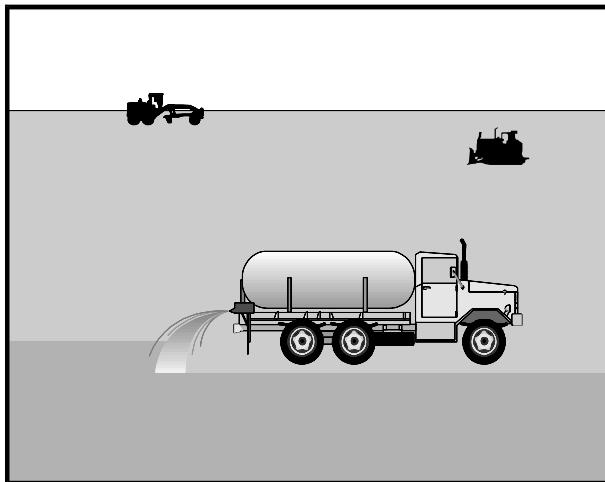


Wind Erosion Control

WE-1



BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

Wind erosion control consists of applying water or other dust suppressants as necessary to prevent soil erosion. Most BMPs described in Section 3.1 can also be applied to wind erosion. Several BMPs protect the soil surface like vegetative covers (SS-2, SS-4, and SS-15), buffer or mulch covers (SS-3, SS-6, and SS-8), as well as other control techniques that require periodic applications. These techniques include wet suppressions (i.e. watering, application of surfactants or other additives) and chemical stabilizers that change the physical and chemical characteristics of the surface. Other techniques are: surface roughening (SS-12) and wind barriers like board fences, wind fences, hay bales, crate walls, and similar materials.

Stockpiles and other temporary soil structures shall also be protected from wind erosion. Stockpiles can be covered with plastic or fabric and materials can be stored in open ended buildings or storage silos. Work practices can be conducted to prevent soil erosion, like load-in and load-out operations, restricted pile activity, loading and unloading downwind, and minimizing spillage of material, and subsequent spreading of material. All dust controls shall be applied in accordance with MDT Standard Specification.

Appropriate Applications

Wind erosion should be considered for all exposed soils subject to wind erosion.

Limitations

Effectiveness depends on soil, temperature, humidity, wind velocity, and wind direction.

Design Guidelines and Considerations

- Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution. In the winter months, the amount of water used for dust suppression shall be monitored not to saturate the soil and create other problems, like icing, excess runoff, and mud/dirt carry out.
- All distribution equipment shall be equipped with a positive means of shutoff.

- Unless water is applied by means of pipelines, at least one mobile unit shall be available at all times to apply water or dust suppressants.
- If reclaimed wastewater is used, the sources and discharge must meet Montana DEQ water reclamation criteria. Non-potable water shall not be conveyed in tanks or drain pipes that will be used to convey potable water and there shall be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances shall be marked “NON-POTABLE WATER - DO NOT DRINK.”
- Materials applied as temporary soil stabilizers and soil binders will also provide wind erosion control benefits. These materials shall be applied at manufacturer’s specifications in accordance with all federal, state, local regulations.

Maintenance, Inspection, and Removal

- Check areas protected to ensure coverage.
- Implement requirements of MDT Standard Specifications as appropriate.
- Dust control measures require constant attention. Water may be dispersed on a regular basis depending on weather conditions.
- Special care shall be taken with the storage, handling, and disposal of chemical soil stabilizers, and soil binders. Section 3.7 describes BMPs related to Waste Management and Material Pollution Controls.
- Remove wind fencing and other non-degradable devices when soils are stabilized.

SYMBOL:

WIND EROSION CONTROL, WE-11

WIND EROSION CONTROL CONSISTS OF APPLYING WATER OR OTHER DUST SUPPRESSANTS, ROUGHENING SURFACES OR INSTALLING WIND BARRIERS TO PREVENT WIND EROSION BY PROTECTING SOIL SURFACES OR BY REDUCING WIND VELOCITIES.

WATER SPRAYING:

APPLY BY MEANS OF PRESSURE-TYPE DISTRIBUTORS OR PIPELINES EQUIPPED WITH A SPRAY SYSTEM OR HOSES AND NOZZLES THAT MAY ENSURE EVEN DISTRIBUTION. DO NOT USE EXCESSIVE AMOUNTS OF WATER FOR DUST SUPPRESSION THAT MAY CAUSE SOILS TO BECOME SATURATED AND CREATE OTHER PROBLEMS SUCH AS EXCESS RUNOFF, MUD/SILT TRACKING OR ICING IN THE WINTER MONTHS. EQUIP ALL DISTRIBUTION SYSTEM WITH A POSITIVE MEANS OF SHUTOFF, UNLESS WATER IS APPLIED BY MEANS OF PIPELINES. AT LEAST ONE MOBILE IS REQUIRED TO BE AVAILABLE AT ALL TIMES ON THE CONSTRUCTION SITE TO APPLY WATER OR DUST SUPPRESSANTS. IF RECLAMED WASTEWATER IS USED, THE SOURCES AND DISCHARGE MUST MEET MONTANA DEQ WATER RECLAMATION CRITERIA. DO NOT USE NON-POTABLE WATER IN TANKS OR DRAIN PIPES THAT MAY BE USED TO CONVEY POTABLE WATER. DO NOT CONNECT BETWEEN POTABLE AND NON-POTABLE SUPPLIES. MARK ALL NON-POTABLE TANKS, PIPES AND OTHER CONVEYANCES AS "NON-POTABLE WATER - DO NOT DRINK".

DUST SUPPRESSANTS:

MATERIALS APPLIED AS TEMPORARY SOIL STABILIZERS AND SOIL BINDERS MAY ALSO PROVIDE WIND EROSION CONTROL BENEFITS. APPLY THESE MATERIALS PER MANUFACTURE'S SPECIFICATIONS IN ACCORDANCE WITH ALL FEDERAL, STATE, LOCAL REGULATIONS. SEE SS-5 SOIL BINDERS.

CALCIUM CHLORIDE OR OTHER DUST SUPPRESSANTS USED ON ROADWAYS THAT ARE NOT LISTED IN SS-5 MUST MEET MDT SPECIFICATIONS AND/OR BE APPROVED BY THE ENGINEER PRIOR TO USE.

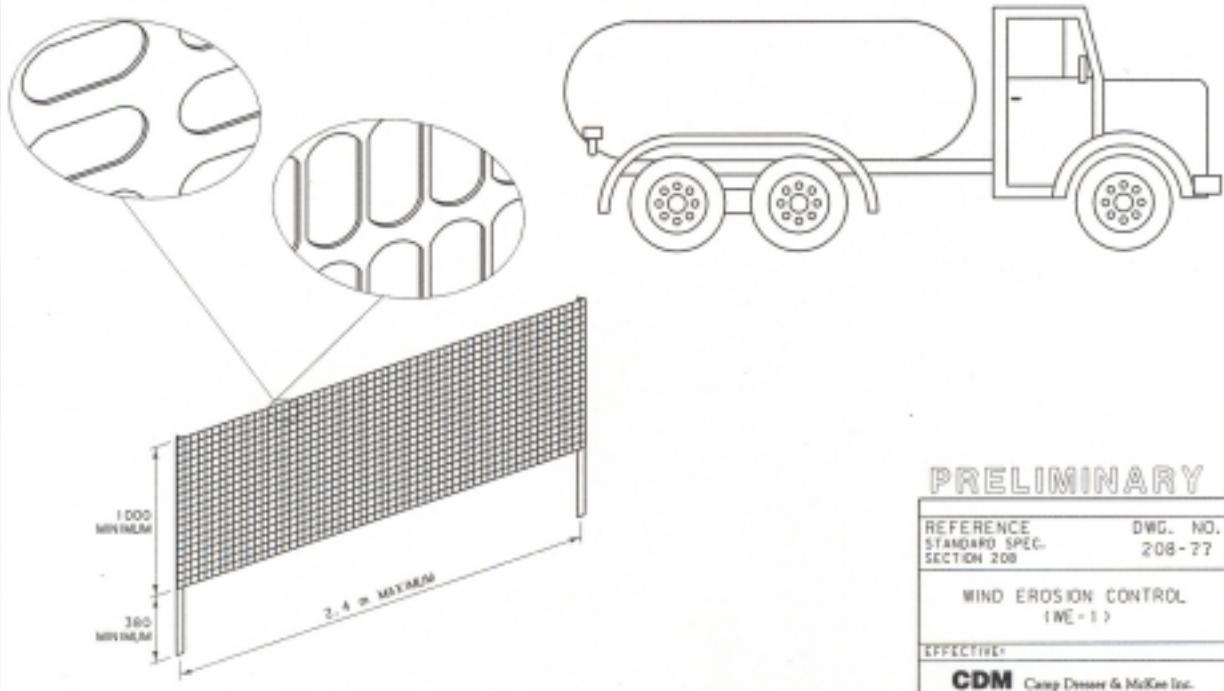
SLOPE ROUGHENING:

REFER TO SLOPE ROUGHENING TECHNIQUES DISCUSSED IN SS-12 SLOPE ROUGHENING.

WIND BARRIERS:

WIND BARRIERS PROVIDE AN AREA OF REDUCED WIND VELOCITY WHICH ALLOWS SETTLING OF LARGE SEDIMENT PARTICLES. MAXIMUM REDUCTION OF WIND VELOCITIES OCCUR IMMEDIATELY DOWNWIND OF THE WIND BARRIER, GRADUALLY DECREASING FURTHER DOWNWIND.

USE TEMPORARY WIND FENCING AS WIND BARRIERS ON CONSTRUCTION SITES. BOARD FENCING, EARTHEN BANKS, STRAW RIDS, ROCK WALLS, OR OTHER TEMPORARY WIND BARRIERS MAY BE UTILIZED AS APPROVED BY THE ENGINEER. WIND FENCING CAUSE WIND VELOCITY TO SLOW DOWN FOR APPROXIMATELY 40-50 TIMES THE FENCE HEIGHT, HOWEVER THE WIND FENCING IS ONLY EFFECTIVE FOR WIND BREAKING FOR APPROXIMATELY 10-25 TIMES THE HEIGHT OF THE FENCE. WIND FENCE IS REQUIRED TO BE A PREFABRICATED COMMERCIAL PRODUCT MADE OF WOVEN POLYETHYLENE, AND ULTRAVIOLET RESISTANT MATERIAL WITH A POROSITY OF 50% MINIMUM. WIND FENCING IS MOST PROTECTIVE IN A DIRECTION THAT IS PERPENDICULAR TO THE WIND DIRECTION. FOR WIND PROTECTION OF STOCKPILES, PLACE WIND FENCING APPROXIMATELY 3-PILE HEIGHTS UPWIND OF THE STOCKPILE BASE.



PRELIMINARY

REFERENCE STANDARD SPEC. SECTION 208	DWG. NO. 208-77
WIND EROSION CONTROL (WE-11)	
EFFECTIVE:	
CDM	Camp Dresser & McKee Inc.