Best MANAGEMENT PRACTICES Handbook

SWAN
Storm Water Awareness Network

sponsored by

CITY OF LINCOLN™ NEBRASKA

Lower Platte South Natural Resources District

INTRODUCTION

Chapter 28.01 of the Lincoln Municipal Code was approved by the Lincoln City Council on June 25, 2007. Through a federal mandate that is implemented through the Nebraska Department of Environmental Quality, the City of Lincoln and other Nebraska communities are required to regulate stormwater runoff from construction sites. This guide has been developed to assist the building industry in erosion and sediment control to comply with stormwater requirements on construction sites.

HOW TO USE THIS GUIDE

This guide outlines the process of obtaining a "permit" for land disturbance associated with building construction and provides examples of typical measures used for erosion and sediment control during construction activity. The examples in the following pages are referred to as Best Management Practices or ("BMPs"). In most cases you will be implementing just a few of these BMPs. Most of the examples in this guide have an image of a "good" compliance practice (✔) or an example of a site violation (**X**). Please review the guide and select the BMP(s) you will need for managing your site.

WHY EROSION & SEDIMENT CONTROL? WHAT ARE THE BENEFITS?

Erosion and sediment control are important elements in protecting the water quality in our streams and lakes. Dirt and other pollutants that wash off construction sites ultimately drain to Lincoln's streams and lakes untreated. Controlling erosion and sediment on a construction site prevents adverse impacts to water resources and the environment, and it is also ***federally mandated***.

WHY THESE REGULATIONS ARE REQUIRED

ENVIRONMENTAL PROTECTION AGENCY (EPA)

Based upon the Clean Water Act, the Environmental Protection Agency administers regulations for protecting streams and lakes from pollutants that come from construction activity. In Nebraska, EPA delegates the administration of these regulations to the State of Nebraska.

NEBRASKA DEPT. OF ENVIRONMENTAL QUALITY (NDEQ)

The Nebraska Department of Environmental Quality is required to create state-specific regulations based on the EPA minimum requirements. In turn, Lincoln and other Nebraska communities are required to develop and enforce local programs based on the NDEQ minimum requirements.

CITY OF LINCOLN

As required by NDEQ, the City of Lincoln has implemented regulations for construction activity by adopting **Chapter 28.01** of the Lincoln Municipal Code. The City of Lincoln has also developed Chapter 9. "Erosion and Sediment Control," of the Drainage Criteria Manual to provide detailed guidance and criteria for construction activity.

WHAT IS EROSION CONTROL?

Erosion control is the practice of preventing or controlling wind or water erosion in agriculture, land development and construction. This usually involves the creation of some sort of physical barrier, such as vegetation to absorb some of the energy of the wind or water that is causing the erosion. In general terms erosion control is the process of keeping dirt in place. For example, sodding, seeding, and landscaping prevent erosion of dirt.

WHAT IS SEDIMENT CONTROL?

Sediment Control methods are employed to prevent dirt from leaving the construction site after it has eroded from its original location.
For example sediment control practices include silt fences, sediment traps, earth dikes, drainage swales, storm drain inlet protection, and sedimentation basins.

WHY IS A PERMIT IS REQUIRED FOR INDIVIDUAL BUILDING SITES?

EPA requires permit coverage for parcels that are part of a "larger common plan of development or sale". This is defined as a contiguous area where separate and distinct construction activities may be taking place at different times on different schedules under one plan. For example, if a developer buys a 20-acre parcel, builds roads, and installs utilities with the intention of constructing homes or other structures in the future, those parcels are considered part of a larger common plan of development or sale.
If the land is parceled off or sold, and construction occurs on individual lots that are less than one acre, the parcel is subject to construction activity permitting requirements since the individual lots were included on the original site plan.

The larger common plan of development or sale also applies to other types of land development such as industrial parks or well fields. A permit is required if one or more acres of land will be disturbed, regardless of the size of any of the individually-owned or developed sites.

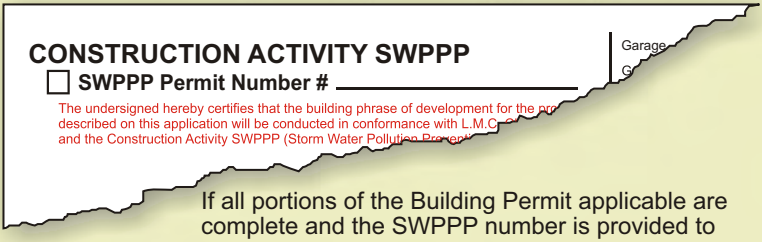
EROSION & SEDIMENT CONTROL

STEPS TO GETTING A BUILDING PERMIT

When applying for a building permit at the Building and Safety Department, you have two options.

OPTION ONE: *The **Developer Retains Full Responsibility** for All Stormwater Measures*

If you're building in a subdivision where a Stormwater Pollution Prevention Plan (SWPPP) permit number is held by the developer, you can request that number and place it on your building permit application.


CONSTRUCTION ACTIVITY SWPPP

☐ SWPPP Permit Number # _____

The undersigned hereby certifies that the building phrase of development for the pr
described on this application will be conducted in conformance with L.M.C
and the Construction Activity SWPPP (Storm Water Pollution Pre

Garage

If all portions of the Building Permit applicable are complete and the SWPPP number is provided to Building and Safety, there should be no delays in the building permit process.

Under this option the homebuilder or owner agrees to all terms of the developer's SWPPP which should meet all federal, state, and local requirements. Developers providing their SWPPP permit number agree to enforce any issues of non-compliance related to stormwater discharge on the builders' lots. See Chapter 28.01 Regulations for Construction Site Discharges at lincoln.ne.gov keyword: mud.

Any builder desiring to use the SWPPP number from a developer when obtaining a building permit, will need to have a signed form from the developer approving the use of that SWPPP number specifically for the address for which the building permit is for. If a builder doesn't have such a letter with the necessary information, then Option Two applies.

OPTION TWO: *The **Builder Has Full Responsibility** for All Stormwater Measures*

If you're building in a subdivision under this option, you'll need to obtain your own *Construction Stormwater Permit* from the City of Lincoln.

Office Use Only

Construction Stormwater Permit #_____
Received By _____

CITY OF LINCOLN
NEBRASKA
MAYOR CHRIS BEUTLER

Individual Lot
Notice of Intent (INOI)
For Coverage Under the Federal Clean Water Act

For Construction Activity that is Part of a Larger Common Plan of D

Submission of this form supercedes a
Pollution Prevention Plan (SWPPP
notification and disch

On the reverse side of the INOI form are 10 statements that will need to be read and initialed.

Under this option, the builder/owner assumes sole responsibility for any Stormwater violations which may be caused by the builder/owner on their lot during the building phase of construction. However, the developer has the option to notify the City of Lincoln about any issues of builder/owner non-compliance. The City of Lincoln will have enforcement action authority with the builder/owner of the lot.

An individual lot Stormwater Pollution Prevention Plan (SWPPP) is also required with the submission of the Individual Lot INOI.

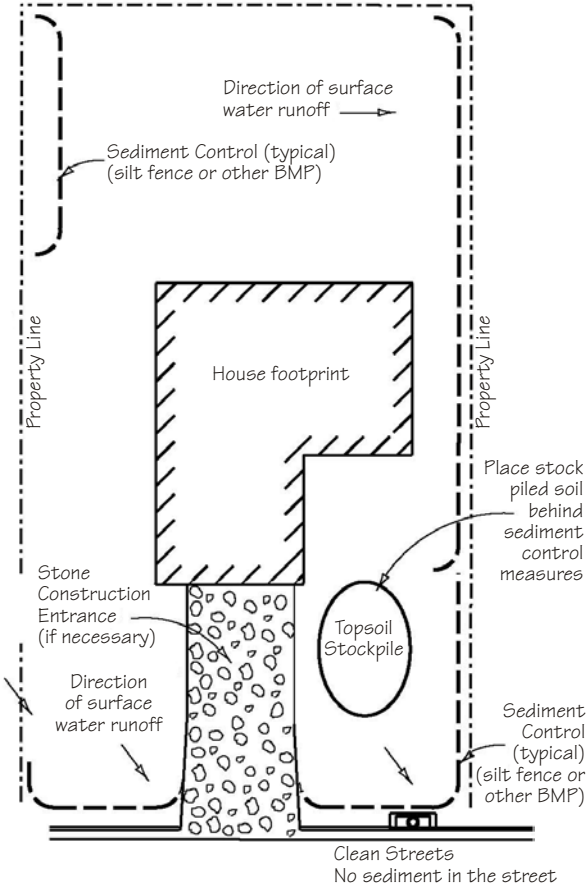
An individual lot site plan is also required as part of the Stormwater Pollution Prevention Plan (SWPPP) and the Individual Lot INOI. Three site plans are available (see pages 6-8) depending on the direction of how the drainage flows on or off the lot.

Reduce sediment leaving your construction site by implementing Best Management Practices (BMPs) such as:

1. Limit mud track-out onto private or public streets by parking on paved streets or driveways whenever possible. If necessary, utilize a temporary gravel drive or vehicle tracking pad.
2. Clean up any mud that has been tracked off the construction site in a thorough and timely manner.
3. Implement sediment controls along the lower sides of the property to protect adjacent waterways, storm drains or neighboring property from sedimentation.
4. Keep a clean site. Dispose of construction waste materials and debris in a dumpster or containment device.
5. Have your portable toilet staked and anchored away from any storm drain inlets.
6. Inspect your site weekly and after rain events to find any potential problems and keep your Best Management Practices repaired and in good working order.

Site Plan for Individual Lots
Type A

Not to Scale



DATE PREPARED: _____

NAME of PREPARER: _____

DISCLAIMER: The City of Lincoln does not incur any liability for the use or misuse of this site plan.

For more information on erosion and sediment control Best Management Practices, review Chapter 9 of the City of Lincoln Drainage Criteria Manual.

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3. Implement sediment controls along the lower sides of the property to protect adjacent waterways, storm drains or neighboring property from sedimentation.

4. Keep a clean site. Dispose of construction waste materials and debris in a dumpster or containment device.

5. Have your portable toilet staked and anchored away from any storm drain inlets.

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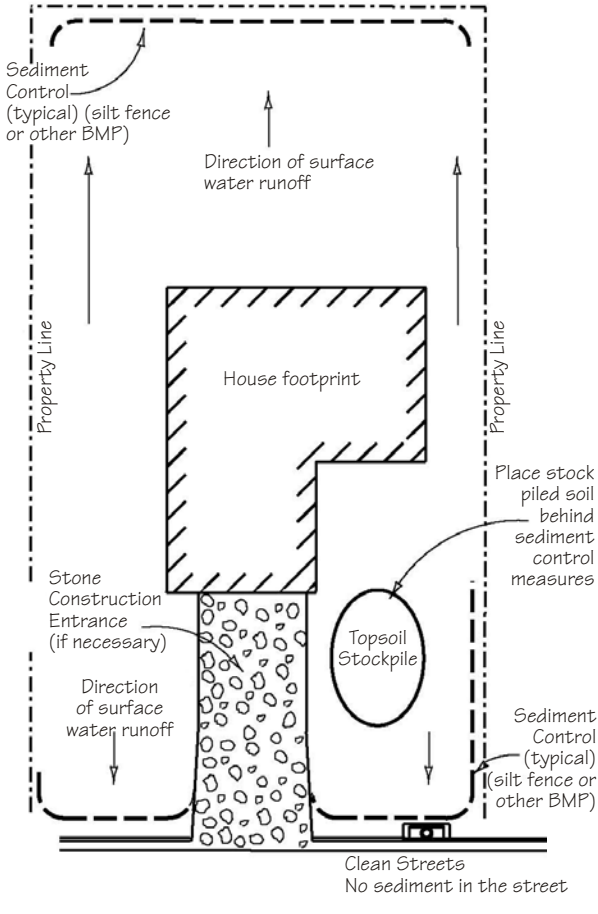
Site Plan for Individual Lots
Type B
Not to Scale



DATE PREPARED: _____

NAME of PREPARER: _____

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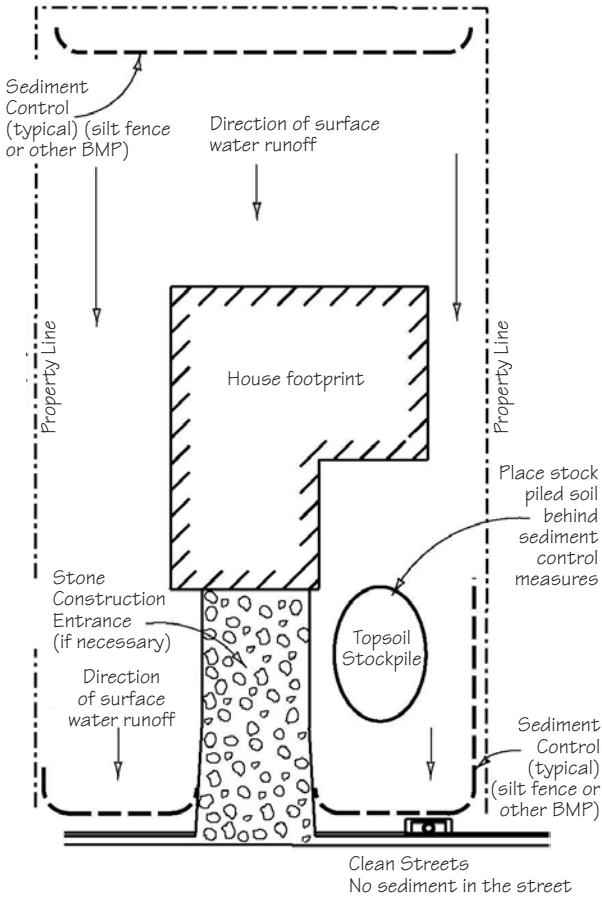
Site Plan for Individual Lots
Type C

Not to Scale



DATE PREPARED: _____

NAME of PREPARER: _____

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INSPECTION REQUIREMENTS

Inspections shall be performed at least once every 14 days during active construction and following any rain event of one half inch or greater. Below is an example inspection form.

BUILDER INSPECTION FORM

Contractor: _____ *Address:* _____

Inspection Date/Time: _____ *Inspector:* _____

Inspection: ____*Weekly* ____*Rain Event* ____*Amount*

1. Site Conditions

a. Is the SWPPP available on site?	YES	NO
b. Is the street, curb/gutter free of sediment?	YES	NO
c. Is there a stabilized entrance?	YES	NO
d. Are sediment control practices in place on all down gradient perimeters?	YES	NO
e. Are temporary stockpiles protected with sediment controls and not placed in ditch, swale, or curb and gutter?	YES	NO
f. Are trash cans and/or recycling storage containers on site, used and maintained?	YES	NO
g. Is there a designated concrete truck washout area?	YES	NO
h. Are petroleum, hydraulic, or other chemicals stored in proper containers and provided secondary containment?	YES	NO
i. Are ajacent lots used for equipment parking or material storage?	YES	NO
j. Has debris been moved to, or stored on adjacent lots?	YES	NO
k. Has soil from this lot been moved to adjacent lots?	YES	NO
l. Does this lot have a portable toilet, and is it properly anchored?	YES	NO
m. What is the estimated date for sodding, seeding, or landscaping?	_____	

Comments or photographs:

Use One Sheet Per Inspection

WHY USE EROSION CONTROL BMPS?

X

Erosion control BMP's help prevent sediment trackout in the public right of way.

X

Erosion control BMP's could have helped prevent this type of discharge into a local creek.

Establishing final stabilization on projects can be achieved in a number of different ways. Vegetation establishment is the key component in providing erosion control.

Perennial cool season grasses are the most commonly used on residential projects. Bluegrass species can be used in irrigated areas but will require plenty of maintenance such as ongoing fertilizer applications. In rural areas where grasses will be mowed frequently many types of fescue are available. Fescue grasses can be drought resistant and in turn require less moisture. Cool season grasses can be planted in spring or fall. These grasses have a very shallow root structure.

There are many warm season grasses native to Nebraska. These grasses are normally found in rural areas but are also used in select areas in residential plantings. Planting of warm season grasses is normally in the spring and can be planted in the dormant season. Warm season grasses have a very deep root structure, are very drought tolerant, and require only normal rainfall for irrigation.

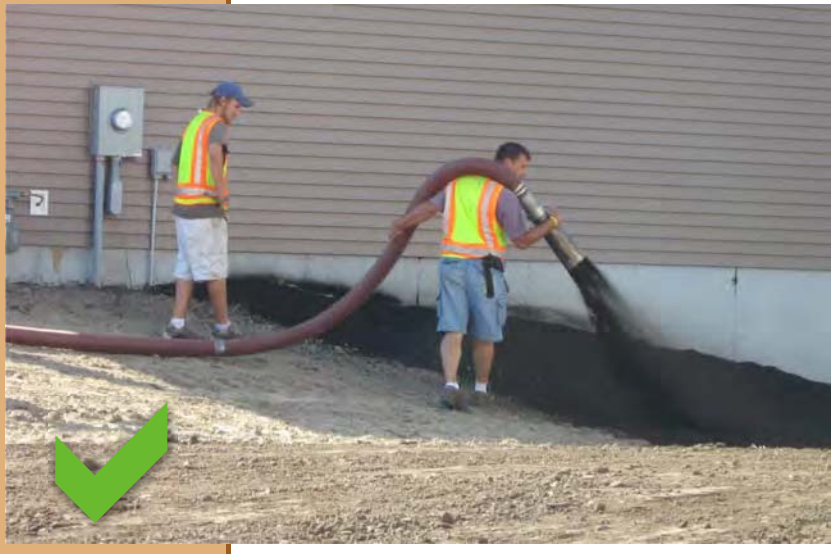
SODDING

Sodding provides instant erosion control.

SODDING

SEEDING - CONVENTIONAL DRILL SEEDING

TERRASEEDING



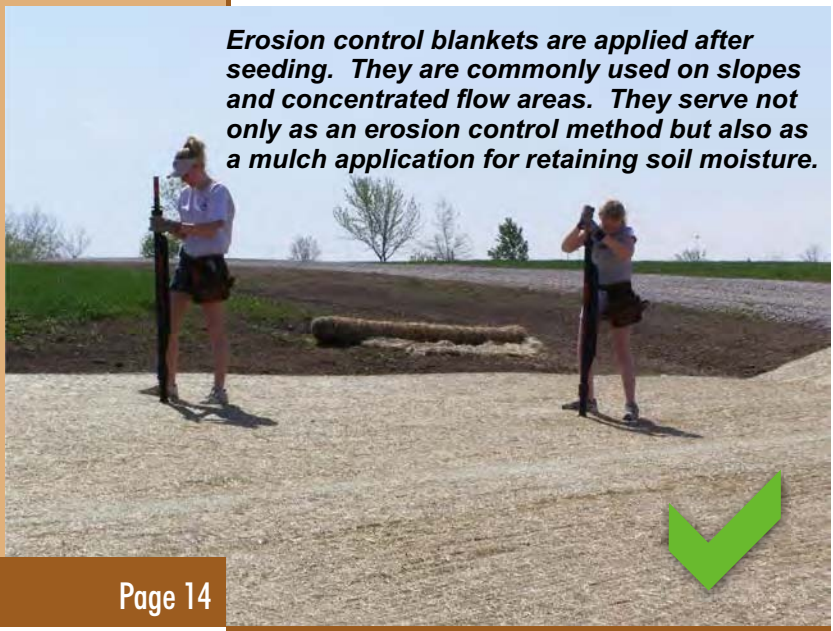
HYDRAULIC SEEDING

The process of applying seed, fertilizer, and mulch in a single application.

COMPOST AS A SOIL AMENITY

Applying compost into existing clay and sandy soils is an excellent method for consistent turf establishment. Compost not only allows the soil to drain but also provides needed soil nutrients.

EROSION CONTROL BLANKET



Erosion control blankets are applied after seeding. They are commonly used on slopes and concentrated flow areas. They serve not only as an erosion control method but also as a mulch application for retaining soil moisture.

MULCHING

Often straw or hay mulch is used following seed planting. It is an excellent source for retaining moisture in the soil.

Mulch can also be used as a temporary ground cover for erosion control.

Crimping is advised to anchor mulch into the soil.

The recommended application rate for straw or hay mulch is two tons per acre. This is how the proper application rate should appear.

LANDSCAPING

Rain Gardens are increasing in popularity nationwide. They not only decrease stormwater runoff they can also be fun for the home gardener.

Use of perennial grasses in landscaping helps retain rain water.

RAIN GARDENS

Maintenance is probably the single most important part of the process. Even with the best intentions maintenance will be required.

Once vegetation has been stripped from the home site, sediment controls to protect the public right-of-way are the only option. Sediment control BMPS will not only help reduce sediment in the right-of-way, but will also assist in minimizing track out.

Without adequate sediment control BMPS, sediment can be deposited into the public right-of-way, into the storm drainage system, and ultimately reaches local creeks and streams.

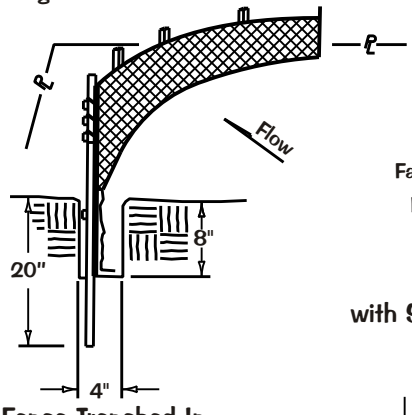
SILT FENCE EARTHEN BERM

After identifying directions of flow and prior to lot excavation, silt fence is a sediment control option.

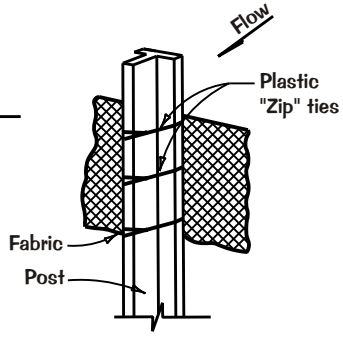
SILT FENCE PROTECTION

Silt fence also is an option for soil stockpiles stored near streets and outlots.

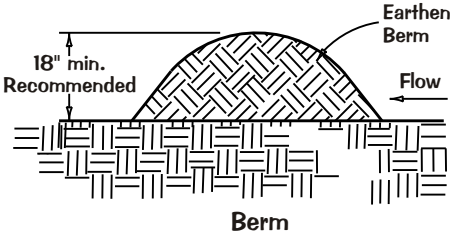
Placing silt fence with J - hooks or "smiles" slows down flows and adds strength to the installation.



Silt Fence Trenched In
No Scale



T-Post with Silt Fence Attached to Post
No Scale

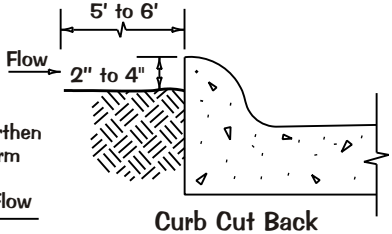


Berm
No Scale

Excavated soil on site can be used to create a berm to contain sediment on site.

A builder can create a temporary depression with a berm to be used to contain concrete truck washout.

Berms should be twice as wide as they are high.



Curb Cut Back
No Scale

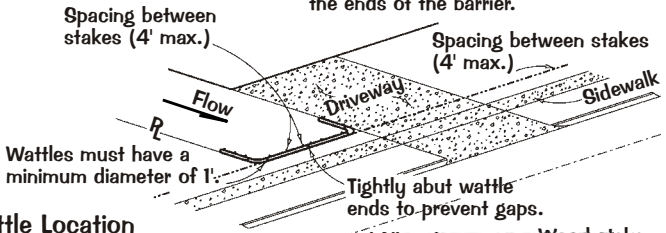
Curb cutbacks allow water to pond behind the curb and gutter. The cut could be as wide as a skid steer bucket.

The depth of the cut should be no more than 4 inches. Any excavated soil must be returned for final grading.

SILT FENCE AND GRADING INSTALLATION

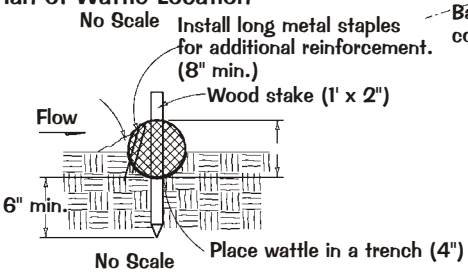
WATTLE BARRIER INSTALLATION

Note: Extend end of wattles far enough to prevent runoff from flowing around the ends of the barrier.



Plan of Wattle Location

No Scale



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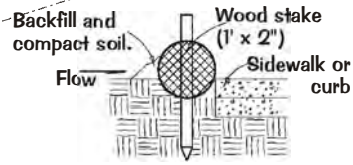


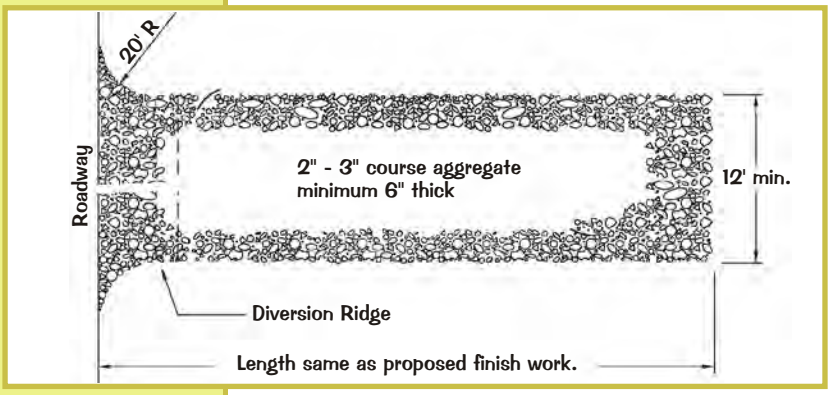
No Scale

Note: When barrier is installed behind a sidewalk or curb, wattles do not have to be placed within a trench.

Straw wattle or compost log detail

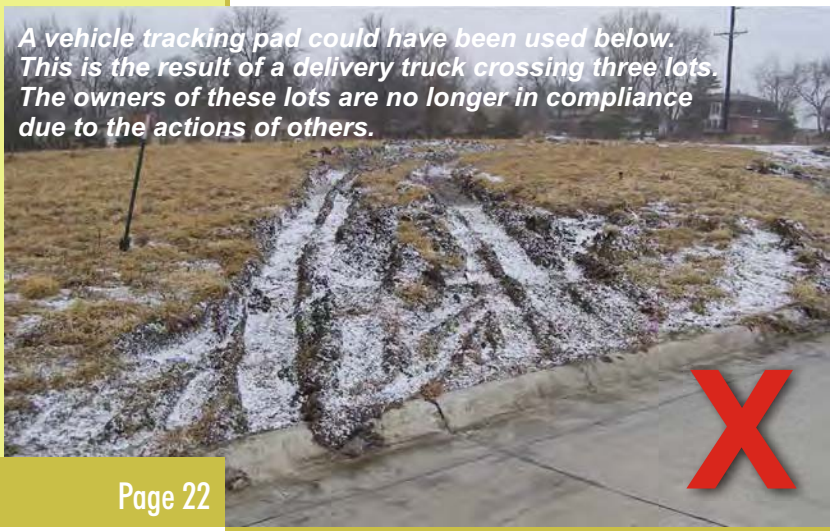
TEMPORARY ROCK DRIVE

A temporary rock drive with a geotextile liner is an excellent option to avoid track out.



PLAN

An alternate to a rock drive is the use of a vehicle tracking pad.



VEHICLE TRACKING PADS

The above picture shows the use of vehicle tracking pad. Even in wet conditions there is no mud tracking.

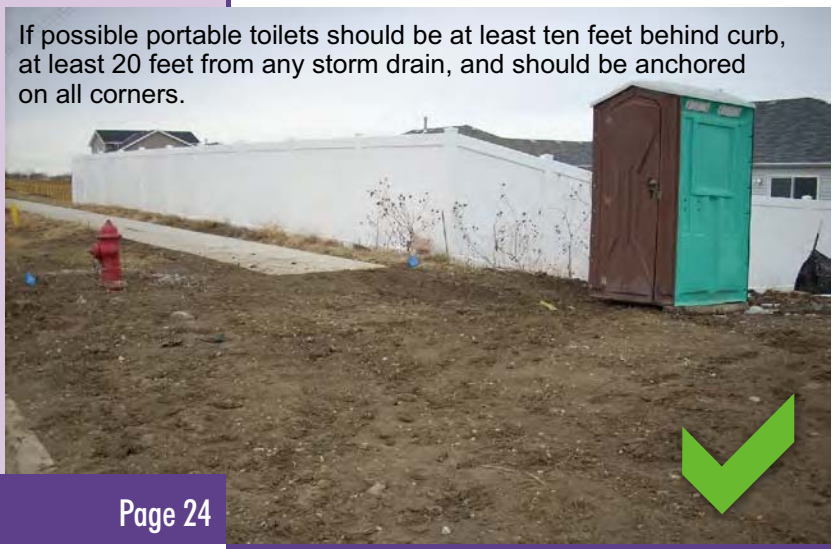
INLET PROTECTION

Curb inlet protection is a vital part in preventing sediment from entering the storm drainage system and ultimately local creeks and streams. However, inlet protection is not a replacement for perimeter sediment controls. Maintenance (street cleaning) is a must.

PORTABLE TOILET

Portable toilets should not be placed in the public right of way.

If possible portable toilets should be at least ten feet behind curb, at least 20 feet from any storm drain, and should be anchored on all corners.



CHEMICALS - PAINT

DRYWALL COMPOUNDS - STUCCO

This is a combination of scrap drywall, drywall compound slurry, and other solid waste. The drywall slurry is considered a chemical spill, which is a violation.

WHERE TO STORE CHEMICALS

Chemicals such as paint, thinners, drywall compounds, and concrete cure should be stored in an enclosed area such as a job trailer, inside a garage, or in an approved storage facility.

SOLID WASTE - REFUSE CONTAINERS

Trash piles can be transported during rain events clogging inlets and cause flooding.

Refuse containers should be used to prevent pollution and transport solid waste.

This street was flooded due to solid waste transport during a rain event. The curb inlets became clogged with loose building materials.

CONCRETE WASHOUT

Each development should have designated concrete washout areas. If none exist contact the developer. The photo below is one example of a concrete washout area. There are many variations and designs for concrete washout areas. If maintenance is needed contact the developer. Never wash concrete into the storm drain.

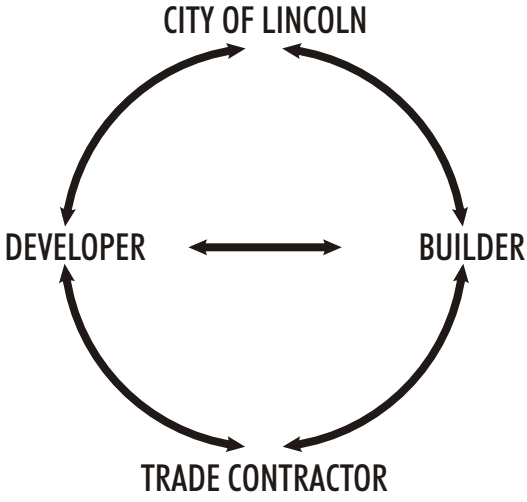
Keeping streets clean is one of the most important areas for achieving compliance. This may happen once a week or maybe at the end of each work day depending on weather conditions and the amount of track out.

Cleaning streets require periodic street sweeping.

Cleaning streets may require some time with a shovel.

Stockpiling on ajoining lots not owned by you is a violation. This photo is an example of left over soil, trash, and debris from ajoining construction not associated with this owner. The owner of this lot is now out of compliance.

COMMUNICATION is vital to compliance success. Regulators, developers, builders and trade contractors alike need to keep open lines of communication.



SIGNAGE

Builders and developers alike have been forced to share liability with trade contractors. To avoid project liability pay attention to all signage.

BUILDER/TRADE CONTRACTOR AGREEMENTS

Many builders are creating legally binding Builder/Trade Contractor Agreements. These agreements certify that trade contractors agree to the terms and conditions of the City of Lincoln ordinance Chapter 28.01. While trade contractors contribute to the overwhelming success of each project, builders have no choice but to pass liability to everyone involved with building projects.

TEST YOUR KNOWLEDGE

QUESTION: The picture above was taken after work hours or on a weekend. Can you name the violations according to federal and state regulations as well as City of Lincoln Chapter 28.01 and 28.02?

ANSWERS:

- Silt fence needs maintenance.
- Mortar from mixer has been spilled.
- Morter bags under the wheelbarrow are not stored in an enclosed area.
- Chemical drum is not stored in an enclosed area.
- Sediment in the street.

Why is the City of Lincoln requiring this type of compliance from the construction industry? We never had to do this before. Why now?

The State of Nebraska is required by the Environmental Protection Agency (EPA) to meet conditions of the Clean Water Act. As a requirement of EPA the Nebraska Department of Environmental Quality (NDEQ) is required to meet or exceed those conditions of EPA. In turn, any municipality with a population of 10,000 or greater is required to meet or exceed the conditions set forth by NDEQ. Due to population size the City of Lincoln is required by federal and state law to meet the requirements of the Clean Water Act.

What if I decide not to comply with the E&SC regulations outlined in Chapter 28.01?

The City may take enforcement actions against any party for non-compliance by shutting down a site and/or leveling fines. You may also be in violation with the State General Permit, administered by NDEQ, and also in violation of EPA requirements.

What is erosion control?

Erosion and sediment control is a process of reducing or limiting the amount of pollutants entering streams, lakes, and waterways, through the use of BMPs.

What are some erosion control BMPs?

The best way to control erosion is to establish vegetation. This could consist of sod, seeding, landscaping, mulching, or blankets made of straw or a straw coconut fiber mixture over a seed bed.

Are these permitting requirements just for controlling dirt or soil from getting into the storm drainage system?

No. Erosion and sediment control also extends to construction debris, gravel, grass clippings, oil, gasoline, paints, thinners, solvents, drywall compounds, raw sewage, and anti freeze, just to name a few. Any of these items are a danger to water quality if allowed to enter lakes, streams, or waterways.

What is a pollutant?

The term pollutant is defined very broadly in the Clean Water Act. It includes any type of industrial, municipal, and agricultural waste discharged into water. Some examples are dredged soil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and cellar dirt.

What is meant by a "larger common plan of development or sale?"

A "larger common plan of development or sale" is a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan. For example, if a developer buys a 20-acre parcel, builds roads, and installs utilities with the intention of constructing homes or other structures in the future, those parcels are considered part of a larger common plan of development or sale. If the land is parceled off or sold, and construction occurs on individual lots

CONTACT INFORMATION

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Terry Ullsperger
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tullsperger@lincoln.ne.gov

that are less than one acre, the parcel is subject to construction activity permitting requirements since the individual lots were included on the original site plan.

What types of construction activities are regulated under Chapter 28.01?

All construction activities one acre or larger must obtain permit coverage. Construction activities less than one acre must also obtain coverage if they are part of a larger common plan of development or sale.

What is an "Adequate" Site Plan for Individual Lots?

For "Individual Site Plans" (Type A, B, or C on pages 6-8) your site plan must contain enough information to satisfy the City of Lincoln that the problems of erosion and sedimentation have been adequately addressed for a proposed project. The complexity of the plan should be sufficient for the size of the project, the severity of site conditions, and the potential for off-site damage from stormwater discharge.

WEBSITES

City of Lincoln - Erosion and Sediment Control
Requirements and Procedures
lincoln.ne.gov/city/pworks/watrshed/require/erosion/index.htm

Lower Platte South NRD - Stormwater Management
lpsnrd.org/docs/Stormwater/stormwater.htm

Environmental Protection Agency - Stormwater Discharges
From Construction Activities
cfpub.epa.gov/npdes/stormwater/const.cfm

Visit our website at
lincoln.ne.gov
keyword: noi

Special Thanks to:

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