



SECTION 32 93 00
LANDSCAPE PLANTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. CONTRACTOR shall furnish all labor, materials, supplies, equipment, tools and transportation; perform all operations to complete installation of the plantings; and guarantee all plantings. The WORK shall include, but not be limited to the following:
 - 1. Procurement of all applicable licenses, permits, and fees.
 - 2. Ascertainment of utility locations prior to construction.
 - 3. Site inspection.
 - 4. Planting of trees, shrubs, and wetland plants.
 - 5. Soil preparation and fine grading.
 - 6. Staking and guying of trees.
 - 7. Mulching of all trees.
 - 8. Cleanup, inspection, and approval.
 - 9. Guarantee of all plantings.

1.02 GENERAL

- A. No substitutions for specified materials shall be accepted in the base BID. Alternative BID proposals, which propose material substitutions, may be submitted for consideration by ENGINEER or PLANT ECOLOGIST. Alternative proposals shall be fully supported by necessary documentation showing compatibility/comparability with specified materials.
- B. Additional WORK shall be paid for at CONTRACT unit prices. If unit prices are not available, the WORK shall be paid for on a time and material basis or for an agreed to lump sum amount.
- C. Precautions have been taken to ensure accuracy and conformance of the CONTRACT DOCUMENTS with the design concept of the PROJECT. Nevertheless, CONTRACTOR shall be responsible for confirming and correlating actual job site dimensions, for acquiring information that pertains solely to the fabrication process or to techniques of construction, and for coordinating the WORK with all other trades.

1.03 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:



1. Section 01 57 19, Temporary Environmental Controls
2. Section 31 41 13 Topsoil and Wetland Topsoil Stripping and Stockpiling
3. Section 31 23 00 Excavation and Fill
4. Section 31 25 00 Erosion and Sedimentation Controls
5. Section 32 93 00 Landscape Planting
6. Section 32 92 19 Seeding

1.04 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Nursery and Landscape Association (ANLA): ANSI Z60.1, American Standard for Nursery Stock.

1.05 SUBMITTALS

- A. CONTRACTOR shall direct submittals and samples, if noted, to ENGINEER and receive approval in writing before WORK commences.
- B. Submit Topsoil and Wetland Topsoil certifications as required in Section 32 91 13 Topsoil and Wetland Topsoil
- C. Submit Weed free Certification and mulch sample for approval.
- D. Submit organic compost certification of characteristics for approval.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Digging, Wrapping, and Handling:
 1. Plants shall be dug and prepared for shipment in a manner that shall not cause damage to branches, shape, and future development after planting.
 2. Balled and burlapped plants shall be nursery grown stock adequately balled with firm, natural balls of soil in sizes and ratios conforming to the American Standard for Nursery Stock as cited below. Balls shall be firmly wrapped with non-treated burlap, secured with wire or jute. Broken or flattened or otherwise misshaped or otherwise damaged root balls will not be accepted.
- B. Plants are to be delivered to the site with tags bearing the botanic name as indicated by the plant list.
- C. Plant Protection: Plants shall be handled so that roots are adequately protected at all times from drying out and from other injury. Plant materials shall be securely tarped during transportation to prevent wind burn. Protect root balls and pots of plants which cannot be planted within twelve (12) hours of delivery with soil or other suitable materials. Where possible, store plants in the shade. Keep all plant roots



moist before, during, and after planting. Plants shall be watered as soon as they arrive on the site and shall be kept moist until they are planted.

- D. Protect all materials used for construction from damage, deterioration, or loss of any kind while in storage and construction.

1.07 GUARANTEE AND REPLACEMENT

- A. Guarantee trees, shrubs, ground covers, and other plant materials to root and thrive free from defects from any cause until final acceptance of PROJECT.
- B. Replace plants when they are no longer in a satisfactory condition as determined by ENGINEER prior to final acceptance. This includes plants that die back and loose the form and size originally specified.
 - 1. Make replacements within seven (7) days of notification from ENGINEER.
 - 2. Replace trees in the spring planting season only, unless approved otherwise. Remove dead plants within two (2) days of notification.
- C. All replacements shall be of the same kind and size as originally specified and shall be installed as described in the CONTRACT DOCUMENTS. Repairs and replacements shall be made at no expense to OWNER.
- D. Guarantee shall apply to originally specified and installed plants and other landscape materials, and any replacements made during the construction period.

PART 2 PRODUCTS

2.01 GENERAL

- A. All materials used for construction shall be new and without flaws or defects of any type, and shall be the best of their class and kind.
- B. A complete list of plantings and necessary landscape material is provided on the DRAWINGS.

2.02 SOIL AMENDMENTS/FERTILIZERS/MULCHES/EDGING

- A. Topsoil and Wetland Topsoil:
 - 1. Topsoil and Wetland Topsoil shall meet the requirements of Section 32 91 13 Topsoil and Wetland Topsoil.
 - 2. In-Situ: Soil in-place on the site, such as tree pit excavation, may be used provided it is free from roots, limbs, rocks, construction debris, and other foreign material.
- B. Improved Planting:
 - 1. Mix (Prepare Soil): Backfill planting pits and planters using an improved soil mix consisting of the following:
 - a. Eighty five percent (85%) onsite or imported topsoil.



- b. Fifteen percent (15%) organic compost.
- C. Fertilizer:
 - 1. Trees and Shrubs: Osmocote Sierrablen, nine- (9-) month slow-release.
 - 2. Turf Grasses: 18-46-0 at five pounds (5#) per thousand square feet (1,000 SF).
 - 3. Native Grasses: Biosol at a rate of twenty pounds (20#) per thousand square feet (1000 SF).
- D. Herbicide: Coordinate type of herbicide with ENGINEER.
- E. Mulch: Three- (3-) inch depth shredded cedar mulch or equal cedar mulch; free from noxious weed seed and all foreign material harmful to plant life. Chips or other angular bark chips are not acceptable.
- F. Edging: Steel edging, inter-locking fourteen (14) gauge by four- (4-) inch painted steel.
- G. Organic Compost: Compost shall have the following characteristics:
 - 1. pH Range: 5.5-8.0.
 - 2. Moisture Content: 35% - 55%.
 - 3. Particle Size: Pass through one- (1-) inch screen or smaller.
 - 4. Stability: Stable to highly stable, providing nutrients for plant growth.
 - 5. Maturity/Growth Screening: Demonstrate ability to enhance plant growth.
 - 6. Soluble Salt Concentrations: 2.5 dS (mmhos/cm) or less preferred.
 - 7. Organic Matter Content: 30% – 70%.
 - 8. Suggested Source: A-1 Organic, Eaton, Colorado (970) 454-3492 or an approved equal.

2.03 WATER

- A. CONTRACTOR shall provide water for planting during the construction period.

2.04 TREES, SHRUBS, AND GROUND COVERS

- A. Quantities: Furnish plants in quantities required to complete the WORK as indicated on the DRAWINGS.
- B. Quality: Use plants which are symmetrical and typical of their species; healthy, well-branched, and well-proportioned in respect to height and width; free from disease, injury, insects, and weak roots; and, conforming to the requirements of the ANLA ANSI Z60.1. All plants are subject to inspection.



- C. Botanic and Common Names: Nomenclature is in conformance with standard horticultural practice in the area. Trees, shrubs, and herbaceous plant materials designated as native shall NOT be hybrid varieties.

2.05 MATERIALS FOR STAKING, GUYING, AND WRAPPING TREES

- A. Tree Stakes: Six- (6-) foot long metal T-Posts.
- B. Guying and Staking Wire: Galvanized steel twelve (12) gauge wire.
- C. Webbing: Two- (2-) inch nylon webbing or rubberized cloth.

2.06 GRASS SEED

- A. Refer to Section 32 92 19, Seeding.

PART 3 EXECUTION

3.01 GENERAL

- A. CONTRACTOR shall appoint a competent resident superintendent. The superintendent shall be on site whenever the WORK is in progress. The superintendent shall not be replaced without notice to ENGINEER. Workers shall be competent in performance of WORK they are assigned.
- B. Coordination: Coordinate WORK with other trades to ensure proper sequencing of construction.
- C. Planting Time and Completion:
 - 1. Plants shall be planted only when weather and soil conditions permit and in accordance with locally accepted practices, and as approved by ENGINEER or PLANT ECOLOGIST.
 - 2. Trees shall be planted in same growing season in which they were dug.

3.02 PREPARATION

- A. Preplanting Observation of Materials:
 - 1. ENGINEER or PLANT ECOLOGIST shall observe and approve plant material before planting. This observation may be either at the site, nursery, or holding area, at the option of ENGINEER OR PLANT ECOLOGIST. Materials planted prior to approval are subject to rejection. Observation of materials may be sequenced by major planting areas to accommodate efficient planting operations. Acceptance of plant material at the nursery or holding area does not preclude rejection at the site. All rejected materials shall be removed from the site, replaced, and reinspected before planting.
 - 2. All fertilizers, backfill, seed, mulches, and soil amendments shall be reviewed at the site by ENGINEER or PLANT ECOLOGIST before they are used in planting operations. ENGINEER shall check invoices to verify specified quantities have been delivered.



- B. Site Inspection:
1. CONTRACTOR, Landscape Contractor, and ENGINEER shall inspect site prior to being accepted by ENGINEER as complete and acceptable for the Landscape Contractor to proceed.
 2. Beginning WORK of this section implies acceptance of existing conditions.
- C. Grades: Grades have been established under WORK of another section to within one (1) inch, plus or minus, of required finished grades. Verify that grades are within one (1) inch, plus or minus, of required finished grades. Notify ENGINEER prior to commencing soil preparation WORK if existing grades are not satisfactory, or assume responsibility for conditions as they exist.
- D. Contaminated Soil: Do not perform any soil preparation work in areas where soil is contaminated with cement, plaster, paint or other construction debris. Bring such areas to the attention of ENGINEER and do not proceed until the contaminated soil is removed and replaced.
- E. Dimensions: All scaled dimensions are approximate. Before proceeding with any WORK, carefully check and verify all dimensions and quantities and immediately inform ENGINEER of any discrepancy between the DRAWINGS and/or specifications and actual conditions.
- F. Protection of Existing Features:
1. Protect all existing site development including, but not limited to, existing buildings, equipment, underground utilities, walls, materials, or vegetated areas including, but not limited to, trees, native grasslands, wetlands, or shrublands. Any existing site development damaged by willful or negligent acts of CONTRACTOR or any of CONTRACTOR's employees shall be replaced or repaired at no expense to OWNER and in a manner satisfactory to ENGINEER or PLANT ECOLOGIST before PROJECT acceptance is given.
 2. The above provision applies to onsite damage as well as to that which may occur to adjacent properties.
 3. Until the PROJECT has been accepted, erect and maintain shoring, barricades, guards, warning signs, and lights as necessary or required for the protection of the public, the WORK, and the workers. To the same ends, provide traffic control and institute site security measures, as needed.
 4. CONTRACTOR shall be responsible for adhering to the following tree protection standards during construction:
 - a. During the construction stage, CONTRACTOR shall not cause, or permit the cleaning of equipment or material, or the storage or disposal or waste material including, but not limited to, paints, solvents, asphalt, concrete, mortar, or any other material harmful to the life of a tree, within the drip line or root zone of each tree, or group of trees.



- b. No damaging attachments, wires, signs, permits, or other objects may be fastened by any means to any tree preserved on this PROJECT.
5. Tree areas, shrublands, grasslands, or existing landscape areas within the PROJECT area shall be fenced and excluded from use for vehicle traffic, staging, or parking, unless specifically designated for these purposes on the DRAWINGS or by the ENGINEER.

3.03 SOIL PREPARATION

- A. **Weed and Debris Removal:** All ground areas to be planted shall be cleaned of all weeds and debris prior to any soil preparation or grading work. Any growing noxious weeds on the site shall be pretreated with approved herbicide prior to grading. Annual or biennial weeds over two (2) feet tall shall be mowed, raked, and removed prior to grading. Weeds and debris shall be disposed of off the site.
- B. **Moisture Content:** Soil shall not be worked when moisture content is so great that excessive compaction occurs, nor when it is so dry that dust will form in the air or clods will not break readily. Water shall be applied, if necessary, to bring soil to an optimum moisture content for tilling and planting.
- C. **Prior to spreading salvaged topsoil and seeding,** thoroughly till or rip to a depth of twelve (12) inches all areas compacted by access, staging, or construction traffic. Till all remaining areas to a depth of six (6) inches. Channel bottom areas are to be ripped to a depth of at least twelve (12) inches on approximately two- (2-) to four- (4-) foot centers. The soils shall be worked until no clods greater than two (2) inches in diameter remain, unless directed otherwise by ENGINEER. Remove rocks and other objects three (3) inches or greater in any dimension.
- D. **Soil Conditioning:** After soil preparation has been completed and high and low spots graded, add soil amendments as indicated below and rototill, making repeated passes with the cultivator to the depth specified until the amendments have been thoroughly mixed.
 1. **Organic Compost Soil Amendment** shall be applied at a rate of three (3) cubic yards per one-thousand (1,000) square feet or as shown on the DRAWINGS.
 2. **Organic Compost** shall only be applied if required and designated on the DRAWINGS.

3.04 FINE GRADING

- A. **When weeding, soil preparation, and soil conditioning have been completed and soil has been thoroughly water settled,** all planting areas shall be smooth-graded, ready for placement of plant materials and for seeding.
 1. **Grades:** Finish grades shall conform to site grading plans and produce a smooth, even surface without abrupt changes, including the interface with the adjacent undisturbed landscape. Minor adjustments of finish grades shall be made at the direction of ENGINEER or PLANT ECOLOGIST, if required.



2. Drainage: All grades shall provide for natural runoff of water without low spots or pockets. Flow-line grades shall be accurately set and shall be not less than two percent (2%) gradient wherever possible.
3. Shrub Areas: Finished grades shall be one and one-half (1-1/2) inches below top of adjacent pavement, headers, curbs, or wall, unless otherwise indicated on the DRAWINGS.
4. Lawn Areas: Finished grade shall be three-quarters (3/4) inch below top of adjacent pavement, curbs, or headers.
5. Slopes: Tops and toes of all slopes shall be rounded to produce a gradual and natural-appearing transition between relatively level areas and slopes.
6. Wetland Mitigation Areas: In wetland mitigation areas, all areas shall be graded to within six (6) inches of the expected water surface elevation or closer, if otherwise specified on the detailed DRAWINGS. ENGINEER or PLANT ECOLOGIST may require a survey of wetland planting site if there is any question to accuracy of the final grade. No wetland plantings shall be placed over six (6) inches above the expected water surface elevation or more than six (6) inches below the expected water surface elevation.

B. Inspection of turf/turf bed and grading shall occur before sodding and/or seeding.

3.05 SHRUB AND TREE PLANTING

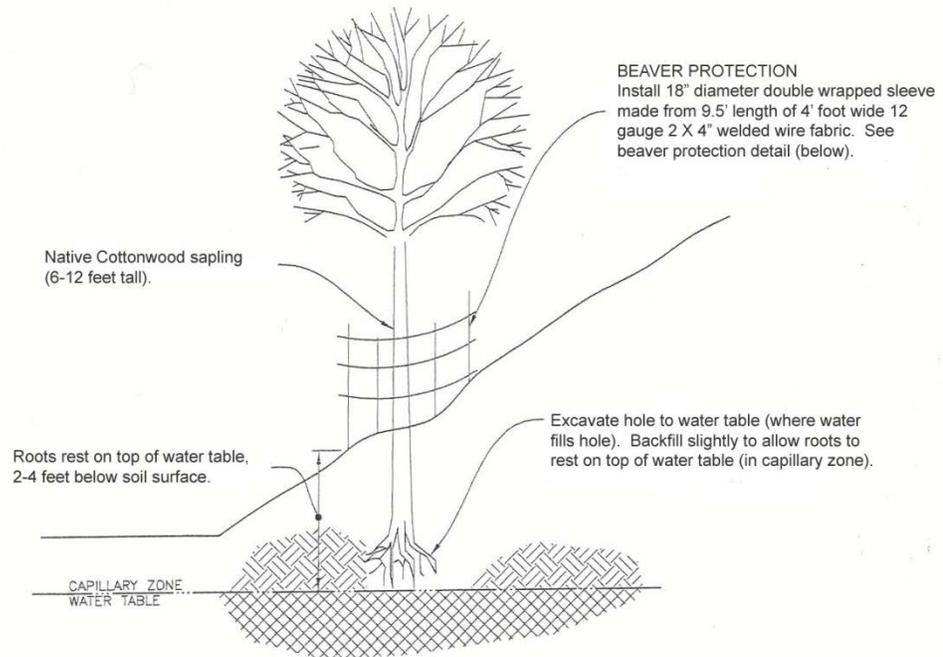
A. Established Location: ENGINEER or PLANT ECOLOGIST shall approve location of trees and shrubs before any planting occurs.

B. Planting Pits:

1. Dig planting pits two (2) times the size of the soil ball and the depth of the soil ball, unless planting native cottonwoods in non-irrigated areas (see 3 below).
2. Roughen sides of the pit to remove any compacting or glazing.
3. Native plains cottonwood trees (*Populus sargentii*, syn. = *P. deltoides* subsp *monilifera*) to be planted in non-irrigated areas along water courses shall be deep planted to ensure good root contact with groundwater and promote substantial root support. Deep planted trees shall be installed with up to one third (1/3) the height of the tree placed into a hole with the base of the root ball resting upon the level of the top of the groundwater. It shall be verified that the root ball of the tree is placed in the capillary fringe (moist soil) just above the saturated soil zone (groundwater level). Deep planted trees shall be placed back from the edge of a water body far enough to permit at least a two- (2-) foot deep rooting zone above the water table. Deep planted trees are required to have, at least, two (2) feet of soil above the ground water level, to provide a stable root zone for the mature trees. Areas with heavy clay soils are not suitable for deep planting of cottonwoods.



4. Figure A below shows a typical installation of a deep planted native cottonwood tree.



DEEP PLANTING FOR COTTONWOOD TREES

Figure A

C. Existing Tree Roots:

1. When the cutting of tree roots is necessary, each final cut shall be made as cleanly as possible for all roots over three (3) inches in diameter using the following method:
 - a. The line of excavation shall be drawn out and appropriate excavation equipment used to clear the area at least six (6) inches in front of the actual finished excavation line. Roots can then be cut using tools such as axes, stump grinders, or trenchers.
 - b. Each root over three (3) inches in diameter shall then be cut cleanly back to the final excavation line using a stump grinder operated by an experienced, licensed arborist. A sharp hand or bow saw is acceptable for roots under three (3) inches in diameter. Axes and trenchers do not cut roots cleanly and shall not be used for final root cuts.
2. The ENGINEER or PLANT ECOLOGIST, shall be contacted prior to removal of branches over four (4) inches in diameter. All branches shall be cut with a sharp pruner or saw. All cuts shall be cleanly made back to the next crotch or tree, leaving the bark collar intact at the base of the cut.



- D. Backfill Material: Tree and shrub planting pits shall be backfilled with the specified improved planting mix. (Refer to Paragraph 2.02.B.)
- E. Planting:
1. On all other tree and shrub planting (other than native plains cottonwoods), excavate planting pit to depth such that the top of the root ball, when planted, shall be at finish grade.
 2. For balled and burlapped materials, untie and remove burlap from top third of root ball on balled and burlapped material. Remove wire baskets from top and sides of root ball. Remove twine from around tree trunks.
 3. Backfill one-half (1/2) of pit with backfill mixture and water thoroughly before placing any more backfill. Do not work wet soil.
 4. Fertilize trees and shrubs with specified fertilizer at the rate recommended by the manufacturer.
 5. Backfill the rest of the planting pit with backfill mixture. Water thoroughly on day of planting. Do not work wet soil.
 6. Stake or guy all trees.
 7. ENGINEER will check mulch, tree staking, and tree wrapping where appropriate.

3.06 WETLAND PLANTINGS

- A. Wetland or other potted plant materials shall be well watered before installation. Wetland plant materials shall be kept wet at all times, until installed.
- B. Wetland plant materials shall be planted within six (6) inches of the expected normal water surface elevation. In sandy soils wetland plant materials may require planting within less than two (2) inches of the normal water surface, depending upon the species. Contact PLANT ECOLOGIST to verify proper grade prior to wetland plant installation.
- C. Holes for installing 10 T or small tubeling plants may be created with a dibble or sharpened dowel. Open the holes just large enough to insert the entire plant and all the nursery soil at least one-half (1/2) inch below the native soil. The holes should not be formed more than one-half (1/2) inch deeper than the tubes. Once inserted, the hole shall be backfilled or tamped from the side with a mallet to secure the plant. If waterfowl grazing is a possibility, each plant (graminoids only) shall be trimmed to two (2) inches prior to installation and each plant shall be secured by an eight- (8-) inch landscape staple to discourage pulling by the waterfowl. Areas to be covered by erosion control mat following planting shall be planted with trimmed plants (grasses and grass-like plants trimmed to a two- (2-) inch height while in the pots, then seeded (if required) with fabric installation completed over the top of the installed plants.



3.07 MULCHING

- A. Mulch all tree plantings in irrigated landscapes with four (4) inches deep recycled cedar mulch, unless otherwise indicated on the DRAWINGS. Trees or shrubs planted in non-irrigated areas shall be surrounded with a watering dish. Trees or shrubs planted on slopes in non-irrigated areas shall be surrounded with a watering dish which shall be open on the uphill side to permit accumulation of runoff. The dishes in natural areas shall be mulched with no more than one (1) inch of wood chip mulch and may be seeded along with the adjacent area.

3.08 FIELD QUALITY CONTROL

- A. Final Walk-Through:
 - 1. The final walk-through shall be performed at the completion of all planting operations under this CONTRACT.
 - 2. At the time of the final walk-through, the Landscape Contractor shall have planting areas free of debris. Plant basins shall be in good repair. Debris and litter shall be cleaned up, and walkways, curbs, and roads shall be cleared of soil and debris. The inspection shall not occur until these conditions are met.
 - 3. ENGINEER or PLANT ECOLOGIST will identify any deficiencies in the form of a punch list.
 - 4. ENGINEER will give written notice of final acceptance when WORK has been performed in compliance with the CONTRACT DOCUMENTS.
 - 5. Correct deficiencies within the first ten (10) days of the final walk-through. Correct WORK in accordance with the CONTRACT DOCUMENTS at no cost to OWNER.
 - 6. Final acceptance shall not be given until all deficiencies are corrected. The Landscape Contractor shall maintain site until final acceptance.

3.09 CLEANING

- A. Remove from the site excess soil resulting from tree planting and mulching operations.

END OF SECTION



Revised 08/2015

THIS PAGE INTENTIONALLY LEFT BLANK