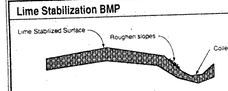
Lime Stabilization BMP



DESCRIPTION
Lime stabilization is used extensively in the North Central Texas region to stabilize pavement subbases for roadways, parking lots and other paved surfaces. Hydrated lime is applied to the soil and mixed through disking and other techniques, then allowed to cure. This practice will reduce the potential for runoff to carry lime offsite, where it may impact aquatic life through changing the pH balance of streams, ponds and other water bodies.

PRIMARY USE
This BMP consists of a series of techniques that should be implemented when lime is required for soil stabilization.

APPLICATIONS
Each of the techniques listed can be used under a variety of conditions. The engineer should determine the applicability of the technique based on site conditions such as available open space, quantity of area to be stabilized, proximity of nearby water courses and other BMPs employed at the site. The use of diversion dikes and interceptor swales (see appropriate fact sheets) to divert runoff away from areas to be stabilized can be used in conjunction with these techniques to reduce the impact of the lime.

DESIGN CRITERIA
- The contractor shall limit lime operations to that which can be thoroughly mixed and compacted by the end of each work day.
- No traffic other than water trucks and mixing equipment shall be allowed to pass over the spread lime until after completion of mixing.
- Areas adjacent and downstream of stabilized areas shall be roughened to intercept lime from runoff and reduce runoff velocity.
- Geotextile fabrics such as those used for silt fence should not be used to address lime since the grain size of lime is significantly smaller than the equivalent opening size of the fabric.
- For areas which phasing of lime operations is impractical, use of a curing seal such as Liquid Asphalt, Grade MC-250 or MC-400 applied at a rate of 0.15 gallons per square yard of surface can be used to protect the base.
- Use of sediment basins with a significant (24-hour) drawdown time is encouraged for large stabilized areas (see Sediment Basin BMP).

Applications: Perimeter Control; Slope Protection; Sediment Trapping; Channel Protection; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: Sediment; Nutrients; Toxic Materials; Oil & Grease; Floatable Materials; Other Construction Wastes

Implementation Requirements: Capital Costs; Maintenance; Training; Suitability for Slopes >5%

Legend: Significant Impact; Medium Impact; Low Impact; Unknown or Questionable Impact

N/A

S-11

North Central Texas Council of Governments

Solid Waste Management

DESCRIPTION
Large volumes of solid waste are often generated at construction sites including: packaging, pallets, wood waste, concrete waste, soil, electrical wiring, cuttings, and a variety of other materials. The solid waste management practice lists techniques to minimize the potential of storm water contamination from solid waste through appropriate storage and disposal practices.

PRIMARY USE
These practices should be a part of all construction practices. By limiting the trash and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the project.

APPLICATIONS
The solid waste management practice for construction sites is based on proper storage and disposal practices by construction workers and supervisors. Key elements of the program are education and modification of improper disposal habits. Cooperation and vigilance is required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are lists describing the targeted materials and recommended procedures.

- Targeted Solid Waste Materials
  - Paper and cardboard containers
  - Plastic packaging
  - Styrofoam packing and forms
  - Insulation materials (non-hazardous)
  - Wood pallets
  - Wood cuttings
  - Pipe and electrical cuttings
  - Concrete, brick, and mortar waste
  - Shingle cuttings and waste
  - Roofing tar
  - Steel (cuttings, nails, rust residue)
  - Gypsum board cuttings and waste
  - Sheathing cuttings and waste
  - Miscellaneous cutting and waste
  - Food waste
  - Demolition waste

Storage Procedures
- Wherever possible, minimize production of solid waste materials
- Designate a foreman or supervisor to oversee and enforce proper solid waste procedures
- Instruct construction workers in proper solid waste procedures
- Segregate potentially hazardous waste from non-hazardous construction site debris
- Keep solid waste materials under cover in either a closed dumpster or other enclosed trash container that limits contact with rain and runoff. Store waste materials away from drainage ditches, swales and catch basins.

Applications: Perimeter Control; Slope Protection; Sediment Trapping; Channel Protection; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: Sediment; Nutrients; Toxic Materials; Oil & Grease; Floatable Materials; Other Construction Wastes

Implementation Requirements: Capital Costs; Maintenance; Training; Suitability for Slopes >5%

Legend: Significant Impact; Medium Impact; Low Impact; Unknown or Questionable Impact

N/A

W-1

North Central Texas Council of Governments

Hazardous Waste Management

DESCRIPTION
The hazardous waste management BMP addresses the problem of storm water polluted with hazardous waste through spills or other forms of contact. The objective of the Management Program is to minimize the potential of stormwater contamination from common construction site hazardous wastes through appropriate recognition, handling, storage and disposal practices.

It is not the intent of this Management Program to supersede or replace normal site assessment and remediation procedures. Significant spills and/or contamination warrant immediate response by trained professionals. Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken. The Central Permit requires reporting of significant spills to the National Response Center (NRC) at (800) 424-8802.

PRIMARY USE
These management practices along with applicable OSHA and EPA guidelines should be incorporated at all construction sites which use or generate hazardous wastes. Many wastes such as fuel, oil, grease, fertilizer and pesticide are present at most construction sites.

INSTALLATION, APPLICATION AND DISPOSAL CRITERIA
The hazardous waste management techniques presented here are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements of the management program are education, proper disposal practices, as well as provisions for safe storage and disposal. Following are lists describing the targeted materials and recommended procedures.

- Targeted Hazardous Waste Materials
  - Paints
  - Solvents
  - Stains
  - Wood preservatives
  - Cutting oils
  - Greases
  - Roofing tar
  - Pesticides
  - Fuels & lube oils
  - Lead based paints (Demolition)

Storage Procedures
- Wherever possible, minimize use of hazardous materials
- Minimize generation of hazardous wastes on the jobsite
- Segregate potentially hazardous waste from non-hazardous construction site debris
- Designate a foreman or supervisor to oversee hazardous materials handling procedures
- Keep liquid or semi-liquid hazardous waste in appropriate containers, closed dumpster or similar and under cover

Applications: Perimeter Control; Slope Protection; Sediment Trapping; Channel Protection; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: Sediment; Nutrients; Toxic Materials; Oil & Grease; Floatable Materials; Other Construction Wastes

Implementation Requirements: Capital Costs; Maintenance; Training; Suitability for Slopes >5%

Legend: Significant Impact; Medium Impact; Low Impact; Unknown or Questionable Impact

N/A

W-2

North Central Texas Council of Governments

Concrete Waste Management

DESCRIPTION
Concrete waste at construction sites comes in two forms. 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

PRIMARY USE
Concrete waste is present at most construction sites. This BMP should be utilized at sites in which concrete waste is present.

APPLICATIONS
A number of water quality parameters can be affected by introduction of concrete - especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of both cement and aggregate dust are also generated from both fresh and demolished concrete waste.

Current Unacceptable Waste Concrete Disposal Practices
- Dumping in vacant areas on the jobsite
- Illicit dumping on roadsides
- Dumping into ditches of drainage facilities

Recommended Disposal Practices
- Avoid unacceptable disposal practices listed above
- Develop pre-determined, safe concrete disposal areas.
- Provide a washout area with a minimum of 6 cubic feet of containment area volume for every 1 cubic yard of concrete poured.
- Never dump waste concrete directly on without property owner's knowledge and consent.
- Treat runoff from storage areas through the use of sediment controls as required.

Education
- Drivers and equipment operators should be instructed on proper disposal and equipment washing practices (see above).
- Supervisors must be made aware of the potential environmental consequences of improperly handled concrete waste.

Enforcement
- The construction site manager or foreman must ensure that employees and pro-mix companies follow proper procedures for concrete disposal and equipment washing.
- Employees violating disposal or equipment cleaning directives must be re-educated or disciplined if necessary.

Demolition Practices
- Monitor weather and wind direction to ensure wastes dust is not entering drainage structures and surface waters.
- Where appropriate, construct sediment traps or other types of sediment detention devices downstream of demolition activities.

Applications: Perimeter Control; Slope Protection; Sediment Trapping; Channel Protection; Temporary Stabilization; Permanent Stabilization; Waste Management; Housekeeping Practices

Targeted Constituents: Sediment; Nutrients; Toxic Materials; Oil & Grease; Floatable Materials; Other Construction Wastes

Implementation Requirements: Capital Costs; Maintenance; Training; Suitability for Slopes >5%

Legend: Significant Impact; Medium Impact; Low Impact; Unknown or Questionable Impact

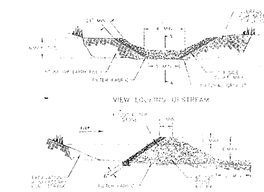
N/A

W-3

North Central Texas Council of Governments

FIGURE 4.X.B
EROSION CONTROL PLAN
STANDARD GENERAL NOTES

1. EROSION CONTROL DEVICES AS SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR TO THE START OF LAND DISTURBING ACTIVITIES ON THE PROJECT.
1. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS FOR THE PROJECT. CHANGES ARE TO BE APPROVED BEFORE CONSTRUCTION BY THE DESIGN ENGINEER AND THE CITY OF PLANO ENGINEERING DIVISION.
2. IF THE EROSION CONTROL PLAN AS APPROVED CANNOT CONTROL EROSION AND OFF-SITE SEDIMENTATION FROM THE PROJECT THE EROSION CONTROL PLAN WILL BE REQUIRED TO BE REVISED AND/OR ADDITIONAL EROSION CONTROL DEVICES WILL BE REQUIRED ON-SITE.
3. IF OFF-SITE SOIL BORROW OR SPOIL SITES ARE USED IN CONJUNCTION WITH THIS PROJECT, THIS INFORMATION SHALL BE DISCLOSED AND SHOWN ON THE EROSION CONTROL PLAN. OFF-SITE BORROW AND SPOIL AREAS **ARE** CONSIDERED A PART OF THE PROJECT SITE AND THEREFORE SHALL COMPLY WITH THE CITY OF PLANO EROSION CONTROL REQUIREMENTS. THESE AREAS SHALL BE STABILIZED WITH PERMANENT GROUND COVER PRIOR TO FINAL APPROVAL OF THE PROJECT.



STONE OUTLET SEDIMENT TRAP
N.T.S.

Lime Stabilization BMP

LIMITATIONS
These techniques are part of an overall plan to reduce pollutants from an active construction site. In the case of pollution due to lime, prevention of contamination is the only effective method to address this pollutant. Proper application and mixing along with avoiding applications when there is a significant probability of rain will reduce lime runoff.

MAINTENANCE REQUIREMENTS
None

Specification Section: N/A
Detail ID: N/A

Solid Waste Management

- Do not allow trash containers to overflow
- Do not allow waste materials to accumulate on the ground
- Prohibit littering by workers and visitors
- Police site daily for litter and debris
- Enforce solid waste handling and storage procedures

Disposal Procedures
- If feasible, segregate recyclable wastes from non-recyclable waste materials and dispose of properly
- General construction debris may be hauled to a licensed construction debris landfill (typically less expensive than a sanitary landfill)
- Use waste haulers appropriate for local jurisdiction
- Runoff which comes into contact with unprotected waste shall be directed into structural treatment such as silt fence to remove debris

Education
- Educate all workers on solid waste storage and disposal procedures
- Instruct workers in identification of solid waste and hazardous waste
- Have regular meetings to review and reinforce disposal procedures (incorporate in regular safety seminars)
- Clearly mark on all solid waste containers which materials are acceptable

Quality Control
- Foreman and/or construction supervisor shall monitor on-site solid waste storage and disposal procedures
- Discipline workers who repeatedly violate procedures

Requirements
- Job-site waste handling and disposal education and awareness program
- Commitment by management to implement and enforce Solid Waste Management Program
- Compliance by workers
- Sufficient and appropriate waste storage containers
- Timely removal of stored solid waste materials
- Possible modest cost impact for additional waste storage containers
- Small cost impact for training and monitoring
- Minimal overall cost impact

LIMITATIONS
Only addresses non-hazardous solid waste.
One part of a comprehensive construction site management program.

Specification Section: N/A
Detail ID: N/A

Hazardous Waste Management

- Store waste materials away from drainage ditches, swales and catch basins
- Use containment berms in fueling and maintenance areas and where the potential for spills is high
- Ensure that adequate hazardous waste storage volume is available
- Ensure that hazardous waste collection containers are constantly locked
- Do not allow potentially hazardous waste materials to accumulate on the ground
- Enforce hazardous waste handling and disposal procedures
- Clearly mark on all hazardous waste containers which materials are acceptable for the container

Disposal Procedures
- Regularly schedule hazardous waste removal to minimize on-site storage
- Use only reputable, licensed hazardous waste haulers

Education
- Instruct workers in identification of hazardous waste
- Educate workers of potential dangers in materials and the environment that hazard can occur
- Instruct workers on safety procedures for common construction site hazardous wastes
- Educate all workers on hazardous waste storage and disposal procedures
- Have regular meetings to discuss and reinforce identification, handling and disposal procedures (incorporate in regular safety seminars)
- Establish a continuing education program for incoming new employees

Quality Assurance
- Foreman and/or construction supervisor shall monitor on-site hazardous waste storage and disposal procedures
- Educate and if necessary, discipline workers who violate procedures
- Ensure that the hazardous waste disposal contractor is reputable and licensed

Requirements
- Job-site hazardous waste handling and disposal education and awareness program
- Commitment by management to implement hazardous waste management practices
- Compliance by workers
- Sufficient and appropriate hazardous waste storage containers
- Timely removal of stored hazardous waste materials

Costs
- Possible modest cost impact for additional hazardous storage containers
- Small cost impact for training and monitoring
- Potential cost impact for hazardous waste collection and disposal by licensed hauler - actual cost depends on type of material and volume

LIMITATIONS
This practice is not intended to address site assessments and preventing contamination.
Major contamination, large spills and other serious hazardous waste incidents require immediate response from specialists.
Demolition activities and potential preexisting materials, such as asbestos, are not addressed by this program. Use specific information of plans is necessary.
Contaminated soils are not addressed.
One part of a comprehensive construction site waste management program.

Specification Section: N/A
Detail ID: N/A

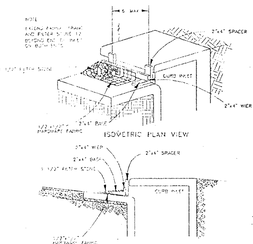
Concrete Waste Management

Requirements
- Use pre-determined disposal sites for waste concrete
- Prohibit dumping inside catch basin inlets (only in areas that are determined areas)
- Assign pre-determined truck and equipment washing areas
- Educate drivers and operators on proper disposal and equipment cleaning procedures

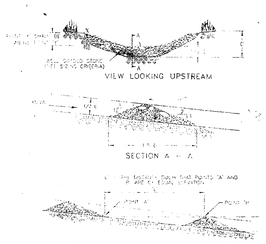
Costs
- Minimal cost impact for training and monitoring
- Concrete disposal cost depends on available sites and distance to suitable disposal areas
- Additional costs incurred if equipment washing must be significant

LIMITATIONS
This concrete waste management program is one part of a comprehensive construction site waste management program.

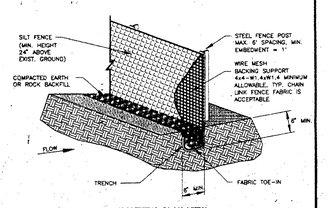
Specification Section: N/A
Detail ID: N/A



TYPE B CURB
INLET PROTECTION
N.T.S.



ROCK CHECK DAM
N.T.S.



ISOMETRIC PLAN VIEW
N.T.S.

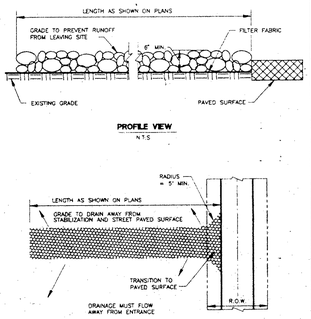
SILT FENCE | North Central Texas Council of Governments | STANDARD SPECIFICATION REFERENCE 02270.B | NTS | STANDARD DETAIL REFERENCE 2020 A | DEC. 92

SILT FENCE

GENERAL NOTES

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

SILT FENCE | North Central Texas Council of Governments | STANDARD SPECIFICATION REFERENCE 02270.B | NTS | STANDARD DETAIL REFERENCE 2020 B | DEC. 92



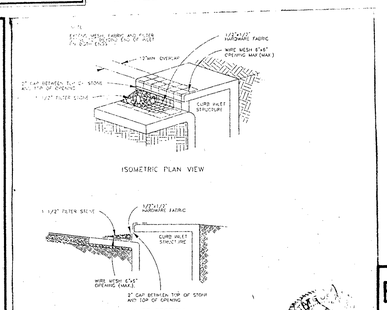
STABILIZED CONSTRUCTION ENTRANCE | North Central Texas Council of Governments | STANDARD SPECIFICATION REFERENCE 02270.G | NTS | STANDARD DETAIL REFERENCE 2070 A | DEC. 92

STABILIZED CONSTRUCTION ENTRANCE

GENERAL NOTES

1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK OR ACCEPTABLE CRUSHED PORTLAND CEMENT CONCRETE.
2. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 30 FEET FOR LOTS WHICH ARE LESS THAN 150 FEET FROM EDGE OF PAVEMENT. THE MINIMUM DEPTH IN ALL OTHER CASES SHALL BE 50 FEET.
3. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.
7. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STABILIZED CONSTRUCTION ENTRANCE | North Central Texas Council of Governments | STANDARD SPECIFICATION REFERENCE 02270.G | NTS | STANDARD DETAIL REFERENCE 2070 B | DEC. 92



TYPE A CURB
INLET PROTECTION
N.T.S.

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10290 MONROE DRIVE
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DALLAS, TEXAS 75229
PH. (214) 357-2981
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JOB NO-98-468

EROSION CONTROL DETAILS

DRAWN	DESIGN	DATE	SCALE	NOTES	FILE	NUMBER