

SECTION S610 - LANDSCAPE

S610-1 DESCRIPTION

Work consists of establishment and maintenance of turf in lawn areas, and miscellaneous treatment of planting areas as required in Contract Documents and as directed by Project Manager.

References to NYSDOT specifications are to be in accordance with latest edition of *NYSDOT Standard Specifications (US Customary Units)*.

S610-2 MATERIALS

S610-2.01 Turf Establishment

Contractor must provide following certifications to Project Manager:

- Certification statement from grass seed mixture vendor stating botanical and common names, percentage by weight, and percentage of purity and germination for each type of grass seed provided in mixture
- Certification statement from material manufacturer for fertilizers, soil amendments, herbicides and pesticides, and any other chemicals that may be required, including instructions for proper application method
- Certification statement from material manufacturer for turf mulch and tackifier

Pesticide applicators must be licensed and fully trained in use and application of pesticides. In no case is Contractor to permit use or application of any pesticide material by non-approved, unlicensed and untrained personnel, or by any non-approved application method.

S610-2.02 Topsoil Material

Topsoil material is to be in accordance with requirements of Section S613 Topsoil.

S610-2.03 Soil Amendments

Soil amendments that are to be used for adjustment of soil chemistry are to be standard commercial type including but not limited to ground limestone, gypsum, products containing phosphorus, potassium, sulphur, et cetera.

S610-2.04 Limestone

Limestone is to be standard, pulverized commercial type having minimum total neutralizing value of 88 percent calcium carbonate equivalence, which is to be applied at rate sufficient to bring pH of topsoil material to range of 6.0 to 7.5, as determined by testing lab.

S610-2.05 Grass Seed Mixture

Grass seed is to be fresh, clean or new crop seed. Grass seed mixture is not to contain more than 0.10 percent poa annua, is to be free of bent grass and noxious weed seed, and is to be composed of varieties listed in Grass Seed Mixture table, or approved equivalent. Grass seed mixture is to be composed to specified species proportions by weight, and tested to minimum percentages of purity and germination.

Equivalent grass seed varieties proposed for use are to be branded grass seed varieties that have been tested by an independent or New York State certified testing organization, and have shown average or better performance under low maintenance conditions in northeastern region of United States.

Generic or non-branded grass seed varieties are not to be used. Fine fescues should be combination of rhizomatous creeping red fescue and some chewing fine fescue varieties.

Grass Seed Mixture		
Species	Maximum Percent of Mix by Weight	Varieties
Fine Fescue	35%	creeping red fescue varieties: dawson, flyer, jasper, seabreeze, shademaster II (rhizomatous chewings fine fescue variety may be used in combination with creeping red fescue variety, but is not to exceed 1/2 of fine fescue blend)
Kentucky Bluegrass	30%	baron, baronie, bartitia, caliber, canterbury, dragon, eagleton, kenblue, northstar, rambo
Perennial Ryegrass	20%	blazer III, brightstar II, line drive, monterey, palmer III, panther, secretariat, SR4200, top hat
Alkali Grass	15%	fuls, SL-633 (variety of above species that performs similarly in alkali soil turf grass tests may be substituted)

S610-2.06 Turf Fertilizer

Apply any fertilizer necessary to produce an acceptable uniform viable turf.

S610-2.07 Turf Mulch and Mulch Tackifier

Turf mulch is to be wood fiber hydromulch with mulch tackifier.

Straw mulch is to be clean oat or wheat straw well seasoned before baling, free from mature seed bearing stalks, foreign matter or roots of prohibited or noxious weeds. Mulch tackifier is to be vegetable-based, PAM-based, or other non-asphaltic tackifier suitable for an urban street environment.

Hay mulch, plastic mulch, and mulches derived from or contaminated by insulation manufacture, are not to be used.

S610-2.08 Weed Killer

Weed killer is to be registered weed control product that complies with applicable Federal, State, and local laws and regulations.

S610-2.09 Shredded Bark Mulch

Shredded bark mulch is to be maximum 1/2 to 1 inch in size, partially decomposed, free of disease and debris, with no green leaf matter or sprouts.

S610-2.10 Pea Stone

Pea stone is to be washed, well graded, free from organic or other deleterious materials and is to meet following gradation requirements:

Screen Size	Percent Passing by Weight
1/2 inch	100%
1/4 inch	85 to 100%
1/8 inch	0 to 15%

Material will be accepted on basis of Magnesium Sulfate Soundness Loss after 4 cycles of 20 percent or less.

Not more than 30 percent, by weight, of particles retained on 1/2 inch sieve is to consist of flat or elongated particles. Flat or elongated particle is defined as one which has its greatest dimension more than 3 times its least dimension. Acceptance for this requirement will normally be based on visual inspection by Project Manager. When City elects to test for this requirement, material with percentage of flat or elongated particles that exceeds maximum 30 percent will be rejected. All material is to meet specified gradation requirements prior to placement. All processing of material is to be completed at originating source.

Materials are to be stockpiled. Stockpile construction requirements, sampling, testing and acceptance or rejection procedures will be as stipulated in appropriate NYSDOT departmental publication.

S610-2.11 Water

Water is to have pH of between 6.0 and 8.0, and is to be free of oil and any other substance that may be harmful to plant growth.

S610-3 CONSTRUCTION DETAILS

S610-301 General

Minimum of 14 days prior to commencing work, written schedule of planned operations for seeding/reseeding of lawn areas, application of fertilizers and weed killers is to be submitted to Project Manager for approval. Such written schedule is also to include specific methods and materials to be used.

At least 5 days prior to application, written notice is to be provided to Project Manager and residents of intent to apply grass seed, turf mulch and mulch tackifier, fertilizers and/or weed killers. Written notice to residents is to be in format as approved of by Project Manager.

Do not apply weed killer at locations where resident objects to such application of weed killer.

Existing surface areas are to be free of all undesirable material which is larger than 1 inch in its greatest dimension. Such undesirable materials are, but not limited to: refuse; paving materials such as concrete, asphalt, brick; materials which are toxic to plant growth and grass seed; subsoil; woody vegetation, stumps, roots, brush; clods, hard lumps, and rocks. Sod and herbaceous growth such as grass and weeds need not be removed from existing soil, but are to be thoroughly broken up and mixed into overall soil material. All embedded foreign objects are to be removed and resultant hole filled-in with topsoil material. Contractor is to remove and dispose of any undesirable materials prior to treating surface area.

Existing surface is to be regraded as necessary to be uniform in contour and to meet required grades and cross-slopes without any irregularities. Finished grades and cross-slopes are to be uniformly sloping between tops of adjacent features such as sidewalks, driveways, curbs, or other existing lawn areas. Final surface contour is to be checked for accordance to required grades and cross-slopes by use of surveying instruments or other method as approved by Project Manager. Eliminate irregularities which form low areas and may tend to pond water when regrading, or by filling-in low area with either topsoil or embankment in place material.

Excavation and disposal is to be in accordance with NYSDOT Section 203 Excavation and Embankment. Properly dispose of all excavated material off site within 24 hours. Stockpiling of excavated material at project site is not allowed.

Buildings, paved areas, plantings and other non-seeded areas are to be protected from any excessive overspray of any of materials that are being applied.

S610-3.02 Tree Protection

Existing trees and tree roots within project limits are to be protected from damage by construction activities. Construction or excavated materials are not to be placed or stockpiled within limits of canopy of any existing tree, to prevent smothering of existing tree root system. Vehicles and other construction equipment are not to be parked on any tree root system, nor left running (idling) under limits of canopy of any existing tree.

Where cutting of existing tree roots is necessary, it is to be done with sharp cutting tools. Exposed tree roots are to be re-buried as soon as possible. Until exposed tree roots can be re-buried, exposed tree roots are to be covered with wet burlap. Burlap is to be kept wet until exposed tree roots can be re-buried.

Existing trees that are damaged by construction activities are to be repaired within 72 hours using current arboricultural standards. Those existing trees that are determined by City Forester to be damaged beyond repair, are to be removed and replaced by Contractor.

Topsoil that is placed around an existing tree is not to be placed any higher than 3 inches of original surface area at base of existing tree.

S610-3.03 Soil Amendments

Soil amendments are to be applied at rate sufficient to bring chemistry of existing soil to an pH acceptable range as determined by testing lab. Soil amendments are to be applied in accordance with manufacturer's instructions for safe and effective application.

S610-3.04 Topsoil and Compaction

Topsoil material is to be placed and compacted in accordance with Section S613 Topsoil.

S610-3.05 Surface Preparation for Turf Establishment

Finished surface is to be flush with, or not greater than 1/4 inch above finished surface of adjacent surfaces. Prior to seeding, existing surface is to be prepared per Subsection S610-3.01 General.

Finished surface is to be uniform and smooth, and in accordance with required grades and cross-slopes. Finished surface is not to have any irregularities greater than 1 inch as measured from 10 foot long straight edge laid on finished surface. In built-up and residential areas, this may require that existing surface be regraded and hand raked. Topsoil material is to be used to adjust existing surface to required degree of smoothness and uniformity.

Finished surface is to be maintained to required grades and cross-slopes, placing any additional topsoil material that may be necessary to correct any irregularities that may have developed. If additional topsoil material is required, surface is to be properly prepared to ensure cohesiveness between materials.

Tops and bottoms of all slopes are to be rounded to blend into each other and into existing adjacent surface areas so as not to leave any noticeable sharp breaks. Cuts and fills are to have maximum slope of 3 feet horizontally to 1 foot vertically.

Surface preparation work is to in accordance with Method 1, unless Method 2 has been specifically required in Contract Documents. Regardless of which method is used, finished surface of any area that is to be seeded is not to be rougher, or more uneven, than any adjacent existing lawn areas.

A. Method 1

Surface area to be seeded is to be scarified to depth of 1/2 inch to break-up surface crust immediately before seeding. undesirable materials are to be removed and properly disposed of off-site.

B. Method 2

Surface area to be seeded is to be harrowed, disced, or otherwise completely pulverized to state of tillage acceptable to Project Manager. Undesirable materials are to be removed and properly disposed of off-site.

S610-3.06 Turf Establishment

A. General

Utilize all measures as may be necessary to produce finished product that provides continuous blanket of turf, that demonstrates relatively uniform height that is free of undesirable grasses, weeds, molds, mosses, algae, lichens, disease, and other undesirable characteristics.

Within 2 days of having applied grass seed, Contractor is to provide written notice to residents on proper procedure for protecting and caring for seeded areas. Written notice to is to be in format as approved of by Project Manager.

Areas disturbed by construction activities that are not to be paved or otherwise landscaped, are to be fine graded and seeded.

B. Hydroseeding (Two Step Method)

Use hydromulcher (sprayer) and apply materials in accordance with manufacturer's recommendations. Apply materials at rate of application sufficient to meet required performance criteria, but not less than following:

- Grass seed - rate recommended by manufacturer
- Wood fiber mulch - 1,500 pounds per acre
- Mulch tackifier - rate recommended by manufacturer

C. Dry Seeding

Perform grass seeding operations when soil, wind, and other conditions are appropriate, at rate of application sufficient to meet required performance criteria, but not less than rate recommended by grass seed vendor.

D. Straw Mulch

Straw mulch may be used in lieu of hydromulch and only if approved for use by Project Manager.

Straw mulch is to be placed uniformly in continuous blanket on seeded areas within 24 hours of having placed seed, and anchored with liquid tackifier.

Apply materials at rate of application sufficient to meet required performance criteria, but not less than following:

- Straw mulch - 2-1/2 tons per acre, or two 50 pound bales per 1,000 square feet of area
- Liquid tackifier - rate recommended by manufacturer

S610-3.07 Weed Killer

Apply an approved weed killer as necessary to help produce relatively weed free turf. Weed killer may be used only after having received written approval from Project Manager.

Weed killer is to be applied according to manufacturer's safety and application recommendations, and in compliance with all applicable Federal, State and local ordinances, laws and regulations for public notice and methods of application.

S610-3.08 Turf Maintenance

Maintain all seeded areas until they have obtained continuous blanket of turf that is of relatively uniform height that is free of undesirable grasses, weeds, molds, mosses, algae, lichens, disease, and other undesirable characteristics, and has been accepted by City.

Maintenance will include but is not limited to: soil amendment; fertilizing; watering; de-weeding; mowing; applications of herbicides, fungicides, insecticides; regrading and reapplication of topsoil; and reseeding. Areas of topsoil or seeded areas that become washed out, eroded, rutted, damaged, settled below required grades, or achieve unsatisfactory germination, are to be repaired.

Water is to be applied to adequately maintain surface soil moisture for proper seed germination. After seed has germinated, continue to regularly water seeded area until initial growth of turf has been accepted by City.

Until initial growth of turf has been accepted by City, turf areas are to be mowed as frequently as necessary to maintain maximum turf height of 4 inches and to minimize weed growth. No more than 1/3 of height of grass blade is to be mowed off during any one mowing operation.

After reasonable period of time has elapsed, if Project Manager determines that any seeded area has failed to have satisfactorily produced thriving turf due to seeding operations and/or lack of proper maintenance, Contractor is to repeat all of work required by this specification to repair such failed area until satisfactory growth of turf has been established.

Acceptance of established turf by City will be based on turf having achieved performance standards in accordance with Subsection S610-3.09 Performance Acceptance Measures.

S610-3.09 Performance Acceptance Measures

Only turf that demonstrates that it has achieved required growth and quality characteristics as outlined in this specification to satisfaction of Project manager, will be accepted by City. Factors for assessing turf will include, but not be limited to: topsoil pH; uniformity of turf color, texture, height and density of growth; overall coverage of areas designated for seeding; absence of undesirable grasses, weeds, molds, mosses, algae, lichens, disease, and other undesirable characteristics; and uniformity of slope and overall drainage of surface.

S610-3.10 Shredded Bark Mulch/Pea Stone

If required, weed fabric barrier is to be placed over area to be treated before shredded bark mulch/pea stone is placed. Shredded bark mulch/pea stone is to be uniformly spread to required thickness and lightly compacted.

Shredded bark mulched/pea stone area is to be cared for until final acceptance of project. Such care is to consist of providing protection against pedestrian traffic by installing approved warning signs and barricades. Treated areas damaged by erosion, wind, fire or other causes are to be repaired as soon as possible to reestablish condition and grade of area prior to placing shredded bark mulch/pea stone, then retreated with new shredded bark mulch/pea stone.

S610-3.11 Site Preparation

Site is to be shaped and graded to final lines and grades as required in Contract Documents, and as required by Project Manager. Clean topsoil material stripped during shaping and grading operation is to be stockpiled on-site. Each stockpile is to contain at least 200 cubic yards of topsoil material, is to be at least 4 feet high, and is to be trimmed, shaped and maintained to uniform surfaces and slopes. Straw bales are to be placed around entire bottom of stockpile and staked to ground for control erosion.

Stockpile is to be either thoroughly covered with weatherproof material, or seeded. Until stockpile has been adequately covered, periodically water down stockpile to minimize dust erosion. Weatherproof material used to cover stockpile is to be staked, tied, or otherwise weighted down. Weatherproof material is to be maintained as necessary by reaffixing any areas that become loose, replacing any areas where weatherproof material becomes torn, damaged or otherwise missing. Stockpile that is to be seeded, is to be seeded and maintained in accordance with Subsection S610-3.10 Construction Details.

After all other phases of work are completed, all ground areas that are to be seeded are to be prepared in accordance with Subsection S610-3.10 Construction Details. If there is an insufficient amount of stockpiled topsoil material available on-site, supply and spread new topsoil material in accordance with Section S613 Topsoil.

Any excess stockpiled topsoil material is to be removed.

S610-3.12 Water

Water may be brought to project site and applied via water truck, or may be applied through use of any existing hydrant. Before being allowed to use water from existing hydrants, obtain necessary permit(s), and install backflow prevention device and approved water meter.

Water is to be applied in such manner that required volume of water being applied does not damage, cause any erosion or otherwise disrupt any existing vegetation, mulch, plant saucers, sod, or areas of stockpiled topsoil material.

S610-3.13 Clean-up and Repair

Within 72 hours of having completed any of miscellaneous landscape operations, or of having received written notification of any damage, clean and/or repair all adjacent surfaces to treated areas that have become messed-up or otherwise damaged by Contractor's ongoing operations. This includes but is not limited to removing all over-spray or scattered materials.

S610-4 METHOD OF MEASUREMENT

S610-4.01 Turf Establishment, Limestone

Quantity to be measured for payment will be number of square feet of surface area treated.

S610-4.02 Shredded Bark Mulch and Pea Stone

Quantity to be measured for payment will be number of cubic yards of material placed.

S610-4.03 Development Site Preparation

Quantity to be measured for payment will be on lump sum basis for each site.

S610-4.04 Water

Quantity to be measured for payment will be measured in thousand (1,000) gallon units of water applied, as determined by use of water meters, or by meters attached to water tanks/trucks.

S610-5 BASIS OF PAYMENT

S610-5.01 Hydroseeding and Seeding

Unit price bid includes cost of: notifications; surface preparation; removal and disposal of undesirable materials; grading; furnishing and applying soil amendments, seed, hydromulch, straw mulch, mulch tackifier, fertilizer, weed killer; watering; testing; permits, hydrant water meter, backflow prevention; mowing; site maintenance and protection; repair of treated areas until acceptance of resulting turf; and furnishing all labor, material, and equipment necessary to complete work.

No payment will be made under this work until an acceptable turf area has been satisfactorily produced throughout total project area, or in case of multi-street project, along an individual street segment. Acceptance of turf will be based upon having achieved performance criteria as specified in Subsection S610-3.09 Performance Acceptance Measures.

S610-5.02 Shredded Bark Mulch and Pea Stone

Unit price bid includes cost of: surface preparation; removal and disposal of undesirable materials; grading; weed barrier fabric; furnishing and placing shredded bark mulch/pea stone; watering; protection; and furnishing all labor, material and equipment necessary to complete work.

S610-5.03 Site Preparation

Lump sum price bid includes cost of: shaping and grading development site; stockpiling stripped topsoil material; trimming, shaping and maintaining stockpiles; furnishing, placing and maintaining weatherproof material/hydroseed; furnishing, placing, staking and maintaining straw bales; watering; finish grading, compacting and maintaining ground areas; eliminating irregular areas; filling in low spots; removal and disposal of undesirable materials; and furnishing all labor, material and equipment necessary to complete work.

Additional topsoil material supplied will be paid for under separate bid item.

S610-5.04 Limestone

Unit price bid includes cost of: furnishing and applying limestone; and furnishing all labor, material and equipment necessary to complete work.

S610-5.05 Water

Unit price bid includes cost of: furnishing and applying water; and furnishing all labor, material and equipment necessary to complete work.

Payment will be made under:

Note: XX in bid item number represents each individual development site. i.e.: S610.0901 Development Site Preparation (Clarissa Street).

ITEM NO.	ITEM	PAY UNIT
S610.0502	Hydroseeding	Square Foot
S610.0602	Seeding	Square Foot
S610.07	Shredded Bark Mulch	Cubic Yard
S610.08	Pea Stone	Cubic Yard
S610.09XX	Site Preparation (Site)	Lump Sum
S610.10	Limestone	Square Foot
S610.11	Water	1000 Gallons

REVISED December 1, 2015