



SECTION 32 29 00 LANDSCAPING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Provide all labor, material, equipment and service required to complete the following, in accordance with the American Association of Nurserymen Standards:
1. Planting media and soil amendments for all planted areas.
 2. Fine grading of all planted areas and areas with river stone.
 3. Irrigation water supply and control systems.
 4. Automatic drip irrigation system for raised planters and plantings not in Rain Garden.
 5. Interim watering, fertilization and maintenance.
- B. Related Work specified elsewhere:
- Site Improvements - Section 02800

1.02 QUALITY ASSURANCE; SUBMITTALS:

- A. Materials Testing: All loam and soil amendments shall be tested by an approved soils testing laboratory which normally provides testing of agricultural soils.
1. Loam:
 - a. The soils testing laboratory shall analyze the Contractor's sample(s) and shall identify the materials and the rates of distribution required to meet the Specifications for loam. The laboratory shall also recommend the addition of fertilizer and limestone to meet Specifications for pH and nutrient levels.
 - b. The amended loam, unless otherwise specified or approved, shall have an acidity range of approximately 5.5 pH to 7.6 pH.
 - c. The organic content of loam shall be not less than 4% or more than 20% as determined by the wet combustion method (chromic acid reduction).
 - d. There shall be not less than 20% loam nor more than 80% loam passing the 200 mesh sieve, as determined by the wash test made in accordance with the standard test ASTM D1140.
 - e. All laboratory testing of loam shall be at the Owner's expense. All sampling and related costs shall be at the Contractor's expense. Test reports shall be forwarded to the Owner, Mohr & Seredin (M&S), and Contractor.
 2. Soil Amendments:
 - a. An independent laboratory shall test the materials, mechanical analysis (ASTM D421).
 - b. Test the material for PH and acidity.



- c. Test the material for organic content.
- d. Determine that the amendment is inert.

3. Plant Materials:

- a. All plant materials to be in conformance with American Nurserymen's Association Standards (ANA).
- b. No substitutions will be allowed. If any plant is not available, Mohr & Seredin shall be contacted for decision.

B. Submittals Required:

- 1. Planting media samples for testing, as specified above.
- 2. Test results and recommendations from the certified laboratory for topsoil and soil amendments.
- 3. Fertilizer product cutsheets.
- 4. Manufacturers' product cutsheets for irrigation system components.

1.03 PLANTING SEASON:

- A. Planting shall only be performed when weather and soil conditions are suitable for planting the material specified in accordance with locally accepted practice.
- B. Contractor may plant, at risk, during unseasonable conditions if desired by the Contractor. No additional compensation will be allowed, and work is subject to review as to time and methods of operation.

1.04 DELIVERY, STORAGE, AND HANDLING OF PLANT MATERIAL

- A. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage.
- B. Digging Plant Material: Plants shall not be dug at the nursery or approved source until the Contractor is ready to transport them from their original locations to the site of the work or acceptable storage location.
- C. Handling of Plant Materials: Exercise care in handling plant materials to avoid damage or stress. Handle planting stock by root ball or container. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- D. Deliver plants after preparations for planting have been completed, and install immediately.



- E. Plants that are not planted immediately shall be protected as follows:
1. If planting is delayed more than six hours after delivery, set plants and trees in shade, protect from weather and mechanical damage, and keep roots moist. Plants shall not be allowed to dry out or freeze.
 2. Earth balls shall be kept intact and moist.
- F. The following shall be cause for rejection of materials by the Landscape Contractor or Mohr & Seredin (M&S):
1. Evidence of inadequate protection following digging, carelessness while in transit, or improper handling or storage, shall be cause for rejection.
 2. Upon arrival at the site of the work, plants shall be inspected for proper shipping procedures. Should the roots be dried out, large branches be broken, balls of earth broken or loosened, or areas of bark be torn, M&S will reject the injured plant.
 3. When a plant has been rejected, remove it from the area of the work and replace it with one of the required size and quality

1.04 MAINTENANCE

- A. Plant material shall be maintained by the Contractor until Substantial Completion, as described in Part 3 of this Section.
- B. Following Substantial Completion until the completion of the warranty period and Final Acceptance, maintenance of the plant material shall become the Owner's responsibility.

1.05 ACCEPTANCE

- A. M&S will inspect all work for Substantial Completion.
- B. Acceptance of plant material by M&S will be for general conformance to specified size, character, and quality, and shall not diminish responsibility for full conformance to the Contract Documents.
- C. Upon satisfactory completion and re-inspection of all repairs or renewals necessary in the judgment of M&S, M&S will recommend to the Owner that acceptance of the work of this Section be given.

1.06 WARRANTY

- A. Plants and irrigation workmanship shall be guaranteed for a period of one year after the date of Acceptance by the Owner and M&S. Submit a written warranty statement with Contractor contact information and date of Acceptance.
- B. Written manufacturers' warranties shall be provided as part of Substantial Completion of the project.



- C. Plants shall be healthy, free of pests and disease, and in flourishing condition at the end of the guarantee period. Plants shall be free of dead and dying branches and branch tips, and shall bear foliage of normal density, size, and color.
- D. Replace dead plants and all plants not in a vigorous, thriving condition, as determined by the Landscape Architect during and at the end of the guarantee period, without cost to the Owner, as soon as weather conditions permit and within the specified planting period.
1. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this Specification.
 2. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Owner.
 3. The guarantee of all replacement plants shall extend for an additional one-year period from the date of their acceptance after replacement.
- E. Guarantee does not cover defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
- F. At the end of the guarantee period, and no less than five days prior to final inspection, staking and guying materials shall be removed from the site.

PART 2 - PRODUCTS

2.01 LANDSCAPE MATERIALS:

- A. Planting Media:
1. Provide off-site topsoil in accordance with the following:
 - a. Provide new topsoil which is fertile, friable, natural loam, surface soil, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than 1/2" in any dimension, and other extraneous or toxic matter harmful to Plant growth. It shall contain at least 4% of decayed organic matter (humus). Topsoil shall not be excessively acid or alkaline (pH range of 5.5 to 7) nor contain toxic substances, which may be harmful to plant growth.
 - b. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4 in. Do not obtain from bogs or marshes.
 - c. Before any topsoil is delivered, the Contractor shall deliver to the site a sample of proposed supply for inspection, testing, and acceptance by the Owner's Representative. Delivery of topsoil may begin upon acceptance of the sample.
 - d. If the topsoil is not accepted, additional sources shall be located and sampling and testing shall be accomplished as specified herein until an accepted topsoil



material is found, all at the Contractor's expense. Delivery and spreading of topsoil may begin only upon approval of the sample.

- e. No topsoil shall be delivered in a frozen or muddy condition.

2. Compost:

- a. Provide a commercially produced, aged, soil compost material containing inert organic matter or material of a generally humus nature capable of sustaining growth of vegetation.
- b. The material shall be free of stones, lumps or similar objects larger than 1" in diameter. It shall be derived from organic waste material such as agricultural waste, animal manure and sewage sludge, approved for land application use by the State of Maine Department of Environment Protection (DEP).
- c. The composting process of the material shall be 95% to 98% complete prior to its use on-site.
- d. Prior to any soil amendment material being delivered to the site, the Contractor shall supply a certificate from an independent laboratory, certified by the state, stating that the material meets the specifications.

2. Planting media mix, by volume:

- a. Rain Garden: Mix 1 part imported topsoil with 1 part loose compost.
- b. Raised planters and other areas outside of rain garden: Mix 1 part imported topsoil or loose compost with 1 part sandy fill or sandy loam.

B. Fertilizer:

- 1. Provide commercial brand fertilizer of neutral character, the elements of which are delivered from organic sources. Fertilizer shall be a standard product complying with state and federal fertilizer laws.
- 2. Actual percentages of nitrogen, phosphorous, and potash shall be based on laboratory test recommendations, as accepted by M&S.
- 3. Fertilizer for plants shall be Agriform tablets, provided at a rate as suggested by the manufacturer and the soil tests.
- 4. Fertilizer shall be delivered to the site in the original, unopened standard size bags showing weight, analysis and name of manufacturer. Containers shall bear the manufacturer's guarantee statement of analysis, or a manufacturer's certificate of compliance covering analysis, which shall be furnished to M&S. Fertilizer shall be stored in a weatherproof location and in a manner such that it will be kept dry and its effectiveness will not be impaired.

C. Lime:



1. Provide natural dolomitic limestone containing not less than 85% of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 20-mesh sieve and not less than 50% passes a 100-mesh sieve. Coarser material will be accepted, provided the specified rates of application are increased proportionately on the basis of quantities passing the 100-mesh sieve.

D. Water:

1. Potable water, unless otherwise directed by the Owner's Representative.

E. Broadleaf Weed Control:

1. Pre-emergent granule.

F. Plant Material:

1. Plants shall be healthy and true to name as shown on landscape plan and plant list prepared by M&S.
2. All plants shall be healthy, well-shaped, fully and uniformly branched. Trees shall be sturdy, with a straight, distinct single leader, and without narrow branch crotches. Foliage shall be full, with healthy, vigorous leaves of normal size, shape, color, and texture for the species. All plants shall have well developed root systems without girdling roots or being excessively pot-bound.
3. No physical, mechanical or pest damage or disease. Scars shall be free of rot and not exceed $\frac{1}{4}$ the diameter of the wood beneath in greatest dimension unless completely healed. Damaged wood shall be cleanly removed.
4. Plants shall not be pruned for form until Substantial Completion Acceptance.
5. No substitutions will be allowed. If any plant is not available, Mohr & Seredin shall be contacted for decision.

G. Mulch:

1. For plants outside rain garden: Finely shredded bark mulch.
2. Plants in the rain garden do not require mulch.

2.02 IRRIGATION:

A. Irrigation System Components:

1. Water source: Municipal water meter; condominium common water meter.
2. Point of connection: Provide pressure reducing backflow preventer and master shut-offs inside the building, in a location determined by the Architect. Install



components per manufacturer's recommendations. Connect irrigation mainline to the master shut-off valve.

3. The 2" bond-out through the west exterior wall near the door can be used for irrigation water supply mainline and control wiring if the timer location is indoors.
4. Lockable, outdoor timer, min. 4 stations with capability of operating min. 2 stations simultaneously, mounted on wall in the approximate location shown in the Drawings. Electrical connection shall be by a licensed electrician.
5. Provide rain sensor, mounted in a location approved by M&S and the Architect.
6. Zone control valve assemblies:
 - a. Shut-off ball valve upstream of manifold
 - b. Electric low flow control valve
 - c. Pressure regulator and 120 mesh filter
7. Wiring shall be coated direct-burial, not multi-strand. Wire connectors shall be weatherproof, gel-filled, twist-on connectors, 3M or equivalent.
8. Provide pressure compensating drip tubing with in-line emitters spaced 12" apart, flush valves, air relief valves, etc. for tree planters, vines and shrubs, excluding the Rain Garden plantings.
9. Provide fittings necessary for system winterization.
10. Piping:
 - a. Sleeving: 2" Schedule 40 PVC
 - b. Header, lateral and main line piping: Class 200 PVC
11. Install all valves, pressure regulator/filter assemblies, flush valves, wire splices in plastic valve boxes with gravel sumps, min. 6" deep. Valve boxes shall be rectangular, splice boxes round.

PART 3 – EXECUTION

3.01 TOPSOIL AND SOIL AMENDMENT PREPARATION:

- A. Based on the test results of the imported topsoil, the Contractor shall mix the topsoil and compost and other soil amendments at rates determined by the soil-testing lab and as reviewed by M&S.

3.02 SITE PREPARATION:

- A. Schedule all work and coordination of tasks with the General Contractor and Mohr & Seredin.
- B. Protect existing utilities and work of others from disturbance or damage.



C. Finish Grading:

1. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Restore planting areas if eroded or disturbed after other work has been completed.
2. Restore finish grade to 3 ½" below planter edge and walkway surfaces to allow for 3" of mulch.
3. Confirm that the grading of all surfaces is satisfactory with M&S prior to planting and spreading mulch.

3.03 PLANTING:

- A. Layout plants and plant beds for review of location by M&S prior to installation.
- B. Planting shall conform to the following:
 1. Excavate tree pits only as deep as the rootball depth.
 2. Expose trunk flare prior to planting. Do not bury trunk flare.
 3. Planting media for plants to be installed in new plant beds shall be one part topsoil to one part compost, well mixed.
 4. For the rain garden bed, excavate 10" deep pockets in the aggregate for Iris groupings. Line pockets with soil separation fabric, with the edges tucked under. Spread 2" deep layer of planting media for sedums over the surface of the rain garden and fill pockets with the planting media mix consisting of one part topsoil to one part compost.
 5. Set plants vertically and carefully backfill pits with planting media.
 6. Add fertilizer to plant pits and pockets.
- C. Remove all tags, ribbons and broken branches from plants.
- D. Mulch shrub and planter beds to a depth of 3" with aged bark mulch at the time of planting. Do not mulch up to the trunk flares or bury plant crowns. Do not mulch rain garden plantings.
- E. Maintain plantings by watering, removal of damaged or dead wood, applications of pest and disease control measures as needed to keep all plants healthy until acceptance by Owner, or as otherwise determined.
- F. Pruning for form shall be performed after acceptance of specific plant material.
- G. All plants shall be guaranteed for health and vigor for a period of one (1) year.



- H. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off Owner's property.

3.04 IRRIGATION:

- A. Downstream of the common domestic water system, install a reduced pressure backflow preventer and appropriate shut-off valves, in accordance with applicable plumbing codes.
 - 1. Point of connection : Downstream of shut-off valve.
- B. Penetrate exterior wall through 2" bond-out to extend main irrigation supply line. Extend direct burial wire through the 1" bond-out to the valve assemblies, if the timer is located inside the building.
- C. Install outdoor, lockable controller in a location coordinated with the Architect. Control wires shall be routed through electrical conduit securely fastened to the wall.
 - 1. If inside, the 110-volt timer can be plugged into an electrical outlet and mounted on the wall.
 - 2. If outside, the timer may be mounted on the exterior wall. Electrical connection shall be by a licensed electrician.
- D. Piping:
 - 1. Provide min. 12-24" cover for PVC mainline and lateral piping.
 - 2. Set drip tubing on grade, or no more than 2" below the mulch and cover with mulch.
 - 3. Install appropriate air-relief valves and flush valves.
 - 4. Provide for winterization blow-off.
- E. Install an extra direct burial wire from the timer to the farthest valve box if valves are not manifolded. Valve boxes shall have gravel sump and lids set flush with top of mulch or stone
- F. Thoroughly backfill and compact trenches.
- G. Install rain sensor, in a location determined by M&S.
- H. Perform system test. Label timer with zone areas.
- I. The Contractor shall perform the first winterization and first spring start-up of the irrigation system. Coordinate schedule with Owner's Representative.

3.05 MAINTENANCE:

- A. Upon completion of planting and irrigation, and prior to acceptance, remove from the site excess soil and debris, and repair all damage resulting from planting operations.



- B. Maintenance shall begin immediately after each area is planted. Plants shall be watered, mowed, weeded, replanted, fertilized, cultivated, and otherwise maintained and protected as necessary, until Acceptance.
- C. Watering: Planted areas shall be watered in a satisfactory manner during and immediately after planting, and not less than twice per week, either manually or automatically, until Acceptance.
- D. Suitable water for planting and maintenance of planted areas shall be provided by the Contractor from on-site sources. Contractor shall furnish his own hose and hose connections from the outlets where water is furnished, and shall provide all necessary watering equipment.

3.06 INSPECTION AND ACCEPTANCE:

- A. Mohr & Seredin will review all work upon request of the Contractor.
- B. To be acceptable, plants shall be in a healthy condition and meet or exceed the size specification.
- C. Based on field review, M&S shall provide an opinion as to whether replacements or repairs are needed or maintenance shall continue in any part.
- D. After all necessary corrective work and clean-up has been completed, M&S will provide an opinion to the Owner for acceptance or non-acceptance of the work. The Contractor's responsibility for maintenance of plants and irrigation shall cease upon Acceptance by the Owner.
- E. Cleanup: Properly dispose of excess materials, branches, paper and debris off-site. Leave site in orderly condition, satisfactory to M&S, upon completion of work.
- F. Submit written Guarantees. Include date of Acceptance and Contractors' contact information.
 - 1. Plant materials shall be guaranteed for health and vigor for a period of (1) one year after Acceptance.
 - 2. Irrigation workmanship shall be guaranteed for a period of (1) one year after Acceptance.
 - 3. Submit copies of manufacturers' warranties and operation manual(s).

END OF SECTION