

RULE PROPOSALS

INTERESTED PERSONS

Interested persons may submit comments, information or arguments concerning any of the rule proposals in this issue until the date indicated in the proposal. Submissions and any inquiries about submissions should be addressed to the agency officer specified for a particular proposal.

The required minimum period for comment concerning a proposal is 30 days. A proposing agency may extend the 30-day comment period to accommodate public hearings or to elicit greater public response to a proposed new rule or amendment. Most notices of proposal include a 60-day comment period, in order to qualify the notice for an exception to the rulemaking calendar requirements of N.J.S.A. 52:14B-3. An extended comment deadline will be noted in the heading of a proposal or appear in subsequent notice in the Register.

At the close of the period for comments, the proposing agency may thereafter adopt a proposal, without change, or with changes not in violation of the rulemaking procedures at N.J.A.C. 1:30-6.3. The adoption becomes effective upon publication in the Register of a notice of adoption, unless otherwise indicated in the adoption notice. Promulgation in the New Jersey Register establishes a new or amended rule as an official part of the New Jersey Administrative Code.

AGRICULTURE

(a)

DIVISION OF AGRICULTURAL AND NATURAL RESOURCES

STATE SOIL CONSERVATION COMMITTEE

Soil Erosion and Sediment Control on Land Disturbance Activities

Proposed Amendments: N.J.A.C. 2:90-1.3, 1.4, 1.9, and 1.14

Authorized By: State Soil Conservation Committee and Douglas M. Fisher, Secretary, Department of Agriculture.

Authority: N.J.S.A. 4:24-3 and 4:24-42.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

Proposal Number: PRN 2016-157.

Submit comments by November 18, 2016, to:

Frank Minch
Executive Secretary
State Soil Conservation Committee
New Jersey Department of Agriculture
PO Box 330
Trenton, NJ 08625-0330
E-mail: SSCCrules@ag.state.nj.us

The agency proposal follows:

Summary

The Soil Erosion and Sediment Control Act of 1975, N.J.S.A. 4:24-39 et seq., as amended, requires the approval of applications for development where more than 5,000 square feet of land surface area is disturbed. The approval is conditioned upon certification of a plan for soil erosion and sediment control by the local soil conservation district where the soil disturbance occurs. In addition, the Soil Restoration Act (P.L. 2010, c. 113) requires the development of standards to provide for cost-effective restoration, for specific soil types, and intended land use of the optimal physical, chemical, and biological functions.

The State Soil Conservation Committee (SSCC) is empowered and required to promulgate technical and administrative standards for such controls for Statewide implementation. In 2012, the SSCC proposed amendments to the Standards for Soil Erosion and Sediment Control (Standards) as the basis for design and installation of vegetative and engineering practices applicable to construction, mining, and other related land disturbance activities. Those amendments to the Standards had been developed with the assistance of a technical advisory group comprised of representatives from professional engineering, building, and landscape associations, Rutgers Cooperative Extension (Rutgers), New

Jersey soil conservation districts, the State Department of Environmental Protection (NJDEP), the State Department of Transportation (NJDOT), the United States Department of Agriculture Natural Resources Conservation Service (NRCS), and other advisors.

At that time, the proposed amendments also sought to address the soil restoration requirements of the Soil Restoration Act which had been signed into law in 2010 (P.L. 2010, c. 113). This law was to provide for post-construction soil restoration through amendments and supplement to the Soil Erosion and Sediment Control Act, P.L. 1975, c. 251. The legislation had originally contained a number of specific and detailed requirements for restoration of soil, but before passage, the bill was amended. General language was substituted in the legislation for the detailed, exhaustive, and likely costly requirements initially included. Instead of the detailed requirements, the legislation was changed to add explicit language assuring that cost be considered in connection with any soil restoration requirements. The amended legislation unambiguously directed that soil restoration measures be for the "specific soil types and the intended land use" as well as "practical and cost-effective."

Comments received to the Topsoiling and Land Grading Standards proposed in 2012 raised myriad concerns with respect to the estimated cost that would be imposed by the proposed amendments. For example, to comply with Standards proposed in 2012, a regulated entity would have had to analyze soil bulk density, bring in additional equipment to remediate compacted subsoil areas, and import additional organic matter to amend the topsoil. The imported organic matter utilized would have been subject to specific quality and quantity criteria. The SSCC realized that if such activities were required, the Topsoiling and Land Grading Standards would not be "practical and cost-effective" for the "specific soil types and the intended land use."

Taking into account the comments received, nine vegetative standards and 21 engineering standards were adopted as a comprehensive listing of practices applicable to controlling soil erosion and sedimentation; however, the SSCC declined to adopt the proposed amendments to the Topsoiling and Land Grading Standards.

After the 2013 adoption of all of the other amendments, the SSCC worked diligently with stakeholders, regulated entities, and impacted government entities to formulate standards that will enhance soil restoration for specific proposed land uses while remaining consistent with the legislative direction to find practical and cost-effective soil restoration measures for specific soil types and intended land uses.

Substantial additional work was done with a subcommittee of representatives from Rutgers, New Jersey Department of Environmental Protection (NJDEP), New Jersey Department of Agriculture (Department), New Jersey Department of Transportation (NJDOT), the New Jersey Builders Association, New Jersey Nursery and Landscaper Association, State Soil Conservation Districts, Pinelands Commission, Pinelands Preservation Alliance, Site Improvements Advisory Board, United States Department of Agriculture – Natural Resources Conservation Service (NRCS), and consulting professional engineers.

The resulting proposed amendments to the Topsoiling and Land Grading Standards (N.J.A.C. 2:90-1.3) are believed to address the requirements of the Soil Restoration Act (P.L. 2010, c.113).

The proposed Standard for Topsoiling does not specify organic matter content and quantity based on soil texture. It also modifies required topsoil depth to an average depth of 5.0 inches in place of the previously proposed 6.0 inches. The proposed Standard for Land Grading expands the list of areas where remediation is not required, provides greater detail on compaction testing methodology, and does not require specific procedures for compaction remediation and remediation methods for deep infiltration areas. In addition, certain disturbed areas will not require compaction remediation due to structural considerations, such as building foundations, parking lots, roads, airports, bridge abutments; and areas governed by other design requirements, such as golf courses, landfills, quarries, septic disposal fields, and wetland restoration areas. Compaction remediation is also not required in areas where no soil disturbance has occurred. These modifications resulted in a reduction in anticipated cost from \$16,000 per acre to an anticipated cost of \$1,500 per acre. A description of the proposed amendments follows.

Vegetative Standards

Topsoiling – Proposed amendments to this standard provide for flexibility to accommodate proposed land use and to manage soil erosion through stabilization as provided in a cross-referenced Vegetative Standard. The proposed standard calls for a “required” depth of topsoil which is further explained as “an average depth of five inches, minimum four inches, firmed in place”; and cross-referenced to the Standard for Permanent Vegetative Stabilization which requires a minimum of 80 percent vegetative coverage in areas to be stabilized.

Engineering Standards

Land Grading – Proposed amendments to this standard provide the opportunity to evaluate a disturbed area through graduated testing options. These test results will show the degree of compaction based on the soil type to allow reasonable decisions on the right approach to remediation. These proposed amendments include testing requirements and bulk density values specific to soil type; procedures for soil compaction mitigation and a listing of areas not requiring compaction remediation because the area was not disturbed or due to intended land use.

These proposed amendments offer a carefully crafted and reasonable approach that will complete the implementation of the Soil Restoration Act. They maintain the critical focus on soil erosion and sediment control through establishment of vegetation.

As the SSCC has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

Social Impact

The proposed amendments of N.J.A.C. 2:90-1.3 as described in the Summary will have a favorable impact upon citizens of New Jersey through the continued control of soil erosion and sedimentation from construction and mining activities. As required under the Soil Restoration Act and as part of Governor Christie’s 10-point plan for the Barnegat Bay watershed, two technical Standards are proposed for amendment to provide methods and requirements for amending soils disturbed by construction activities to address soil compaction where appropriate and allow for improved water infiltration. As provided in the Summary, certain disturbed areas will not require compaction remediation due to structural considerations such as building foundations, parking lots, roads, airports, bridge abutments, and other design requirements such as golf courses, landfills, quarries, septic disposal fields, and wetland restoration areas. Other areas will not require compaction remediation because no soil disturbance in these areas has occurred.

Economic Impact

The proposed amendments in N.J.A.C. 2:90-1.3 listing the Soil Erosion and Sediment Control Act Standards, will have a favorable impact on the public by reducing the loss of soil and preventing offsite sedimentation from construction, mining, and other land disturbances. Protection of water quality will continue. Persons engaging in land

disturbances will be required to manage runoff and offsite sedimentation at their own cost, thereby eliminating or reducing public costs for correcting such impacts. Enhancement of water quality will be continued, thereby reducing public costs for correcting such problems.

P.L. 2010 c. 113, required standards for soil restoration measures. To address the requirement, two existing standards have been amended. Although there are some additional costs involved with complying with these amended standards, they are significantly less than had been likely under the amendments proposed in 2012. Costs include the need for additional soil amendments, specialized equipment, and testing. Costs may be higher in some areas due to the potential degree of restoration required to conform to the proposed standards necessary under the Soil Restoration Act and it has been estimated that these costs will, on average, be about \$1,500 per acre for remediation of those land areas that are eligible for remediation under the proposed standards. This cost is significantly reduced from the previously proposed amendments which were estimated to be about \$16,000 per acre. The reduction in cost is largely due to the elimination of specific criteria for quantity and quality of organic matter and retention of the current standard requirement of an average topsoil depth of five inches.

Federal Standards Statement

Executive Order No. 27 (1994) and P.L. 1995, c. 65 require State agencies which adopt, readopt, or amend State rules that exceed any Federal standards or requirements to include in the rulemaking document a comparison with Federal law.

N.J.A.C. 2:90-1 is solely related to the administrative functions of the State Soil Conservation Committee and the Soil Conservation Districts and is not subject to any Federal requirement or standards.

Jobs Impact

The SSCC does not anticipate any creation or loss of jobs as a result of the proposed amendments. While the enhanced Standards may lengthen development and construction time frames, they may also expand opportunities for “cottage industries,” as there will be an increase in the need for suitable soil amendments, equipment, testing, and proper on-site application.

Agriculture Industry Impact

For the reasons set forth in the Summary, Social Impact, and Economic Impact statements above, the proposed amendments will have no impact on New Jersey’s Agriculture Industry. Most land disturbances related to agricultural or horticultural activities do not require compliance with the Soil Erosion and Sediment Control Act if those disturbances are addressed under a Farm Conservation Plan developed in accordance with USDA-NRCS Standards. In addition, producers of straw and hay will benefit through the ongoing demand for mulching materials on newly seeded areas.

Regulatory Flexibility Analysis

The proposed amendments have been reviewed for compliance with the Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq. The rules in N.J.A.C. 2:90-1, pursuant to the Soil Erosion and Sediment Control Act, as described in the Summary, directly affects contractors in the State. Virtually all clients under this program are considered small businesses as defined by the Regulatory Flexibility Act and, as such, are treated equally. Compliance of projects as defined in the Act, without exception, has been determined to be necessary because similar negative environmental impacts may result from any land development activity. The cost of implementing erosion controls is integral to the land development process, the protection of offsite property, and the protection of water quality. The professional services provided for the development of plans for certification by the district are primarily professional engineers.

Housing Affordability Impact Analysis

The proposed amendments will have an impact on the affordability of housing in New Jersey and there is a likelihood that the amendments will affect some change in the average costs associated with housing in some areas of the State because in accordance with the Soil Restoration Act, these two amendments are related to loss of soil and preventing sediment damage in areas eligible for compaction remediation.

The proposed amendments provide test methods to identify land areas considered compacted as a result of the land development process. The proposed amendments also provide methods to address those compacted areas which may require additional specialized equipment, labor, and soil amendments. As noted in the Summary and Economic Impact statement, these costs, on average, will be \$1,500 per acre for remediation of those land areas that are found to be eligible for remediation under the proposed standards.

Smart Growth Development Analysis

The proposed amendments will have a minimal impact on smart growth and there is an extreme unlikelihood that the rules would evoke a change in housing production in Planning Areas 1 or 2, or within designated centers, under the State Development and Redevelopment Plan in New Jersey, because the amendments revise technical standards related to loss of soil and preventing sediment damage. Additionally, development or redevelopment in those more densely populated areas will likely meet one or more of the criteria not requiring compaction remediation and therefore would not be subject to the proposed amendments.

Full text of the proposal follows (additions indicated in boldface thus; deletions indicated in brackets [thus]):

SUBCHAPTER 1. SOIL EROSION AND SEDIMENT CONTROL ON LAND DISTURBANCE ACTIVITIES

2:90-1.3 Standards for Soil Erosion and Sediment Control

(a) The State Soil Conservation Committee adopts and hereby incorporates into the rules of this subchapter by reference as standards for soil erosion and sediment control those standards published in the "Standards for Soil Erosion and Sediment Control in New Jersey" and identified as revised on [April 8, 2013] **December 14, 2015**, as the technical basis for local soil conservation district certification of soil erosion and sediment control plans. Specifically, these standards include the following:

1. Vegetative Standards:

Topsoiling.....8-1
Revised [April 12, 1999] **December 14, 2015**

2. Engineering Standards:

Land Grading.....19-1
Revised [April 12, 1999] **December 14, 2015**

3. (No change.)

(b)-(c) (No change.)

2:90-1.4 Application

(a) (No change.)

(b) Applications for certifications of soil erosion and sediment control plans shall include the following items:

1. (No change.)

2. Up to four copies of the soil erosion and sediment control plan at the same scale as the site plan submitted to the municipality or other land use approval agency, which includes the following information detailed on the plat:

i.-viii. (No change.)

ix. For residential development, erosion control measures which apply to dwelling construction on individual lots with notation on the final plat that requirement for installation of such control measures shall apply to subsequent owners if title is conveyed; [and]

x. Plans for maintenance of permanent soil erosion and sediment control measures and facilities during and after construction, which include the designation of persons or entity responsible for such maintenance; **and**

xi. Where applicable, the location and details for all proposed soil restoration areas including appropriate notes and sequencing;

3.-5. (No change.)

(c)-(g) (No change.)

2:90-1.9 Procedure

(a)-(k) (No change.)

(l) The sequence of construction shall be an integral component of the certified plan and shall be followed by the applicant or their agent during all phases of the project. The sequence shall incorporate the installation of temporary and permanent controls, and shall include, but not be limited to, clearing and grading, cuts and fills, temporary diversions, sediment basins, tracking controls, temporary and permanent stabilization, **soil restoration measures**, and dust control. The sequence of construction may be revised and shall be resubmitted to the district for approval during construction to address site concerns.

(m) (No change.)

2:90-1.14 Reports of Compliance

(a)-(l) (No change.)

(m) Where soil restoration measures are required, a standard form adopted by the SSCC must be utilized indicating the type of soil test method used, test location, test results, and proposed remediation methods. This form shall be provided to the soil conservation district prior to the Report of Compliance inspection. The district shall withhold an ROC, CRC, or FROC for any project that has not provided this form or it is determined that the remediation area has not adequately addressed restoration measures.

COMMUNITY AFFAIRS

(a)

DIVISION OF CODES AND STANDARDS

Relocation Assistance and Eviction

Proposed Readoption with Amendments: N.J.A.C. 5:11

Proposed Repeals: N.J.A.C. 5:11-7.3 and 7.4

Authorized By: Charles A. Richman, Commissioner, Department of Community Affairs.

Authority: N.J.S.A. 2A:18-61.1, 20:4-10, and 52:31B-10.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

Proposal Number: PRN 2016-154.

Submit written comments by November 18, 2016, to:

Geraldine Callahan
Department of Community Affairs
PO Box 800
Trenton, New Jersey 08625
Fax (609) 984-6696
geraldine.callahan@dca.nj.gov

The agency proposal follows:

Summary

Pursuant to N.J.S.A. 52:14B-5.1 and Executive Order No. 66 (1978), N.J.A.C. 5:11, the rules for relocation assistance and eviction, are scheduled to expire on November 4, 2016. As the agency submitted this notice of proposal to the Office of Administrative Law prior to that date, the expiration date is extended 180 days to May 3, 2017, pursuant to N.J.S.A. 52:14B-5.1.c(2). The Department of Community Affairs (Department) has reviewed this chapter and finds that it continues to be necessary and appropriate for the purpose for which it was originally promulgated. These rules establish standards for relocation assistance, including eligibility for relocation assistance, determining the amounts of relocation payments, the drafting and approval of a Workable Relocation Assistance Plan (WRAP) by a displacing agency, provisions governing grants-in-aid and provisions regarding the right to a hearing to appeal the final determination of a displacing agency.

The proposed amendments to N.J.A.C. 5:11-2.3 and 7.2 would delete references to the Office of Landlord-Tenant Information as that office was eliminated in 2011. (See N.J.A.C. 5:11-2.3(c) and 7.2(c)) It should be noted that the language for the Notice in question is contained in the

This is a courtesy copy of the proposed Standard for Topsoiling for review and comment in the New Jersey Register, September 19, 2016. The final adopted version of the Standard will be published in the revised Standards manual on the New Jersey Department of Agriculture website.

STANDARD FOR TOPSOILING

Definition

Topsoiling entails the distribution of suitable quality soil on areas to be vegetated.

Purpose

To improve the soil medium for plant establishment and maintenance.

Water Quality Enhancement

Growth and establishment of a vigorous vegetative cover is facilitated by topsoil, preventing soil loss by wind and rain offsite and into streams and other stormwater conveyances.

Where Applicable

Topsoil shall be used where soils are to be disturbed and will be revegetated.

Methods and Materials

1. Materials

- A. Topsoil should be friable¹, loamy², free of debris, objectionable weeds and stones, and contain no toxic substance or adverse chemical or physical condition that may be harmful to plant growth. Soluble salts should not be excessive (conductivity less than 0.5 millimhos per centimeter. More than 0.5 millimhos may desiccate seedlings and adversely impact growth). [Topsoil hauled in from offsite should have] **Imported topsoil shall have** a minimum organic matter content of 2.75 percent. Organic matter content may be raised by additives.
- B. Topsoil substitute is a soil material which may have been amended with sand, silt, clay, organic matter, fertilizer or lime and has the appearance of topsoil. Topsoil substitutes may be utilized on sites with insufficient topsoil for establishing permanent vegetation. All topsoil substitute materials shall meet the requirements of topsoil noted above. Soil tests shall be performed to determine the components of sand, silt, clay, organic matter, soluble salts and pH level.

2. Stripping and Stockpiling

- A. Field exploration should be made to determine whether quantity and or quality of surface soil justifies stripping.
- B. Stripping shall be confined to the immediate construction area.
- C. Where feasible, lime may be applied before stripping at a rate determined by soil tests to bring the soil pH to approximately 6.5. [in lieu of soil tests, see lime rate guide in seedbed preparation for Permanent Vegetative Cover for Soil Stabilization, pg. 4-1]
- D. A 4-6 inch stripping depth is common, but may vary depending on the particular soil.

¹Friable means easily crumbles in the fingers, as defined in most soils texts.

²Loamy means texture groups consisting of coarse loamy sands, sandy loam, fine and very fine sandy loam, loam, silt loam, clay loam, sandy clay loam and silty clay loam textures and having less than 35% coarse fragments (particles less than 2mm in size) as defined in the Glossary of Soil Science Terms, 1996, Soil Science Society of America.

This is a courtesy copy of the proposed Standard for Topsoiling for review and comment in the New Jersey Register, September 19, 2016. The final adopted version of the Standard will be published in the revised Standards manual on the New Jersey Department of Agriculture website.

- E. Stockpiles of topsoil should be situated so as not to obstruct natural drainage or cause off-site environmental damage.
 - F. Stockpiles should be vegetated in accordance with standards previously described herein; see standards for Permanent (pg. 4-1) or Temporary (pg.7-1) Vegetative Cover for Soil Stabilization. Weeds should not be allowed to grow on stockpiles.
3. Site Preparation
- A. Grade at the onset of the optimal seeding period so as to minimize the duration and area of exposure of disturbed soil to erosion. Immediately proceed to establish vegetative cover in accordance with the specified seed mixture. Time is of the essence
 - B. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance. See the Standard for Land Grading, pg. 19-1.
 - C. As guidance for ideal conditions, subsoil should be tested for lime requirement. Limestone, if needed, should be applied to bring soil to a pH of approximately 6.5 and incorporated into the soil as nearly as practical to a depth of 4 inches.
 - D. [Immediately prior to topsoiling, the surface should be scarified 6” to 12” where there has been soil compaction. This will help insure a good bond between the topsoil and subsoil. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.)] **Prior to topsoiling, the subsoil shall be in compliance with the Standard for Land Grading, pg. 19-1.**
 - E. Employ needed erosion control practices such as diversions, grade stabilization structures, channel stabilization measures, sedimentation basins, and waterways. See Standards 11 through 42.
4. Applying Topsoil
- A. Topsoil should be handled only when it is dry enough to work without damaging soil structure; i.e., less than field capacity (see glossary).
 - B. A uniform application to [a] **an average depth of [5] 5.0 inches, minimum of 4 inches, firmed in place is required. Alternative depths may be considered where special regulatory and/or industry design standards are appropriate such as on golf courses, sports fields, landfill capping, etc.** Soils with a pH of 4.0 or less or containing iron sulfide shall be covered with a minimum depth of 12 inches of soil having a pH of 5.0 or more, in accordance with the Standard for Management of High Acid Producing Soil (pg. 1-1).
 - C. **Pursuant to the requirements in Section 7 of the Standard for Permanent Vegetative Stabilization, the contractor is responsible to ensure that permanent vegetative cover becomes established on at least 80% of the soils to be stabilized with vegetation. Failure to achieve the minimum coverage may require additional work to be performed by the contractor to include some or all of the following: supplemental seeding, re-application of lime and fertilizers, and/or the addition of organic matter (i.e. compost) as a top dressing. Such additional measures shall be based on soil tests such as those offered by Rutgers Cooperative Extension Service or other approved laboratory facilities qualified to test soil samples for agronomic properties.**

This is a courtesy copy of the proposed Standard for Land Grading for review and comment in the New Jersey Register, September 19, 2016. The final adopted version of the Standard will be published in the revised Standards manual on the New Jersey Department of Agriculture website.

STANDARD FOR LAND GRADING

Definition

Reshaping the ground surface by grading to planned elevations which are determined by topographic survey and layout.

Purpose

The practice is for one or more of the following: Provide more suitable sites for land development; improve surface drainage and control erosion.

Conditions Where Practice Applies

This practice is applicable where grading to planned elevations is practical and it is determined that grading is needed. Grading that involves the disturbance of vegetation over large areas shall be avoided. It may be necessary to provide for temporary stabilization of large areas.

Water Quality Enhancement

Proper grading of disturbed sites will protect against soil loss from erosion, enhance establishment of permanent vegetative cover and help to properly manage stormwater runoff all of which will reduce off site discharge of pollutants.

Planning Criteria

The grading plan and installation shall be based upon adequate topographic surveys and investigations. The plan is to show the location, slope, cut, fill and finish elevation of the surfaces to be graded. The plan should also include auxiliary practices for safe disposal of runoff water, slope stabilization, erosion control and drainage. Facilities such as waterways, ditches, diversions, grade stabilization structures, retaining walls and subsurface drains should be included where necessary.

Erosion control measures shall be designed and installed in accordance with the applicable standard contained herein.

The development and establishment of the plan shall include the following:

1. The cut face of earth excavations and fills shall be no steeper than the safe angle of repose for the materials encountered and flat enough for proper maintenance.
2. The permanently exposed faces of earth cuts and fills shall be vegetated or otherwise protected from erosion.
3. Provisions shall be made to safely conduct surface water to storm drains or suitable water courses and to prevent surface runoff from damaging cut faces and fill slopes.
4. Subsurface drainage is to be provided in areas having a high water table, to intercept seepage that would adversely affect slope stability, building foundations or create undesirable wetness. See Standard for Subsurface Drainage, pg. 32-1.
5. Adjoining property shall be protected from excavation and filling operations.
6. Fill shall not be placed adjacent to the bank of a stream or channel, unless provisions are made to protect the

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hydraulic, biological, aesthetic and other environmental functions of the stream.

Soil Management and Preparation

Subgrade soils prior to the application of topsoil shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.

This section of this Standard addresses the potential for excessive soil compaction in light of the intended land use, testing for excessive soil compaction where permanent vegetation is to be established and mitigation of excessive soil compaction when appropriate.

Due to use or setting, certain disturbed areas will not require compaction remediation including, but not limited to the following:

- 1. Within 20 feet of building foundations with basements, 12 feet from slab or crawl space construction.**
- 2. Where soils or gravel surfaces will be required to support post-construction vehicular traffic loads such as roads, parking lots and driveways (including gravel surfaces), bicycle paths or pedestrian walkways (sidewalks etc)**
- 3. Airports, railways or other transportation facilities**
- 4. Areas requiring industry or government specified soil designs, including golf courses, landfills, wetland restoration, septic disposal fields, wet/lined ponds, etc.**
- 5. Areas governed or regulated by other local, state or federal regulations which dictate soil conditions**
- 6. Brownfields (capped uses), urban redevelopment areas, in-fill areas, recycling yards, junk yards, quarries**
- 7. Slopes determined to be inappropriate for safe operation of equipment**
- 8. Portions of a site where no heavy equipment travel or other disturbance has taken place**
- 9. Areas receiving temporary vegetative stabilization in accordance with the Standard.**
- 10. Where the area available for remediation practices is 500 square feet or less in size.**
- 11. Locations containing shallow (close to the surface) bedrock conditions.**

Areas of the site which are subject to compaction testing and/or mitigation shall be graphically denoted on the certified soil erosion control plan.

Either soil compaction remediation or testing (to prove remediation is not necessary) will be required in areas where permanent vegetation is to be established that are not otherwise exempted above. Testing method shall be selected, and soil compaction testing shall be performed by the contractor or other project owner's representative (e.g. engineer). A minimum of two (2) tests shall be performed for projects with an overall limit of disturbance of up to one (1) acre and at a rate of two (2) tests per acre of the overall limit of disturbance for larger areas which shall be evenly distributed over the area of disturbance subject to testing. Tests shall be performed in areas representative of the construction activity prevailing in the area. In the event this testing indicates compaction in excess of the maximum thresholds indicated for the testing method, the contractor/owner shall have the option to perform compaction mitigation over the entire disturbed area (excluding exempt areas) or to perform additional testing to establish the limits of excessive compaction whereupon only the excessively compacted areas would require compaction mitigation.

Soil compaction testing is not required if/when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction.

Soil Test Method Options

- 1. Probing Wire Test Method**

This is a courtesy copy of the proposed Standard for Land Grading for review and comment in the New Jersey Register, September 19, 2016. The final adopted version of the Standard will be published in the revised Standards manual on the New Jersey Department of Agriculture website.

This test shall be conducted with a firm wire (15-1/2 gauge steel wire - e.g. survey marker flag, straight wire stock, etc.), 18 to 21 inches in length, with 6" inches from one end visibly marked on the wire. Conduct wire flag test by holding the wire flag near the flag end and push it vertically into the soil at several different locations in the field to the lesser of a 6 inch depth or the depth at which it bends due to resistance in the soil. Record the depth at which it bends due to resistance in the soil. The wire should penetrate without bending or deforming at least 6" into the ground by hand, without the use of tools. If penetration fails and an obstruction is suspected (rocks, root, debris, etc.) the test can be repeated in the same general area. If the test is successful the soil is not excessively compacted. If the wire is difficult to insert (wire bends or deforms prior to reaching 6 inches in depth) the soil may be excessively compacted and compaction mitigation or further testing via method 3 or 4 below is required, the choice of which is at the contractor/owner's discretion.

2. Handheld Soil Penetrometer Test Method

This test shall be conducted based on the Standard Operation Procedure (SOP) #RCE2010-001, prepared by the Rutgers Cooperative Extension, Implemented June 1, 2010, last revised February 28, 2011. A result of less than or equal to 300 psi shall be considered passing. If the result is greater than 300 psi the soil may be excessively compacted and compaction mitigation or further testing via method 3 or 4 below is required, the choice of which is at the contractor/owner's discretion.

3. Tube Bulk Density Test Method

This test shall be certified by a New Jersey Licensed Professional Engineer utilizing only undisturbed samples (reconstitution of the sample not permitted) collected utilizing the procedure for Soil Bulk Density Tests as described in the USDA NRCS Soil Quality Test Kit Guide, Section 1-4, July 2001. When the texture of the soil to be tested is a sand or loamy sand and lack of soil cohesion or the presence of large amounts of coarse fragments, roots or worm channels prevent the taking of undisturbed samples, this test shall not be used.

Where the results of replicate tests differ by more than ten percent (10%), the samples shall be examined for the following defects:

- i. Cracks, worm channels, large root channels or poor soil tube contact within the samples;**
- ii. Large pieces of gravel, roots or other foreign objects**
- iii. Smearing or compaction of the upper or lower surface of the samples**

If any of the defects described in 3 (i-iii) above are found, the defective core(s) shall be discarded and the test repeated using a new replicate sample for each defective replicate sample. The bulk density (defined as the weight of dry soil per volume) results shall be compared with the Maximum Dry Bulk Densities in Table 19-1. A result of less than or equal to the applicable maximum bulk density shall be considered passing. If the result is greater than the maximum bulk density the soil shall be considered excessively compacted and compaction mitigation is required.

4. Nuclear Density Test Method

This test shall be certified by a New Jersey Licensed Professional Engineer and conducted by a nuclear gauge certified inspector pursuant to ASTM D6938 . The bulk density measurement results shall be compared with the Maximum Dry Bulk Densities in Table 19-1. A result of less than or equal to the applicable maximum bulk density shall be considered passing. If the result is greater than the maximum bulk density the soil shall be considered excessively compacted and compaction

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mitigation is required.

Table 19-1 – Maximum Dry Bulk Densities (grams/cubic centimeter) by soil type

Soil Type/Texture	Bulk Density (g/cc)
Coarse, Medium and Fine Sands and Loamy Sands	1.80
Very Fine Sand and Loamy Very Fine Sand	1.77
Sandy Loam	1.75
Loam, Sandy Clay Loam	1.70
Clay Loam	1.65
Sandy Clay	1.60
Silt, Silt Loam	1.55
Silty Clay Loam	1.50
Silty Clay	1.45
Clay	1.40

Source: USDA Natural Resource Conservation Service, Soil Quality Information Sheet, Soil Quality Resource Concerns: Compaction, April 1996

- 5. Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density measurement may be allowed subject to District approval.**

Procedures for Soil Compaction Mitigation

If subgrade soils are determined to be excessively compacted by testing, as identified above, procedures shall be used to mitigate excessive soil compaction prior to placement of topsoil and establishment of permanent vegetative cover. Restoration of compacted soils shall be through deep scarification/tillage (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.) or in the alternative, another method as specified by a New Jersey Licensed Professional Engineer.

Installation Requirements

Timber, logs, brush, rubbish, rocks, stumps and vegetative matter which will interfere with the grading operation or affect the planned stability or fill areas shall be removed and disposed of according to the plan.

Topsoil is to be stripped and stockpiled in amounts necessary to complete finish grading of all exposed areas requiring topsoil. See Standard for Topsoiling, pg. 8-1.

Fill material is to be free of brush, rubbish, timber, logs, vegetative matter and stumps in amounts that will be detrimental to constructing stable fills.

All structural fills shall be compacted as determined by structural engineering requirements for their intended purpose and as required to reduce slipping, erosion or excessive saturation.

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All disturbed areas shall be left with a neat and finished appearance and shall be protected from erosion. See Standards for Permanent Vegetative Cover for Soil Stabilization, pg. 4-1.

Trees to be retained shall be protected if necessary in accordance with the Standard for Tree Protection During Construction, pg. 9-1.

[Soil compaction resulting from land grading activities can impact the infiltration rate of the soil. Restoration of compacted soils through deep tillage (6" to 12") and the addition of organic matter may be required in planned pervious areas to enhance the infiltration rate of disturbed soil. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.)]