

17th Technical Training Series



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Erosion Control and Road Repairs

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Engineering Support Branch - CalRecycle**

Part 4 of the Debris Removal and Clean up process

Erosion Control of Cleaned Sites

- Performed after cleanup standards have been achieved, and the
- Site is approved to receive erosion control measures:
 - Site documentation and mapping completed
 - Asbestos Survey conducted
 - Debris removed, and
 - Soil sampling indicates site's constituents of concern (principally metals) are below screening levels.

Why Perform Erosion Control

- The soil is disturbed and easily eroded
- Soil may have become hydrophobic due to the fire temperatures
- Prevent further damage to the site during the winter rain season
- Reduce outflow of potential contaminants (ash and heavy metals) to natural drainages
- Sprouting vegetation increases water infiltration and “holds” the soil
- Keep soil from reaching nearby streams
- Mitigate local flooding and mudslides





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<http://SoilScience.info>



Erosion Control

WAIVER OF EROSION CONTROL MEASURES
(For Clayton Incident Debris Removal Project)

I, _____, owner of the property commonly identified as (address) _____ County of Lake, State of California ("Premises"), having executed a Right of Entry Permit for purposes of allowing the County and its agents ("County Agent") to remove and clear any and all fire-generated debris of whatever nature and understanding that upon completion of the debris removal, erosion control measures were to be put in place, hereby request that the erosion control measures not be implemented at the Premises upon completion of the debris removal from the Premises. The request is based on my intent to immediately apply for a building permit to initiate reconstruction upon completion of the debris removal.

I agree to provide erosion control measures on the property that will meet the requirements of Lake County. In addition, I recognize that Lake County will be the enforcement agency for these erosion control measures. I further agree to comply with all federal laws and regulations, state laws and regulations, and local regulations which may be applicable to erosion control measures at the Premises.

I agree to indemnify, defend, hold harmless, and release the County of Lake, its employees, officers, agents, and the State of California from and against any actions, enforcement actions or proceedings, causes of action, liability, costs, penalties, fines, damages, and expenses including attorneys' fees arising from or in any way relating to the implementation of or failure to implement erosion control measures at the Premises regardless of the degree of negligence of the County except to the extent of County's sole or active negligence or willful misconduct.

For the Owner:

Name: _____

Address: _____

Phone: _____

Signature: _____ Date: _____

WAIVER: APPROVED/DISAPPROVED

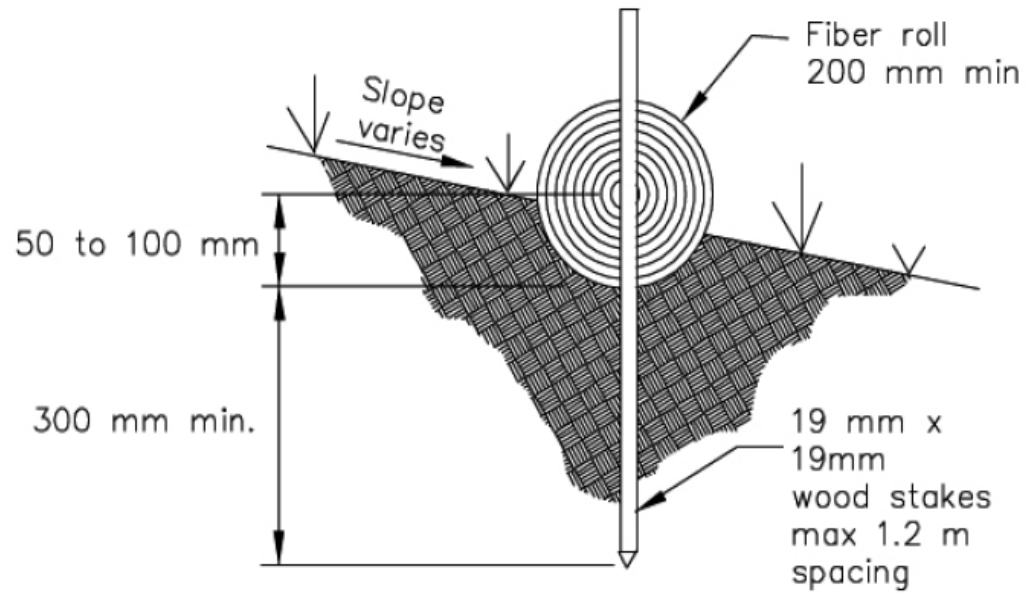
Signature: _____ Date: _____

Todd Thalhamer, Operations Chief
Clayton Incident



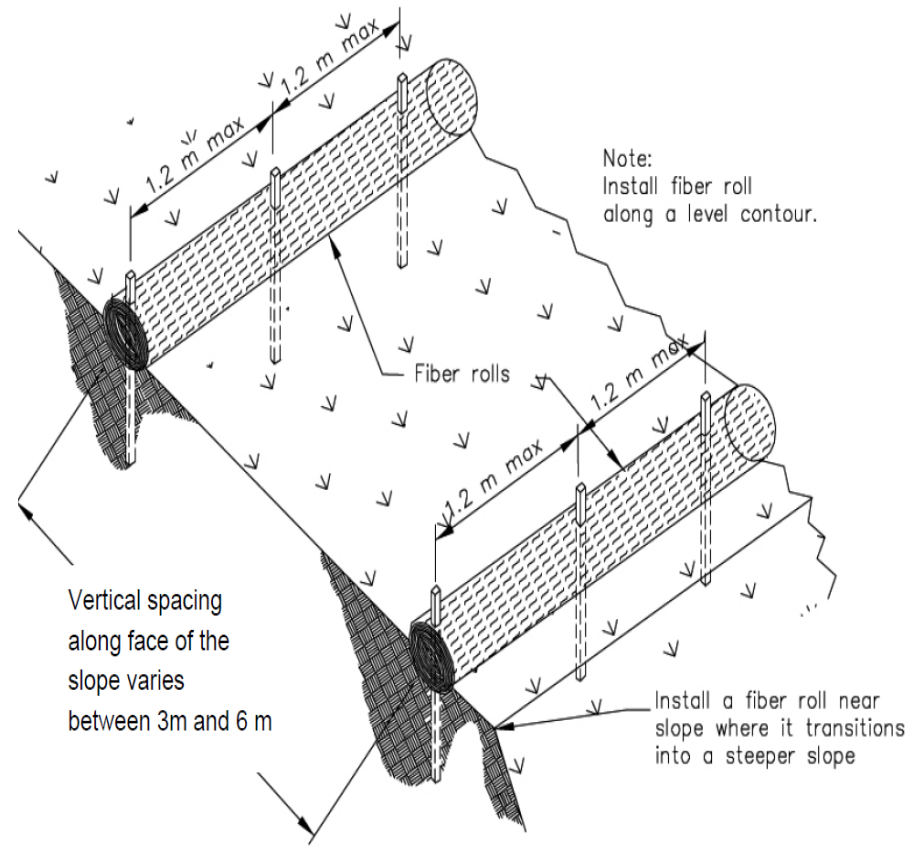
Erosion Control Measures (ECM)

- Best Management Practices (BMPs)
 - Are ECM measures feasible, effective, implementable, acceptable and durable?
 - Methods used are dependent on the site and weather conditions
 - Methods used include straw, mulch, silt fences, hydroseeding, straw (fiber) rolls and wattles, log barriers, gravel bags and jute netting
 - Review and approve hydroseed mix prior to application
 - ECM Levels (1, 2, 3 or 4) are dependent on slopes and complexity of the Site
 - Erosion Control Levels
 - Level 1 - Flat Lot: Mulch and/or straw, plus hydroseed with tackifier
 - Level 2 – Sloping Lot: Hydroseed and fiber rolls
 - Level 3 – Sloping Lot with grades steeper than 2h:1v: Mulch and/or hydroseed, fiber rolls, jute netting and/or silt fences
 - Level 4 – Site specific treatment (all of the above described measures) due to complex site conditions



ENTRENCHMENT DETAIL

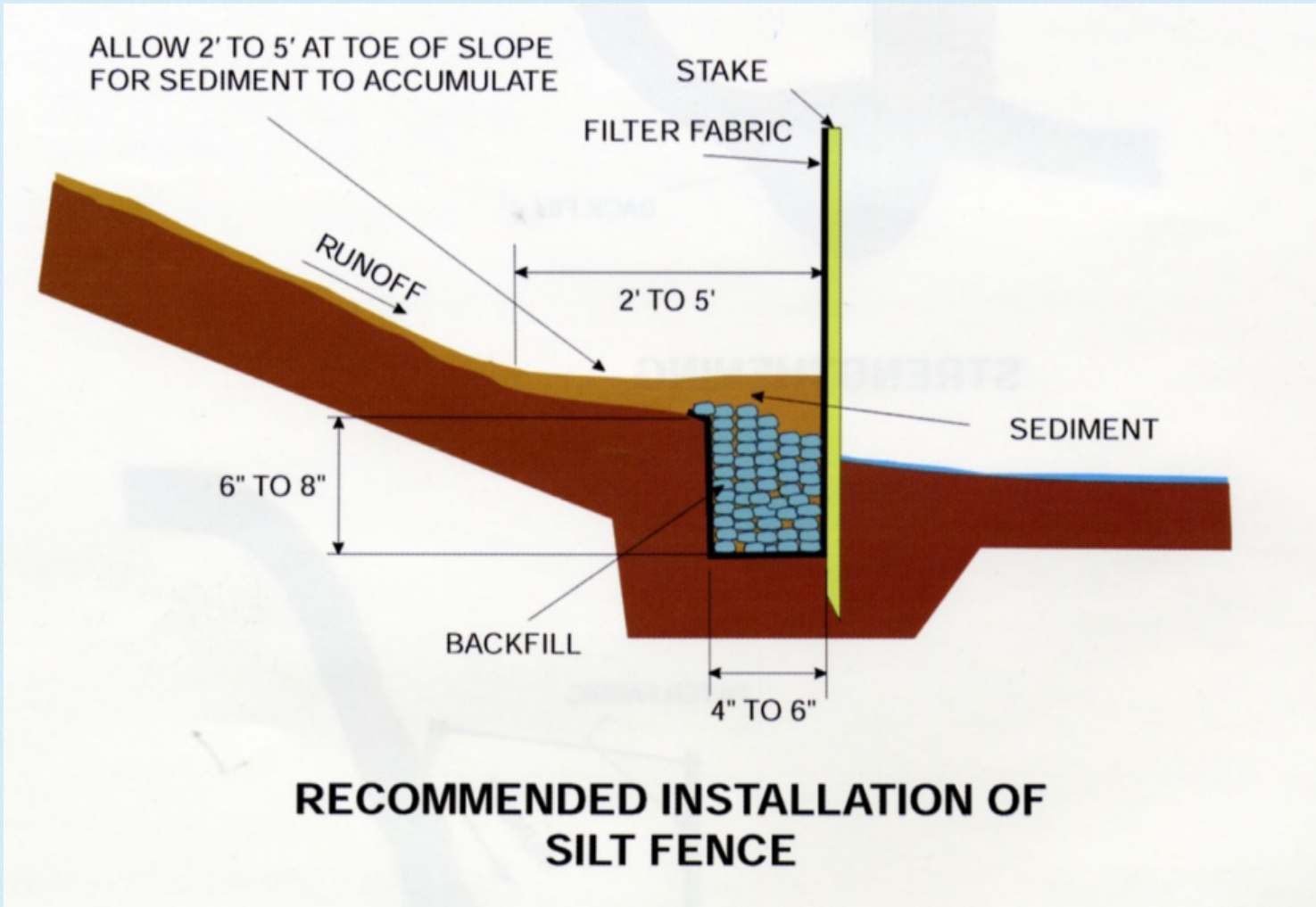
N.T.S.



Vertical spacing
along face of the
slope varies
between 3m and 6m

TYPICAL FIBER ROLL INSTALLATION

N.T.S.











Success or Failure?





Weed Debris Removal
Address: 7800 S Lewis
Site Documentation
Asbestos Survey
Removal Complete
Assessment Sampling
Erosion Control
City Approval
City of Weed | City of Seattle | City of MS

7800



Larger burn areas covered with hay with staff from CDC



Looks good?



Road Repairs after Debris Removal

- Roads are damaged due to excessive loading of asphalt-concrete pavements by 10-wheelers and end-dump trucks used to transport debris to landfill
- Damaged roads include arterial roads, local roads and driveways
- Public Roads (Caltrans jurisdiction) are not within scope of road repair Operations

Estimate of Road Damage due to Debris Removal Operations

- ENGINEER'S OBSERVATIONS:

- The following road survey was performed by the CalRecycle Operations Chief. The initial road survey conducted on xxx, indicated x areas that should be repaired and/or replaced due to impacts from the Incident directly or indirectly from the x shipments of debris, concrete, and metal. These observations are only recommendations to County of Calaveras.
- Survey, photo and measure areas of damage
- Estimate square footage of asphalt and/or gravel roadway replacement needed

Road Damage – alligator cracking



Road Damage – Potholes



Road Damage – roadbase and asphalt raveling and rutting





Lessons Learned

- Survey and videotape all road and driveway conditions prior to debris removal
- Have a designated ECM taskforce identified as soon as Operations begin
- Prepare a map of ECM when the Site is ready for confirmation soil sampling

QUESTIONS?

