

CHAPTER III EROSION CONTROL AND LANDSCAPING

SECTION 1. - Authority:

The City of Reno, the City of Sparks and Washoe County have been issued a municipal permit by the Nevada Division of Environmental Protection (NDEP) for stormwater discharges. The permit requires that a program be implemented to control pollutants in stormwater discharges in the Truckee Meadows to the maximum extent practicable.

As a part of that program, impacts of erosion and sedimentation from a construction site are prohibited. Polluting substances such as construction materials and wastes shall be contained on-site where they cannot drain or be transported by stormwater into a water body, channel or storm drain. Best Management Practices shall be implemented for all construction sites with a disturbed area of one acre or greater, for sites less than one acre if in a sensitive area, and for sites that are a part of a larger planned development.

The City's designated authority for issues related to erosion control and landscaping is the Landscape Architect, except for slopes steeper than 2:1 where the City Engineer shall decide upon stabilization method in consultation with the City Landscape Architect. Further requirements concerning this issue can be found in the applicable Reno Municipal Code. If a slope between 3:1 and 2:1 is to be stabilized by any means other than rip-rap, stability calculations shall be provided and reviewed by the City Engineer.

SECTION 2. - Construction Site Discharge Requirements :

Specific requirements concerning this issue can be found in the applicable Reno Municipal Code (RMC). The "Truckee Meadows Construction Site Best Management Practices Handbook" ("BMP Manual") is adopted by reference and incorporated into the RMC. The BMP manual addresses procedures for construction projects, it provides a menu of best management practices, it provides guidance on the preparation of a Stormwater Pollution Prevention Plan, it advises how to install and maintain BMPs, and it includes the checklists needed for

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permits at the City of Reno.

Prior to the issuance of a grading permit, the following must be submitted:

- (1) Construction Permit Submittal Checklist,
- (2) Performance Standards Compliance Checklist, and
- (3) Copy of Receipt or Approval Letter from NDEP,

The installation and maintenance of stormwater controls are to be in accordance with the standards as set forth in the BMP manual.

At the end of construction when the site has been finished, cleaned and permanent erosion controls are in place, a re-vegetation plan together with associated security may be required by the City to assure permanent establishment of installed measures.

SECTION 3 – Post Construction Storm Water Quality Management

Specific Requirements concerning this issue can be found in the applicable RMC. The “Truckee Meadows Low Impact Development Manual” and the “Truckee Meadows Structural Controls Manual” provide design criteria. The Low Impact Development (LID) features utilized can be counted towards the landscaping requirements imposed by the City.

Where LID features are proposed that incorporate the use of vegetation, mulch or other similar elements, plans are required to be prepared and sealed by a Nevada Registered Professional Landscape Architect. Plans shall incorporate proposed maintenance procedures and inspection frequencies for each different type of LID feature installed.

SECTION 4. - Revegetation Plan:

The revegetation plan shall address revegetation of all disturbed areas contained within the site that are not formally landscaped, including rockery walls and rip-rap slopes, with a native seed mix in accordance with plans developed for the site by a certified professional in Erosion and Sediment Control (CPESC) or other qualified erosion control professional.

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The revegetation plan shall include plans to stockpile existing topsoil and vegetative strippings and reapply the material to all disturbed areas that are not formally landscaped.

Temporary stabilization shall be applied in accordance with the BMP manual and in accordance with the State's General Permit for Stormwater Associated with Construction Activity.

Revegetation shall commence as soon as practical, but no later than the following fall, with bonding and temporary irrigation (if necessary) provided to ensure proper re-establishment of disturbed areas.

Revegetation shall be a uniform perennial vegetative cover with a density of 70% of the native background vegetative cover for the unpaved areas and areas not covered by permanent structures.

Rocks used for rip-rap and retaining walls shall be of a color consistent with the site, or landscaping shall be installed sufficient to provide 20 percent coverage in three years.

Revegetation required after final grading shall be in accordance with Section 18.06.803.075 of the Reno Municipal Code and the following:

1. Slopes will be protected with temporary BMP's for erosion and sediment control until revegetation is established.
2. Before issuance of a grading permit on slopes exceeding 3:1, or as required by the City to protect areas disturbed by project grading and/or other associated construction activity, the applicant shall deposit with the Community Development Department a bond or letter of credit in the amount determined by the applicant and approved by the City to assure that the plantings on cut and fill slopes will be established.

Prior to any on-site grading, all erosion control devices shall be installed to prevent erosion and accidental disturbance of wetlands and areas designated to remain undisturbed or "natural".

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Cut and fill slopes may not exceed 2:1, unless it can be demonstrated that the slopes are in stable rock or with approved walls as determined by the City Engineer.

Except in areas located within single family lots or along common lot lines between single family residences, cut and fill slopes between 3:1 and 5:1 shall be stabilized by landscape materials, hydroseeding or seeding and all methods shall be irrigated until established to the satisfaction of the City Landscape Architect.

Cut and fill slopes between 3:1 and 2:1 shall be stabilized by mechanical stabilization, or by landscape materials if approved. The requirement for mechanical stabilization or landscape materials may be waived by the City Engineer if it can be demonstrated that some other means of restoration will be effective (See Section 5).

SECTION 5. - Seeding Slope Stabilization - Slopes flatter than 3:1 or as otherwise alternatively approved by the City Landscape Architect:

1. Preparation:

When possible, topsoil should be salvaged prior to construction. Topsoil is generally defined as the top 6" to 12". When possible topsoil should be salvage when moist but not wet. Storage of topsoil should be accomplished in shallow piles less than 2' deep. The topsoil should be placed no more than a few days prior to seeding to prevent weed invasion and wind and rain erosion. If topsoil is not salvaged, the following preparation must be adhered to.

After slopes have been compacted, the top 3" of soil shall be disked and 3" of fine sandy loam topsoil, free of rocks, shall be rototilled into the disked surface. A soil test of the mixture shall be performed by an approved licensed soil testing laboratory capable of completing a standard Agricultural Soil Nutrient test as approved by the City. The cost for the test shall be paid by the developer. The soil shall meet the following minimum criteria:

Soil ph	6.8 - 8.2
Nitrates	80 lbs/acre
Phosphorus	75 lbs/acre
Salinity	Less than 2 ds/m

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The developer shall make the necessary amendments or fertilizer additions to the soil mixture as recommended by the soil testing firm to meet the minimum criteria. The application of any amendments or fertilizer shall be done under the observation of the landscape architect at the site and the soil mixture shall be retested by the testing firm. This procedure shall continue until a satisfactory mixture has been obtained.

2. Application:

The seed mixture and application rate for slope stabilization shall be to the approval of the landscape architect and provide a variety of grasses, shrubs and wildflowers which provide erosion control and are in keeping with the surrounding site. This will avoid the establishment of a monoculture or single species stand. Variation in soil, elevation, site exposure and climate must be considered when blend is specified. Specification of blends must include species by category and Pure Live Seed (PLS) lbs/acre. PLS equals the percent of purity times percent of germination. Seed blends must be applied at a minimum rate depending on application method. Immediate erosion control shall be accomplished by the use of nurse grass crop which will provide 50% coverage in the first year of growth. Nurse grass crop must be a minimum of 15% of the overall seed blend.

Drilling typically provides high germination rates and is a preferred application method. Seed shall be drilled into the soil to a depth recommended by the seed supplier. Seed drilling should be conducted along the contour to avoid erosion from water flowing down drill furrows. A minimum application rate of 20 PLS lbs/acre should be specified when drilling is provided.

Broadcast seeding shall be applied at a minimum rate of 32 PLS lbs/acre and is recommended where slopes are too steep for seed drilling equipment or too rocky to allow effective drilling. To improve seed/soil contact the area must be raked or harrowed just before seeding. Raking or harrowing is also recommended after broadcasting is complete. Broadcasting must not be done on windy days and uniform coverage shall be provided.

3. Irrigation:

All slopes shall be irrigated until established as approved by the City Landscape Architect. Temporary irrigation must be in place to assure

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germination. To prevent rills created by irrigation heads, an area of rock or bark mulch must be provided around each sprinkler head and over-irrigation must be avoided to prevent ponding of water.

SECTION 6. - Slope Stabilization - for Slopes Between 3:1 and 2:1:

1. Mechanical Slope Stabilization - Standard Requirement:

- a. Rock riprap shall be used for slope stabilization. It shall contain a minimum of four fractured faces and be placed to a minimum depth of 12 inches. A minimum of 75% of the rip rap shall be 8 inch diameter rock or greater.

Within one week of installation, the riprapped slope shall have an approved hydromulch seed mix applied. Hydromulch shall consist of degradable green-dyed wood cellulose fiber or 100% recycled long-fiber pulp, free from weeds or other foreign matter toxic to seed germination.

Seed mix shall be a blend of grasses and wild flowers which are specified to match locally adapted species. Variation in soil, elevation, site exposure and climate must be considered when blend is specified. Shrubs may also be added to mix if sufficient growth area is provided. Specification of blends must include species by category and Pure Live Seed (PLS) lbs/acre. PLS equals the percent of purity times percent of germination. Seed blends must be applied at a minimum rate of 15 PLS lbs/acre.

If hydromulch is not used on the project, color of rock must be similar to the native rock within area and approved by staff. A combination of landscape plants and hydromulch is encourage. The use of landscape plants requires the use of a drip irrigation system.

- b. Engineered retaining walls, rockery, concrete or alternate masonry as approved by the City Engineer may be used to form terraces which will eventually catch grade. The minimum dimension of a terrace shall be 8' to allow for adequate drain rock and planting areas. In no case shall walls and terraces exceed 2:1.

Terraces must be backfilled at the surface with a minimum of 12" of salvaged topsoil. Within one week of installation the terraces shall

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have an approved hydromulch seed mix applied. A seed mix of grasses, shrubs and wildflowers shall be used at a minimum rate 32 PLS lbs/acre. If irrigation is not provided a tackifier must be applied and hydromulch applied in spring or fall.

c. The use of an approved erosion control mat may be allowed upon the recommendation of a registered professional civil or geological engineer or landscape architect and approval of the City Engineer. Erosion control mats must be a thin excelsior matrix with netting top and bottom. Other types of matrix may be allowed with approval of the City Engineer. Mats must be photodegradable with an average blanket life of 12 months. Blankets must be laid and slope seeding must be done to manufacturers' specifications. Seeding is required in addition to this mechanical stabilization in accordance with Section 4.

2. Landscape Slope Stabilization - Alternate Method - All slope stabilization plans shall be approved by City Landscape Architect:

a. Preparation:

Landscape materials may be obtained for transplant from a nursery in containers or bareroot. Live plants may also be salvaged from the site during grading. Salvaged plants have a higher degree of success if collected with as much native soil as practical. Soil preparation should be followed as in Seeding Slope Stabilization (Section 4).

b. Installation:

Landscaping with live plants may be done exclusively or in conjunction with seeding slope stabilization plan. Revegetation with live plants is warranted when a more rapid plant establishment is needed than can be met through seeding. All stock, whether purchased or salvaged, should be handled as little as possible before transplanting. Only a minimum number of seedlings necessary to complete a designated section of the planting should be removed from their containers/packaging at one time. Planting area should be fully prepared with all personnel ready to plant when seedlings arrive. Short term storage at the planting site can be facilitated by "heeling in" as directed by the nursery.

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Holes can be made in variety of methods but to avoid drying out the soil, only holes ready for transplant should be made. Insert plants into holes as vertical as possible. Plant roots should not be bent, kinked or tangled, or bunched up at the bottom of the hole. Once the seedling is placed in the hole, pack the soil firmly around the root in order to avoid air pockets. To assure good root contact and minimize air pockets, all transplants should be irrigated at the time of establishment. Working on steep slopes requires that planters begin at the top of the slope and traverse, eventually working downslope. The positioning of transplants on 3:1 slopes will require catchment basins approximately 12" in diameter placed around each plant.

c. Irrigation:

All slopes shall be irrigated until established as approved by the City Landscape Architect. Temporary irrigation must be in place to assure germination. To prevent rills created by irrigation heads an area of rock or bark mulch must be provided around each sprinkler head.

SECTION 7. – Landscaping in Public Rights-of-Way:

1. Design/Plan Requirements:

Improvement drawings must show the area to be landscaped, type(s) of trees and shrubs, size and depth of mulch or rock, automatic drip irrigation system with locations of all shut-off and drain valves. These improvement drawings must meet submittal and all other requirements of Reno Municipal Code. If the developer desires to install more landscaping than trees, shrubs and mulch or rock, then he must execute a maintenance agreement in which he agrees to maintain it until the subdivision is sold out or for two years, whichever is longer.

No spray irrigation will be allowed in medians or parkways. Landscaping requiring irrigation shall be designed such that it does not allow runoff or overspray onto paved surfaces in the right-of-way, controller cabinets, service and fire hydrants, which must also remain clear of vegetation.

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a. Right-of-Way Development:

The City right-of-way should be developed in keeping with the City of Reno Master Plan. The Master Plan provides direction and appropriate uses for these rights-of-way within the Community Design and other portions of the Policies Section.

- (1) Development of attractive landscaping and green spaces in close proximity to the downtown area, focal centers and along arterial streets is encouraged.
- (2) Construction of raised landscape medians in lieu of center left-turn lanes on boulevards is preferred.
- (3) Median landscaping shall be predominately hardscape with accent shrubs and trees irrigated by a drip system.
- (4) Landscape areas adjacent to soundwalls shall be provided and maintained by owners of commercial and multi-residential properties. Developers of subdivisions shall create homeowners' association or apply for a Maintenance District to maintain these landscaped areas.
- (5) Street trees shall be provided in accordance with the City of Reno Urban Forestry Commission's Approved Street Tree List. All trees proposed for City right-of-way must first be approved by the Urban Forester.
- (6) Per Reno Municipal Code, when work is done in existing right-of-way, upgrades shall be made to sidewalks, landscaping or other physical improvements.

b. Parkways Development:

- (1) Parkways and sidewalks should be placed within the public rights-of-way.
- (2) Residential streets should be designed to include a landscaped parkway strip between the curb and sidewalk, except in cases where a sidewalk is deemed to be inappropriate. Landscaped

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parkways shall include approved street trees, plants or decorative hardscape.

- (3) With the Zoning Administrator=s approval parkways may be established in nonresidential districts and count towards the front yard setback and landscaping requirement on a 1' to 1' basis.
- (4) Parkway Design and Specifications:
 - (a) Sidewalks with parkways may meander and as such the largest shade tree practical must be used. The size of shade tree for a given space is provided within the Reno Urban Forestry Commission's Approved Street Tree Species List. If there are special situations such as overhead utility lines, existing walks/driveways, structures, or other utilities, then smaller size categories of trees may be used. The goal for parkway planting is to achieve crown to crown street trees upon maturity. All trees must meet all sightline requirements. Trees must meet City of Reno Nursery Stock Quality Standards and must be planted according to City of Reno Planting Details.
 - (b) In accordance with the Reno Municipal Code, a permit must be obtained from Parks Division, Urban Forester, as well as an encroachment and excavation permit from Community Development Department before planting trees on City of Reno property, including parkways and street rights-of-way.
 - (c) Parkway tree planting shall provide for species diversity.
 - (d) Riparian or other invasive tree species shall not be allowed in parkways.
 - (e) Evergreen trees should be avoided as street trees due to problems with shading in winter resulting in ice hazards.

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- (f) Smaller ornamental trees may be used between adequately spaced large canopy trees.
- (g) Automatic drip irrigation shall be provided in all new parkway designs. One 3" PVC irrigation sleeve will be provided beneath sidewalks for each property adjoining parkway. Drip lines shall be run down the side of the parkway and not through the middle. Lines should be buried six inches as measured from the bottom of the mulch, landscape rock or grass. Emitters should be attached to the main drip line and a leader of drip tubing taken to the final watering position.

The emitters shall be placed at the root ball and outside the root ball area in a line encouraging root growth along the length of the parkway. Four two-gallon emitters shall be provided for each tree delivering eight gallons twice a week. Species, solar exposure, wind exposure, soil type, etc. may necessitate a change to irrigation amounts and irrigation schedules. Changes to irrigation amounts and schedules should be confirmed with the Urban Forester.

- (h) The minimum size of a parkway tree shall be one inch in caliper. All plant material located within parkways shall meet City of Reno Nursery Stock Quality Standards.
- (i) All parkway trees shall be planted and staked as per the Reno Municipal Code Section 18.06 planting detail.
- (j) Final grade for parkway planters shall be a maximum of two inches below top of curb or sidewalk. In no case should final grading produce any type of trip hazard.
- (k) Planting areas shall be over-excavated and backfilled with a quality topsoil as approved by Urban Forester.

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- (l) Parkway trees shall have an approved root barrier placed along the sidewalk and inside curb face for a length of ten feet for each tree. Root barriers shall be approved by the City Urban Forester.
- (m) The use of shrubs in parkways are allowed and must meet all sightline requirements as per A.A.S.H.T.O.

2. Plan Checking:

- a. The Planning Division staff will check the improvement drawings to make sure that the landscaping is in the appropriate easement. Engineering staff will make all determinations as to whether additional water rights have been dedicated, if necessary. The planning staff will also check to make sure that the number of trees is correct and that no additional landscaping is proposed. If additional landscaping is proposed, the planning staff will advise the developer of the requirement for a maintenance agreement, or other means of maintenance, and process any necessary agreement through the City Council.
- b. The Planning Division will check the plans to assure that the slope in the area to be landscaped does not exceed 5:1, and require a note be placed on the improvement drawings requiring the Engineer-of-Record to provide written notification to the Parks Division 48 hours in advance of installation of both the landscaping and the irrigation system to make arrangements for the appropriate inspections.
- c. The Parks Division staff will check the improvement drawings to make sure that the type of trees, depth and size of mulch or rock, and automatic irrigation system are acceptable.

3. Maintenance Agreement:

If a maintenance agreement has been executed, then the agreement must contain a provision requiring the developer to notify the Parks Division 60 days prior to the expiration of the agreement so that they can inspect the landscaping, irrigation system, provide for the developer to continue maintenance until all plants are healthy, the irrigation system is functional, and the Parks Division has accepted them.

