods since 1987. Tahmoor Coal, trading as Tahmoor Coking Coal Operations (**TCCO**) is a subsidiary within the SIMEC Mining Division (**SIMEC**) of the GFG Alliance (**GFG**).

1.2 Project Background

TCCO was required by the NSW Resources Regulator to prepare a Corrective Management Action Plan (**CMAP**) for Myrtle Creek with the objective to rehabilitate subsidence impacts.

The NSW Resources Regulator approved the Myrtle Creek CMAP on 4 May 2018. TCCO is currently in the process of implementing the Myrtle Creek CMAP, which includes the following activities;

- a) Pool mapping;
- b) Creek characterisation drilling and analysis;
- c) Pool 23 Trial grout curtain wall;
- d) Pool remediation trials; and
- e) Creek remediation completion reporting.

Physical rehabilitation works are planned to commence during March 2019, in accordance with the approved Myrtle Creek CMAP.

1.3 Scope

This Erosion and Sediment Control Plan (**ESCP**) outlines strategies to minimise soil, erosion and the discharge of sediment to waterways as a result of the Myrtle Creek CMAP works. Specifically, this ESCP details:

- a) General control methods;
- b) Planning of site access and construction;
- c) Materials and chemical storage;
- d) Clean-water diversion and dirty water discharge;
- e) Use of tools such as sediment traps, dams, catch drains and silt fences;
- f) Site rehabilitation works controls;
- g) Inspections, monitoring and reporting; and
- h) Defining individual responsibilities.

1.4 Objectives

The overall objectives of this ESCP are to:

- Control soil erosion and sediment generation from areas disturbed during Myrtle Creek CMAP works; and
- Minimise potential project related activities resulting in decreased water quality downstream of the works site.

1.5 Statutory Requirements

Condition 13 of The Tahmoor North Development Consent DA 67/98, states the following:

For longwalls up to and including Longwall 32, if determined necessary by the Secretary in consultation with Council and DoI, the Applicant must carry out works in accordance with an Erosion and Sediment Control Plan, prepared to the requirements of DoI, to restore any damage to watercourses (including the banks) resulting from the mining operations, subject to any other necessary approvals.

This ESCP has been prepared to meet the satisfaction of NSW Department of Planning and Environment. This ESCP has been prepared using the NSW Office of Environment & Heritage (OEH) erosion and sediment control guideline, *Managing Urban Stormwater: Soils and Construction (Blue Book)*.

TCCO engaged Strategic Environmental and Engineering Consulting (SEEC) to prepare detailed soil and erosion controls to guide this ESCP. A copy of the SEEC plan is attached as **Appendix A**.

2 Site Characteristics

The upper reaches of the Myrtle Creek catchment are located in an area that is transitioning from rural to semi-rural development. The creek passes around the northern edge of Tahmoor township passing under the Main Southern Railway and under Remembrance Driveway before cutting down into a gorge and flowing into the Nepean River. The study area for the Myrtle Creek CMAP is the area from the Main Southern Railway to Remembrance Drive (**Figure 1**).



Figure 1 Myrtle Creek Study Area relative to longwall extraction

2.1 Hydrology

The average stream gradient varies along the length of Myrtle Creek from about 13mm/m (1.3%) upstream of the railway crossing, to 21mm/m (2.1%) between the railway crossing and Remembrance Drive and about 60-75mm/m (6-7.5%) downstream of Remembrance Drive to the Nepean River.

Flow in Myrtle Creek is estimated to be 0.8ML/day or greater at least 50% of the time and 0.3ML/day or greater at least 70% of the time.

2.2 Soils

Most of the catchment is located within the outcrop of the Wianamatta Shale, but Myrtle Creek itself is incised through the Wianamatta Shale and into the top of the Hawkesbury Sandstone for much of its length. The creek bed between the railway crossing and Remembrance Driveway is located entirely within the outcrop of the top of the Hawkesbury Sandstone.

2.3 Vegetation

The stream bed and banks are generally well vegetated and do not show significant erosion or bank instability. Riparian vegetation along Myrtle Creek consists of highly disturbed Shale Sandstone Transition Forest. The vast majority of the creek has been significantly altered by residential or rural development.

Typical overstorey consists of *Eucalyptus punctata* (Grey Gum), *Eucalyptus longifolia* (Wollybutt) and *Eucalyptus tereticornis* (Forest Red Gum). The midstorey is comprised of native and exotic species including *Ligustrum lucidum* (Broad-leaved privet), *Bursaria spinosa* (Sweet Bursaria), *Lycium ferocissimum* (African Boxthorn), *Sida rhombifolia* (Paddy's Lucerne), *Rubus fruticosus sp. agg.* (Blackberry), *Acacia falcata* (Hickory Wattle) and *Ligustrum sinense* (Narrow-leaved Privet). The understorey consists of a variety of exotic and native species.

3 Control Methods

3.1 General Principles

Effective erosion and sediment control practices are based on the following principles:

- a) Planning works during forecasted dry weather periods;
- b) Ensuring exposed dispersive soils that are susceptible to erosion are covered (vegetation establishment, topsoil, etc.) or runoff from these areas is directed to water containment structures that prevent dirty water flowing offsite;
- c) Use of diversion structures to separate 'clean' water runoff from disturbed areas runoff, to minimise volumes of sediment-laden water for management;
- d) Ensuring sediment-laden runoff is treated via designated sediment control devices;
- e) Integrate erosion and sediment control into site and construction planning;
- f) Develop flexible erosion and sediment controls based on anticipated soil, weather and construction conditions;
- g) Minimise the extent and duration of soil disturbance;
- h) Maximise sediment retention on site;
- i) Maintain all erosion and sediment control measures in proper working order;
- j) Monitor the site and adjust erosion and sediment control practices to maintain the required performance standard; and
- k) Rehabilitate disturbed areas within two weeks after works have completed.

Appendix B depicts the Proposed Site Layout and erosion and sediment control locations. Final

erosion and sediment control locations will be determined during the planning stages of site setup.

3.2 Disturbance Minimisation

Land disturbance will be minimised by clearing only the working areas of land ahead of works and rehabilitating the working area within two weeks after works have completed. All clearing works will be undertaken using the following controls:

- a) Restricting work areas to be cleared to areas being actively worked through delineation using fencing or bunting;
- b) Identifying and managing habitat trees (efforts made to avoid the removal of native trees);
- c) Identifying and delineating areas required to be disturbed and ensuring that disturbance is limited to those areas;
- d) Clearing vegetation only as required; and
- e) Leaving native root-balls in the ground to facilitate regeneration after works are complete;

3.3 Site Access Construction and Controls

A single site access track will be constructed to individual sites. Prior to construction of site access tracks, ecological survey will take place to identify the most suitable path with the least impact.

When site access tracks are being constructed the following measures will be followed:

- a) Confine plant movement to access points using barrier tape or similar to delineate no-go areas;
- b) Use a catch drain / roll-over at the base of the access track to divert any sediment-laden water into a small excavated sediment trap or U-shaped sediment trap formed with a sediment fence. Regularly remove sediment from the trap as necessary and dispose it in an approved location well away from concentrated flow (see **Appendix A – Figure 4**).
- c) Where a ramp has to be excavated as part of the site access track, use clean compacted natural aggregate that will not cause environmental harm. Shape the surface to shed water to surrounding vegetated areas (see **Appendix A – Figure 1**);
- d) Use mitre drains if necessary (see **Appendix A – Figure 3**);
- e) Use rubber tyred/tracked vehicles where available;
- f) Ensure tracks are free draining; and
- g) Include cross fall and outfall drainage, where required, to prevent concentration runoff.

3.4 Site Construction

Where a drill pad is constructed, a low (300mm) containment bund will be installed around the periphery of the pad. This bund will be constructed from natural aggregates that will not cause environmental harm and wrapped in geotextile.

All chemicals used during working hours must be securely sealed and banded to 110% of their capacity. Demarcation markers must be established to indicate no-go zones.

3.5 Site Compound

Site compounds will be established outside of the banks of the creek and above potential flood levels. The compound will be of sufficient size to allow all tools and materials to fit after each work day. The site compound will be positioned in a previously cleared area to avoid vegetation clearing. The location of the site compound will consider its access track to and from the work area.

3.6 Material Storage

Materials will be stored within the site compound where applicable. Bulk materials such as PUR, sands or aggregates will be stored above the banks of the creek to avoid the risk of pollution during significant rainfall events. Materials will be covered in geofabric and sediment controls installed, as required.

3.7 Chemical Use and Storage

All chemicals will be stored in a designated chemical storage area within the site compound. The following guidelines will be followed:

- a) Chemicals will be stored as per the SDS requirements.
- b) All chemicals must be returned to the site compound after each day of work;
- c) All chemical storage areas will be bunded and covered;
- d) All chemical storage containers will have functioning nozzles and/or lids to reduce dripping or spilling;
- e) Conflicting chemicals will be stored separately in accordance with the SDS;
- f) All waste chemicals will be removed offsite;
- g) All chemical storage containers will be labelled;
- h) A spill kit must be kept onsite, and all staff inducted in their use. Used spill kits must be replaced immediately.

The refuelling and maintenance of plant and equipment will be undertaken above the banks of the creek. A spill kit must be present.

3.8 Topsoil Stockpiling

Any topsoil that is removed during construction works must be stockpiled for later rehabilitation. Topsoil stockpile locations will be located above the banks of the creek, where the risk of pollution from flood is low, and where access will not cause the damage of vegetation. Topsoil stockpiles will be covered in geofabric and sediment controls installed, as required.

3.9 Clean-Water Diversion

Clean water diversions will be constructed upslope of areas to be disturbed to convey clean water runoff away from disturbed areas and prevent water from entering active areas and dirty water systems. Bunding upstream will pool water where it will be diverted further downstream by gravity, pump or pipe (see **Appendix A – Sheet 2**). Natural rock bunds and pools, where present upstream of the works area, will be used to do the same function.

3.10 Catch Drains / Roll over

Catch drains / rollovers will be established to convey runoff from the disturbed areas to sediment ponds or dams. A catch drain / roll-over located at the base of the access track to divert any sediment-laden water into a small excavated sediment trap or U-shaped sediment trap formed with a sediment fence will be installed. Built up sediment will be regularly removed from the trap as necessary and disposed to an approved location (see **Appendix A – Figure 4**). Catch drains / roll overs will also be used downstream of working areas.

3.11 Sediment Fences

Sediment fences will be necessary following vegetation removal. Sediment fences will be installed along contours. Sediment fences are to be constructed using geotextile filter fabric with structural posts to be spaced no more than 1.5 metres apart (see **Appendix A – Sheet 5**)

Sediment fences will be installed parallel to the banks of the creek following any vegetation clearing due to site access tracks.

3.12 Dirty-Water Disposal

Drill water will be re-circulated into a dedicated tank. Dirty water trapped anywhere on site must be removed by pumping and disposed of by spreading it onto well-vegetated lands at least 40 metres from the banks of the creek. The water is to be spread evenly so it infiltrates and does not scour. If it is not possible to spread the water 40 metres from the banks it must be removed offsite.

3.13 Site Rehabilitation

Progressive rehabilitation by stabilisation and revegetation is to be conducted as areas are no longer required to be used. Topsoil removed during construction phases will be stored and reused during rehabilitation. Soil stabilisation controls such as topsoil reestablishment, jute mat, seedbed establishment, and tube stock planting will be considered (see Appendix A – Sheet 4).

4 Inspection and Monitoring

4.1 Inspections

Prior to forecast of more than 50% chance of more than 5 mm rainfall over 24-hour period, the TCCO Environmental Project Coordinator will inspect the condition of all erosion and sediment controls. As required, repair and maintenance works will be actioned. Fortnightly inspections of all erosion and sediment controls will be conducted by the TCCO Environmental Project Coordinator.

The following indicators will be used to identify if the objectives of the ESCP are being met:

- a) Visible evidence of deterioration of water quality of downstream watercourses that is directly attributable to the site (e.g. high turbidity);
- b) Visible significant erosion; and/or
- c) Failure of control measures.

4.2 Maintenance

The triggering of an investigation indicator will require the following remedial actions:

- a) Locate source of water quality deterioration;
- b) Prevent continuing deterioration with temporary controls; and
- c) Repair existing controls, construct additional controls or modify procedures to prevent future deterioration in water quality.

Maintenance works will be conducted as soon as practicable.

4.3 Environmental Reporting

TTCO has a publicly available Pollution Incident Response Plan (**PIRP**) that details the procedures for notification of pollution incidents resulting in or having the potential to cause material harm to the environment.

A pollution incident is defined in the POEO Act as an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

In the case of an environmental incident, prior to any other action, the site must contact triple zero '000' if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.

If the incident does not pose any threat to human health or property, concurrently with contacting emergency services (triple zero '000'), all possible actions will be taken to control the pollution incident and minimise health, safety and environmental consequences. These actions must be employed to the maximum extent possible to:

- a) Provide for the safety of people at and within the vicinity of the site; and
- b) Contain the pollution incident.

In compliance with the Tahmoor Incident Procedure, the actions to be implemented at Tahmoor Coking Coal on the occasion of an incident include the following:

- a) Secure the scene and contain the incident.
- b) Gather information (i.e. environmental monitoring).
- c) Determine the investigation level.
- d) Commence an ICAM (if required).
- e) Review and classify information and determine actions.
- f) Complete actions.
- g) Trend analysis reports.

4.4 Weather Monitoring

Works will be planned for periods of dry weather. If wet weather is forecast, works will be suspended, or strategies put in place in order to remove equipment from the creek bed.

5 Inductions and Training

Contractor inductions will involve a training component of the ESCP operational aspects and controls. Prior to the commencement of any new stage of works all members of the work team will attend a toolbox talk detailing specific information regarding this ESCP.

6 Roles and Responsibilities

Role	Responsibilities for this document
Environment & Community Manager	<ul style="list-style-type: none">• Approve the ESCP for this project• Ensure appropriate resources for implementation
Environment Coordinator	<ul style="list-style-type: none">• Notify regulatory authorities of any erosion and sediment control related incidents• Assist with the design and construction of erosion and control structures
Environmental Project Coordinator	<ul style="list-style-type: none">• Control activities that might lead to contamination of erosion and sediment• Design and construction of erosion and control structures• Maintain erosion and control structures• Coordinate inspection erosion and control structures• Coordinate monitoring as required• Coordinate reporting as required
All contractors	<ul style="list-style-type: none">• Report incidents affecting erosion and sediment to supervisor• Prevent and report potential erosion and sedimentation

Appendix A

SEEC Erosion and Sediment Control Plan

EROSION AND SEDIMENT CONTROL PLAN

BACKGROUND INFORMATION

- This Erosion and Sediment Control Plan (ESCP) is a generic plan that, with minor modification if necessary, can be implemented at each drill site where creek rehabilitation is done in Mrytle Creek, Tahmoor.
- Under the recommendations of the Blue Book (Landcom, 2004), works in a watercourse are classified as "Class 6 soil loss" works and so special Erosion and Sediment (ERSED) controls are required, particularly during the months of November to March inclusive (i.e. when rainfall is highest) but also if rainfall is predicted at other times of the year. The required "special measures" are described in this plan.
- Landcom (2004) requires certain design guidelines/principles to be adopted for works in a watercourse:
 - Maintain the natural channel and floodplain form, i.e. do not change the dimensions of the watercourse.
 - Construction activities should be designed to minimise erosion of waterways through the removal of vegetation from the banks, or sediment from bed or banks.

ACCESS CONTROL

- Establish a single stabilised site access point for each site.
- The following generic practices apply to access roads/tracks less than 2,500m² in area. For significant tracks that exceed 2,500m² a site-specific ERSED plan will be required.
- Confine plant movement to only that access point by using barrier tape or similar to delineate no-go areas.
- The soil erosion hazard on the access site will be kept as low as practicable by minimising land disturbance by using barrier tape or similar to delineate no-go areas.
- As far as possible, use the natural land surface without clearing and grubbing. Soft areas may be overcome by using clean rock over geotextile/ geogrid/rubber matting as necessary.
- Use rubber tyred/tracked vehicles as much as possible.
- Where a ramp has to be excavated to provide access to the creek bed, choose its location to be considerate of existing vegetation and ease of access.
- Where a ramp has to be excavated to provide access to the creek bed, use clean compacted road base as a pavement surface. Shape the surface to shed water to surrounding vegetated lands. Use mitre drains and roll-overs if necessary (Figures 3 and 4). Do not allow flow to concentrate on the pavement surface and cause scour.
- Use a roll-over at the base of the access track to divert any sediment-laden water into a small excavated sediment trap or U-shaped sediment trap formed with sediment fence. Regularly remove sediment from the trap as necessary and dispose it in an approved location well away from concentrated flow.
- Where a ramp has to be excavated to provide access to the creek bed, remove it at the end of the works and immediately reinstate topsoil and stabilise the lands with seed, Jute-mesh and bitumen emulsion. Refer to Standard drawings SD4-2 and SD 7-1 on Sheet 4.
- Where a track is built on a side slop, use in-fall drainage on the pavement (i.e. drain the pavement back to the cut embankment).
- Protect any significant native vegetation with barrier fence, at least 2m from the truck and preferably at the drip line.

SPECIAL ERSED MEASURES

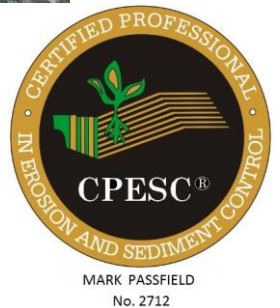
- Give the relatively short duration of works at each location, plan the works for a period of predicted dry weather (i.e. less than 50% chance of less than 5mm in 24 hours for all days).
- Drilling rigs must have rubber tracks.
- Where the creek bed is too rough/undulating for the machines to traverse, use timber and/or rubber matting to aid access. If this is not practicable, place a thick non-woven geotextile (e.g. Bidim A44 or similar) on the creek bed and cover with clean, durable, hard rock (not sandstone) and use it as a construction pad/access (e.g. Figure 1).
- Remove the timber/rubber mats/rock pads when works are complete.
- Trickle flow can be diverted around the works site by bunding upstream and either pumping or piping flow around the works; refer to sheet 2 for typical details of such options.
- Natural rock bunds and pools, where present upstream of the works area, may be used to do the same function.
- If the weather forecast proves incorrect and changes to predict rain, remove all machinery to a safe place above potential flood levels.
- If the weather forecast proves incorrect and changes to predict rain cover any exposed soil surfaces with geotextile (noting that these should be minor).
- Chemicals used for grouting/sealing should not be stored on the creek bed unless they are placed in a bunded area capable of holding a volume at least 1.5 times the volume of the largest chemical container. If the weather forecast proves incorrect and changes to predict rain, remove all chemicals to a safe place above potential flood levels.
- Alternatively (and preferably) store all chemicals above potential flood levels on the river bank.
- Drill water must be re-circulated in a dedicated tank(s). If the weather forecast proves incorrect and changes to predict rain, remove all such tanks to a safe place above potential flood levels.
- Where a drill pad is constructed, place a low (300mm) compacted earth containment bund covered with geotextile around the periphery of the pad. Refer to Figure 2.
- Dirty water trapped anywhere on the work site must be removed by pumping and disposed by spreading it onto well-vegetated lands at least 40m from the banks of the creek. Spread the water evenly so that it infiltrates and does not cause scour.
- Most of these instructions apply equally to those sites where hand-held equipment is to be used.

SITE INSPECTION, MONITORING AND MAINTENANCE

- Prior to forecast >50% chance of >5mm rainfall over 24 hours, the site environment manager (or their representative) is to inspect the condition of all erosion and sediment controls and action any urgent repair, maintenance or improvement works. They are to keep a record all findings (including details of actions and their close outs)
- Regular site inspections are to be conducted by the site environment manager (or their representative):
 - At least fortnightly during normal construction hours; and
 - Prior to forecast rainfall (see above); and
 - Daily during rain events (if safe to do so); and
 - Within 24 hours of the cessation of a rain event that causes runoff.
- Additional erosion and sediment controls will be installed as necessary to ensure satisfactory outcomes in keeping with the project conditions and best-practice guidelines.
- Safe storage areas for wastes, fuels, excess concrete and other potential contaminants are to be delineated by the site manager.
- Adequate supplies of erosion control measures (e.g. geotextile rolls, jute matting, sediment fence) are to be available for rapid deployment as required.
- Appropriate spill kits will be kept on site and all site staff inducted in their use. Used spill kits must be replaced immediately.

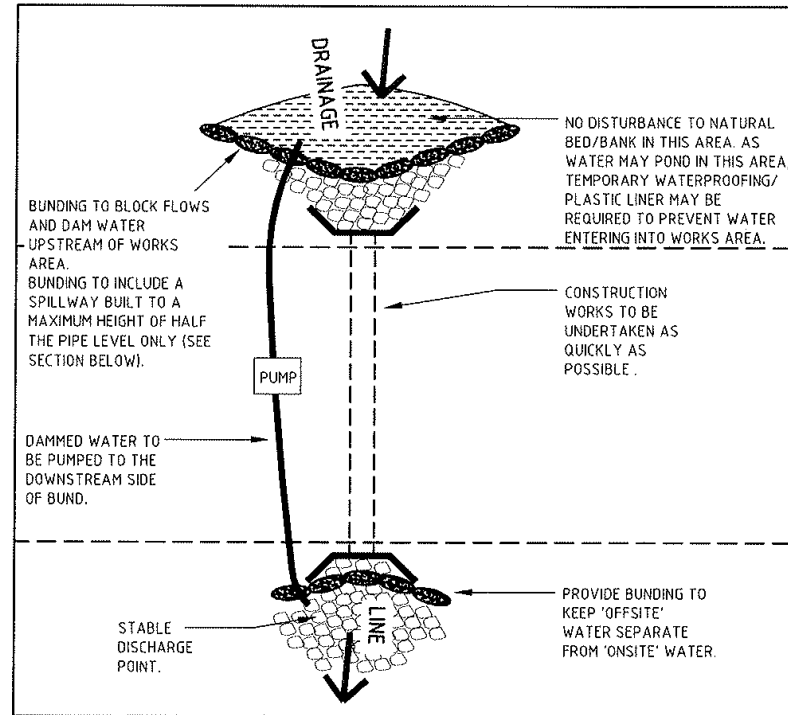


TYPICAL CONDITIONS (POOL 20)



REV	DATE	DES.	DRN.	APP.	REVISION DETAILS	REVISION DETAILS	NORTH	CLIENT	PROJECT TITLE	DRAWING TITLE	PROJECT NO.	SUB-PR NO.	DRAWING NO.	REV.	PAGE
						DESIGN BY: MP		TAHMOOR COKING COAL	NSW Office Suites 7 and 8, The Interse/lon 68 - 70 Station Street, Bowral PO Box 1098, Bowral NSW 2576 QLD Of/ice Suite 3, Unit 4, 91 Landsborough Ave, Scarborough QLD 4020 t 02 4862 1633 f 02 4862 3088 reception@ssec.com.au www.ssec.com.au	EROSION AND SEDIMENT CONTROL PLAN DRILLING WORKS IN MRYTLE CREEK	18000371	P01	Sheet 1	01	1
					DRAWN BY: MP										
					FINAL APPROVAL: MP										
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**ONLINE PIPE REPLACEMENT/INSTALLATION
- SMALL INTERMITTENT DEPRESSIONS ONLY
(PUMP OPTION)**



SITE STABILISATION

THIS METHOD IS ONLY SUITABLE FOR SIMPLE DEPRESSIONS WITH INTERMITTENT FLOWS. TO BE IN PLACE FOR NO MORE THAN 3 MONTHS.

CONSTRUCTION NOTES

WORKS TO BE UNDERTAKEN IN THE ORDER GIVEN BELOW

1. Ensure suitable temporary groundcover materials (e.g. geofabric, blankets) are located on site.
2. Ensure a suitable pump is available.
3. Watch the weather forecast to ensure rainfall is not forecast and monitor creek flows ensuring flows are minimal.
4. Position the bunding and line if required.
5. Undertake construction works (including inlet and outlet stabilisation) as quickly as possible. Drainage line to be blocked for no more than 3 months.

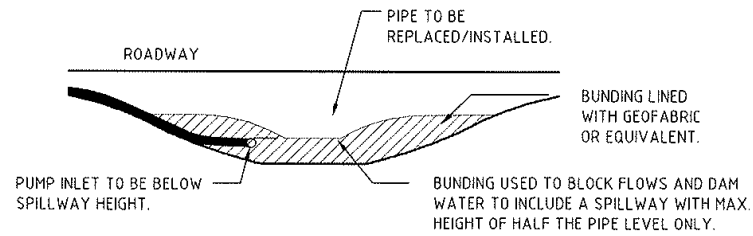
At any time during steps 4 - 5 where a significant rain or flow event is forecast or if the site is left unattended for prolonged periods temporary groundcover should be applied to all exposed soils in the works area.

LEGEND

- OFFSITE WATER DIVERSION DRAIN (SD 5-6)
- ONSITE WATER DRAINS (SD 5-6)
- SURFACE CONTOURS
- ROCK STABILISED OUTLET (SD 5-8)
- CREEK/PIPE FLOW ROUTE
- SEDIMENT FENCE (SD 6-8)
- BUNDS

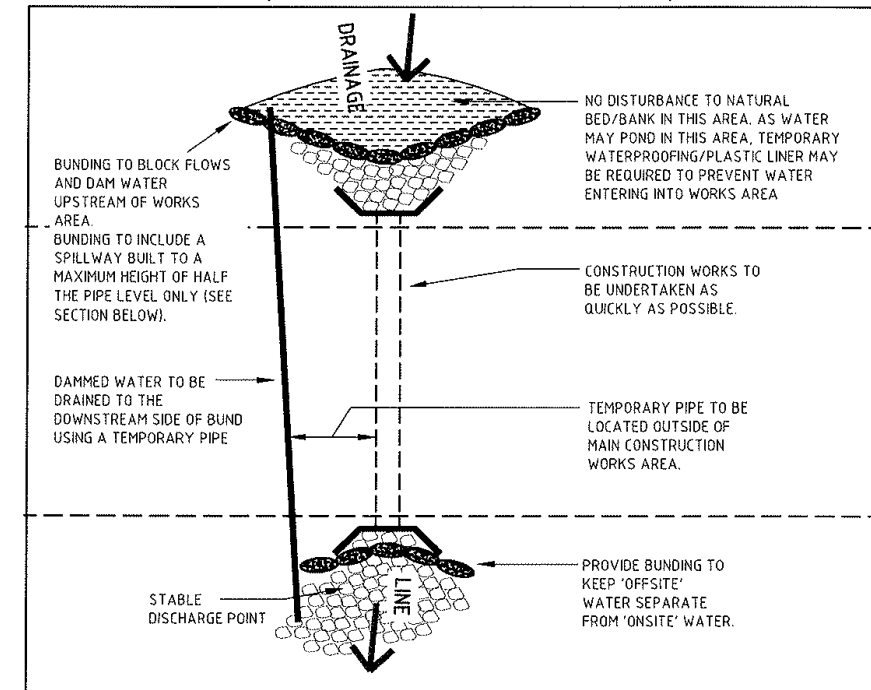
NOTE THAT NOT ALL ONSITE WATER MANAGEMENT AND SEDIMENT CONTROLS ARE SHOWN HERE.

AT ALL TIMES DURING WORKS, ENSURE THAT 'OFFSITE' WATER IS PASSED AROUND OR THROUGH THE SITE WITHOUT COMING INTO CONTACT WITH EXPOSED SOIL OR 'ONSITE' WATER



SECTION THROUGH BUNDING LOCATION

**ONLINE PIPE REPLACEMENT/INSTALLATION
- SMALL INTERMITTENT DRAINAGE LINES
(TEMPORARY PIPE OPTION)**



SITE STABILISATION

THIS METHOD IS ONLY SUITABLE FOR SMALL CHANNELS WITH INTERMITTENT FLOWS.

TEMPORARY PIPE TO BE SIZED TO AT LEAST HALF THE PERMANENT PIPE.

- e.g. - PERMANENT: 600φ
- TEMPORARY: MINIMUM 300φ

THIS METHOD (TEMPORARY PIPE SYSTEM) WILL NOT BE SUITABLE IN STEEP LOCATIONS WHERE TEMPORARY PIPE CANNOT BE LOCATED OUTSIDE OF WORKS AREA.

CONSTRUCTION NOTES

WORKS TO BE UNDERTAKEN IN THE ORDER GIVEN BELOW

1. Ensure suitable temporary groundcover materials (e.g. geofabric, blankets) are located on site.
2. Ensure a temporary pipe is available. Install temporary pipe to ensure flow, preferably by providing continuous fall.
3. Watch the weather forecast to ensure rainfall is not forecast and monitor creek flows ensuring flows are minimal.
4. Position the bunding within the channel to secure the site.
5. Undertake construction works (including inlet outlet stabilisation) as quickly as possible.

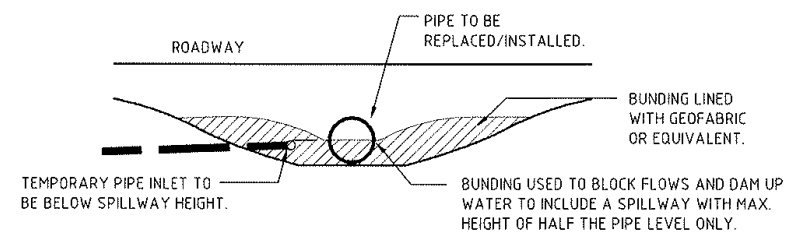
At any time during steps 4 - 5 where a significant rain or flow event is forecast or if the site is left unattended for prolonged periods temporary groundcover should be applied to all exposed soils in the works area.

LEGEND

- OFFSITE WATER DIVERSION DRAIN (SD 5-6)
- ONSITE WATER DRAINS (SD 5-6)
- SURFACE CONTOURS
- ROCK STABILISED OUTLET (SD 5-8)
- CREEK/PIPE FLOW ROUTE
- SEDIMENT FENCE (SD 6-8)
- BUNDS

NOTE THAT NOT ALL ONSITE WATER MANAGEMENT AND SEDIMENT CONTROLS ARE SHOWN HERE.

AT ALL TIMES DURING WORKS, ENSURE THAT 'OFFSITE' WATER IS PASSED AROUND OR THROUGH THE SITE WITHOUT COMING INTO CONTACT WITH EXPOSED SOIL OR 'ONSITE' WATER



SECTION THROUGH BUNDING LOCATION

REV	DATE	DES.	DRN.	APP.	REVISION DETAILS
01	13/03/19	MP	MP		FINAL ISSUE
00	06/03/19	MP	MP		FINAL ISSUE
A	03/12/18	MP	MP		DRAFT for client review

REVISION DETAILS	
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DRAWN BY	MP
FINAL APPROVAL	MP
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PROJECT TITLE
**EROSION AND SEDIMENT CONTROL PLAN
DRILLING WORKS IN MRYTLE CREEK**

DRAWING TITLE OPTIONS FOR TEMPORARY TRICKLE FLOW DIVERSION				
PROJECT NO.	SUB-PR NO.	DRAWING NO.	REV.	PAGE
18000371	P01	Sheet 2	01	



FIGURE 1: EXAMPLE OF GOOD QUALITY CLEAN, DURABLE ROCK USED AS A CONSTRUCTION PAD/ACCESS IN A WATERCOURSE



FIGURE 2: EXAMPLE OF A CONSTRUCTION PAD WITH RAISED CONTAINMENT BUND AROUND PERIPHERY (MUCH LARGER THAN PROPOSED FOR THIS SITE)

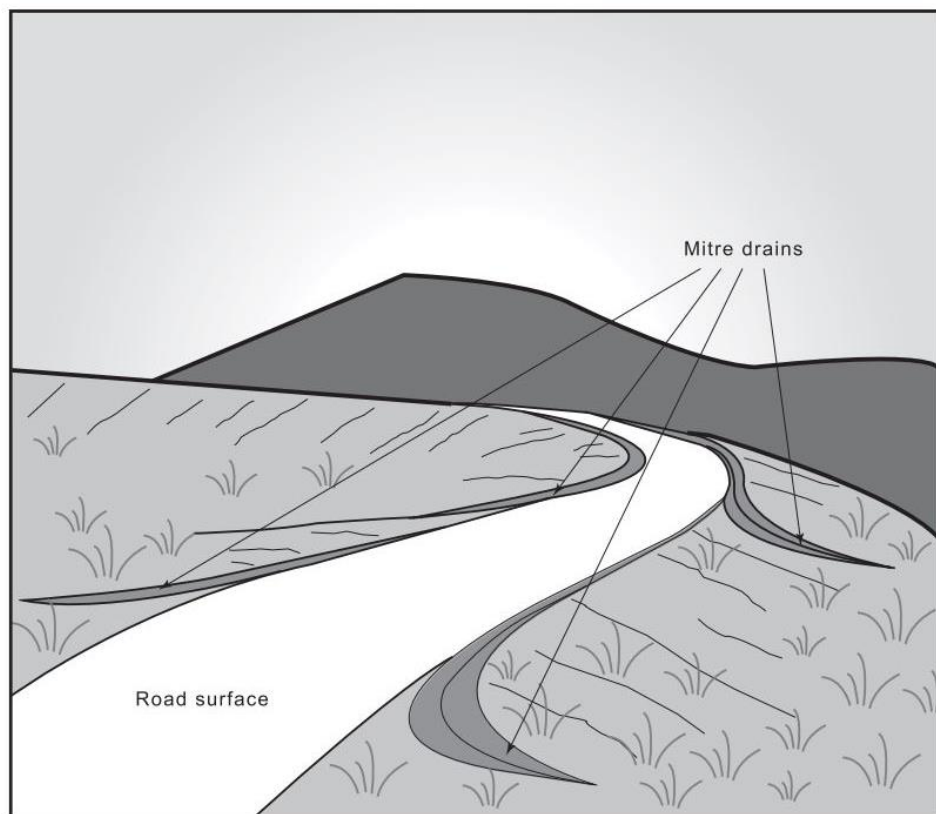


FIGURE 3: MITRE DRAINS TO CONTROL SURFACE FLOW ON UNPAVED TRACKS

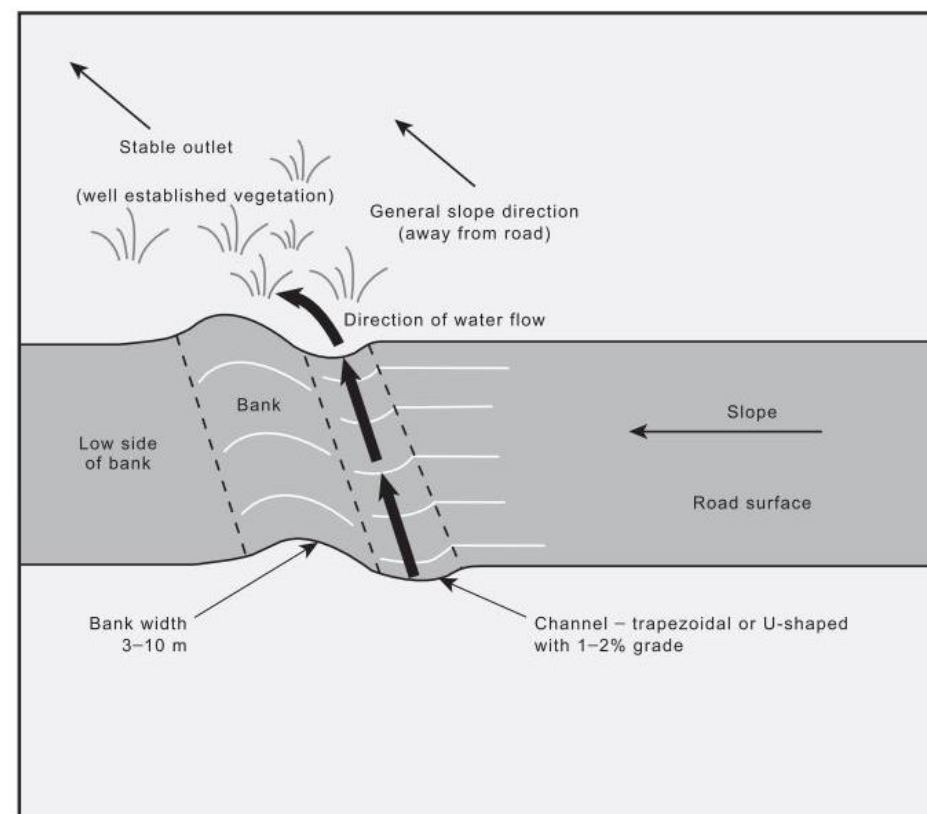


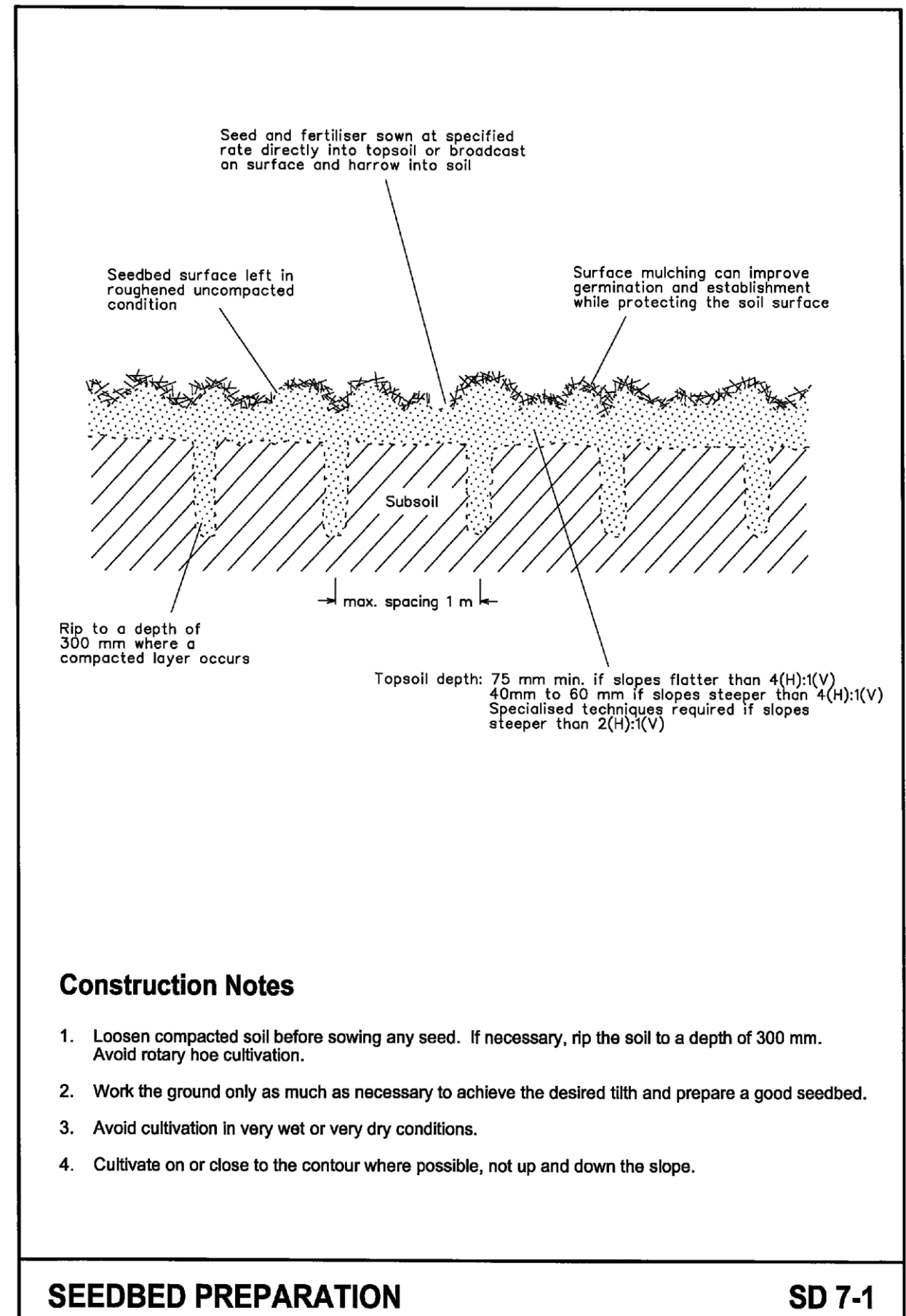
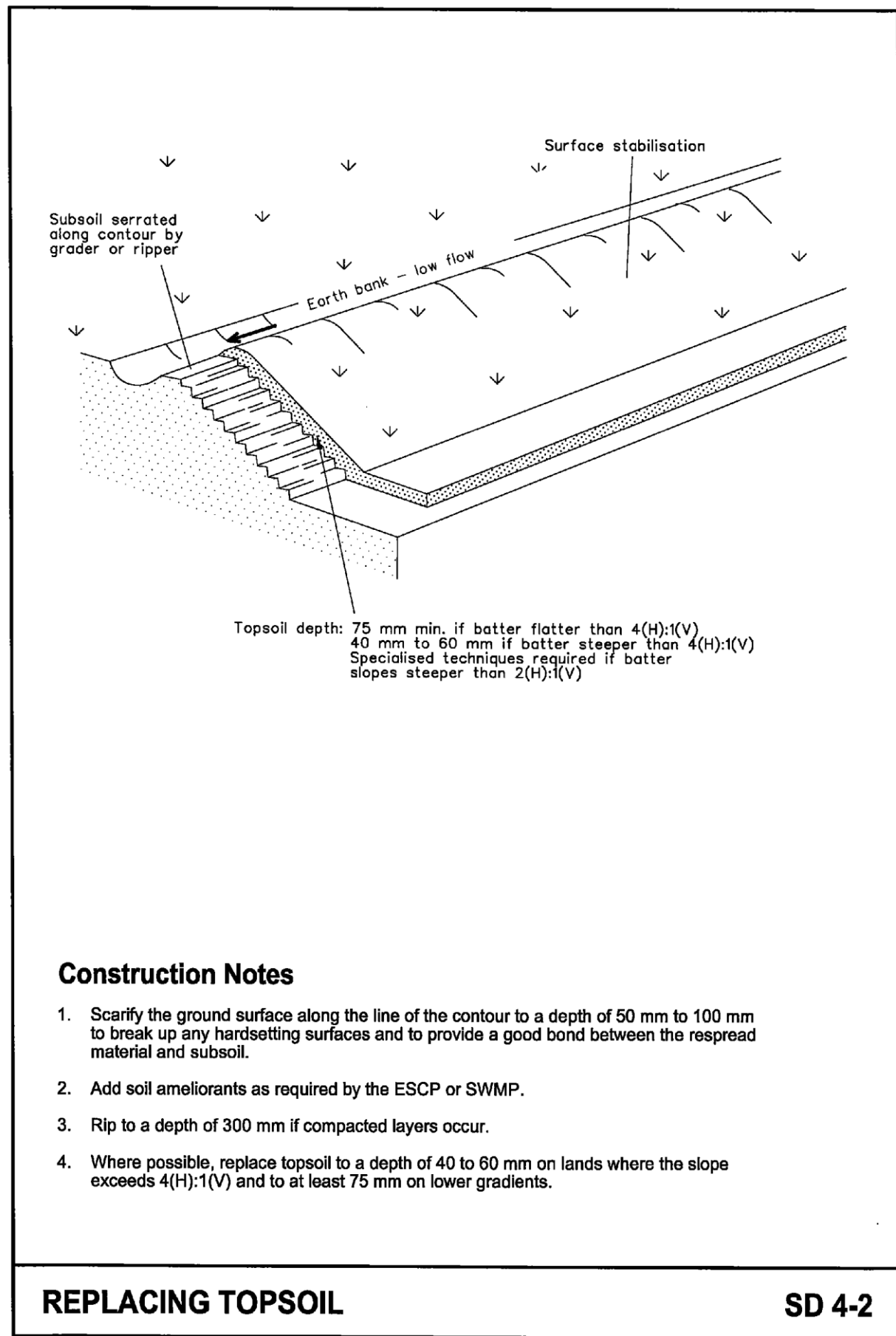
FIGURE 4: ROLL-OVERS TO CONTROL SURFACE FLOW ON UNPAVED TRACKS

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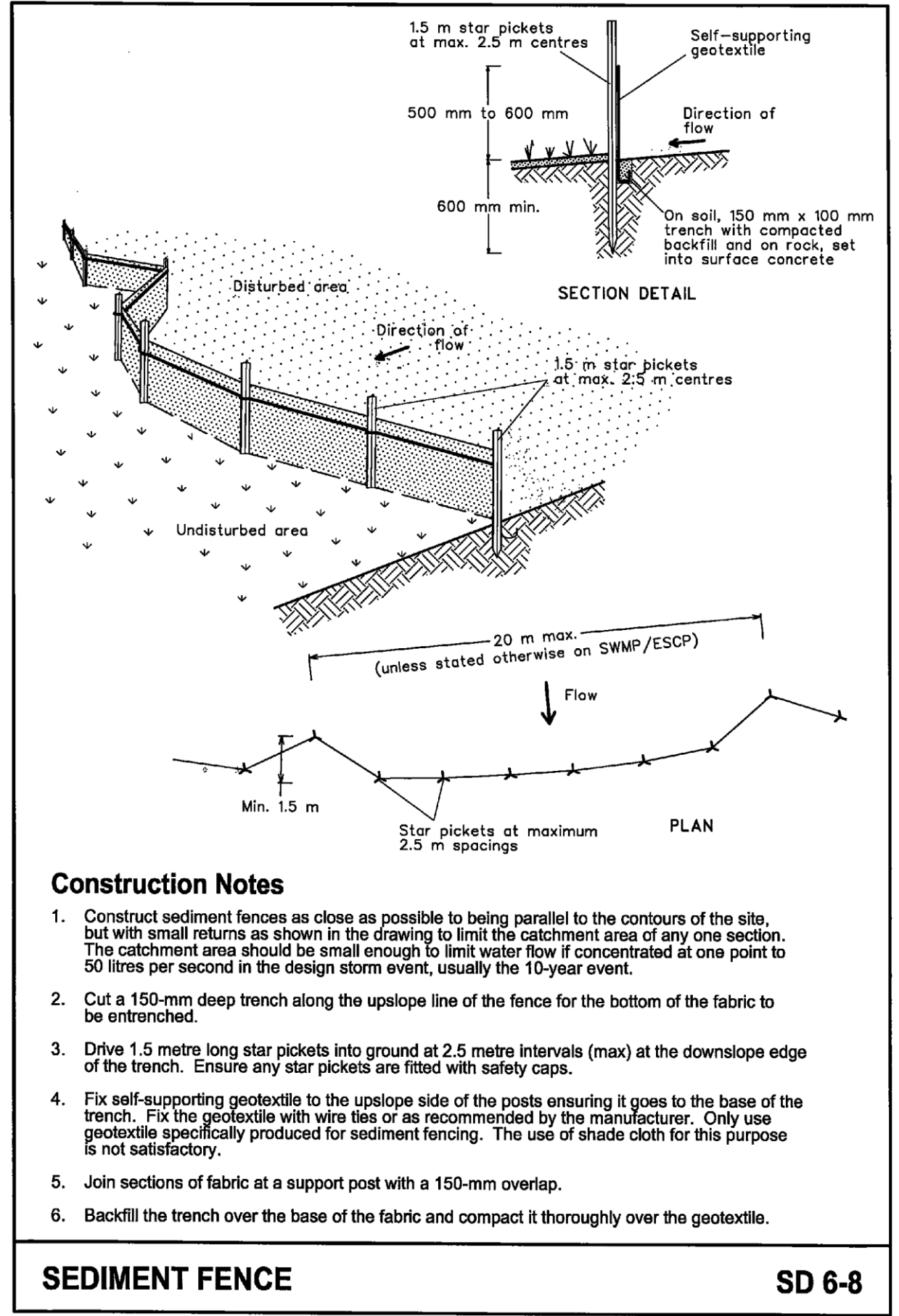
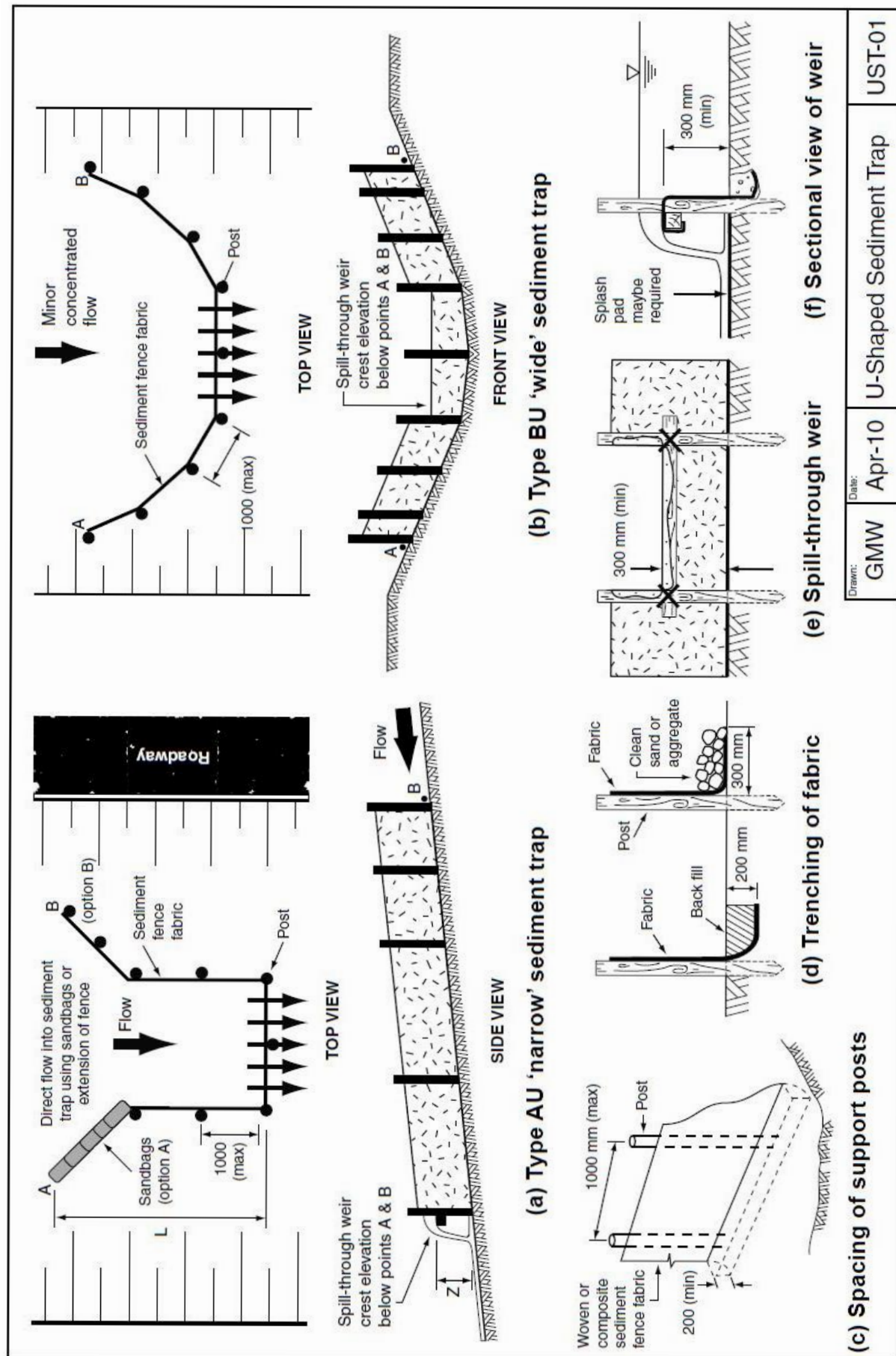
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PROJECT TITLE
**EROSION AND SEDIMENT CONTROL PLAN
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DRAWING TITLE STANDARD DRAWINGS SEDIMENT TRAPS				
PROJECT NO.	SUB-PR NO.	DRAWING NO.	REV.	PAGE
18000371	P01	Sheet 5	01	

Appendix B

Proposed Site Layout

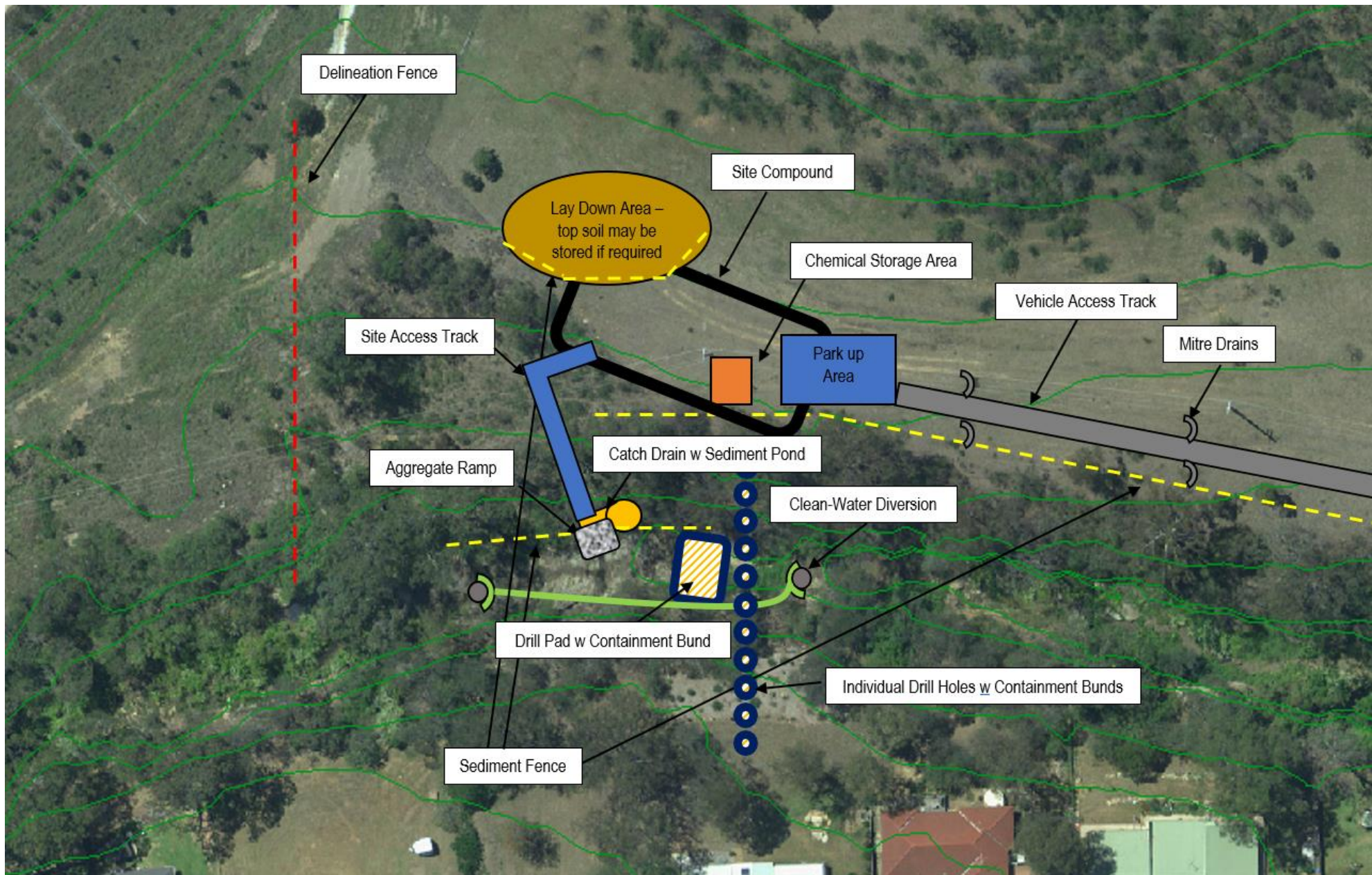


Figure 1: Proposed Site Layout and Erosion and Sediment Controls.

Note control locations are subject to change pending installation of Site Layout