

A300 (Part 5)-201X *Management of trees and shrubs during site planning, site development, and construction*

for Tree Care Operations –

Tree, Shrub, and Other Woody Plant Management

–

Standard Practices (*Management of Trees and Shrubs During Site Planning, Site Development, and Construction*)

for Tree Care Operations –
Tree, Shrub, and Other Woody Plant Maintenance –
Standard Practices (*Management of Trees and Shrubs During Site
Planning, Site Development, and Construction*)

Secretariat

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Published by

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Foreword (This foreword will not be considered part of the approved A300 Part 9 American National Standard)

ANSI A300 Standards are divided into multiple parts, each focusing on a specific aspect of woody plant management (e.g. Pruning, Soil Management, Supplemental Support Systems, etc).

These standards are used to develop written specifications for work assignments. They are not intended to be used as specifications in and of themselves. Management objectives may differ considerably and therefore must be specifically defined by the user. Specifications are then written to meet the established objectives and must include measurable criteria.

ANSI A300 standards apply to professionals who provide for, or supervise the management of, trees, shrubs, and other woody landscape plants. Intended users include businesses, government agencies, property owners, property managers, and utilities. The standard does not apply to agriculture, horticultural production, or silviculture, except where explicitly noted otherwise.

This standard has been developed by the Tree Care Industry Association (TCIA), an ANSI-accredited Standards Developing Organization (SDO). TCIA is secretariat of the ANSI A300 standards, and develops standards using procedures accredited by the American National Standards Institute (ANSI).

Consensus for standards writing was developed by the Accredited Standards Committee on Tree, Shrub, and Other Woody Plant Management Operations – Standard Practices, A300 (ASC A300).

Prior to 1991, various industry associations and practitioners developed their own standards and recommendations for tree care practices. Recognizing the need for a standardized, scientific approach, green industry associations, government agencies and tree care companies agreed to develop consensus for an official American National Standard.

The result – ANSI A300 standards – unify and take authoritative precedence over all previously existing tree care industry standards. ANSI requires that approved standards be developed according to accepted principles, and that they be reviewed and, if necessary, revised every five years.

TCIA was accredited as a standards developing organization with ASC A300 as the consensus body on June 28, 1991. ASC A300 meets regularly to write new, and review and revise existing, ANSI A300 standards. The committee includes industry representatives with broad knowledge and technical expertise from residential and commercial tree care, utility, municipal and federal sectors, landscape and nursery industries, and other interested organizations.

This draft is a public review document. The public review period starts on August 20, 2010, and ends on October 4, 2010. This document is not approved as a draft for trial use. Official public comments or information requests regarding this document must be forwarded to: Rouse@tcia.org, A300 Secretary, c/o Tree Care Industry Association, Inc., 136 Harvey Road - Suite 101, Londonderry, NH, 03053. Responses will be provided. Comments may be forwarded to ASC A300 members, however comments that are forwarded only to ASC A300 members may not be recorded as official comments and a response may not be provided.

The ASC A300 has the following members as of August 20, 2010:

Tim Johnson, Chair
(Artistic Arborist, Inc.)

Bob Rouse, Secretary
(Tree Care Industry Association, Inc.)

Organizations Represented Representative	Name of
Alliance for Community Trees Alice Ewan Walker (Alt.)	Michael Galvin
American Nursery and Landscape Association Craig J. Regelbrugge (Alt.)	Warren Quinn
American Society of Consulting Arborists Stephen Miller (Alt.)	Jerry Pulley
American Society of Landscape Architects	Ron Leighton
Asplundh Tree Expert Company Peter Fengler (Alt.)	Geoff Kempter
Bartlett Tree Expert Company Dr. Thomas Smiley (Alt.)	Peter Becker
Davey Tree Expert Company R.J. Laverne (Alt.)	Joseph Tommasi
International Society of Arboriculture Sharon Lilly (Alt.)	Bruce Hagen
National Park Service	Robert DeFeo
Professional Grounds Management Society	Thomas Shaner
Professional Land Care Network Bill Brinn (Alt.)	Preston Leyshon
Society of Municipal Arborists Nolan Rundquist (Alt.)	Gordon Mann
Tree Care Industry Association James McGuire (Alt.)	Dane Buell
USDA Forest Service	Keith Cline

Ed Macie (Alt.)
Utility Arborist Association
William Rees (Alt.)

Matthew Simons

Additional organizations and individuals:

American Forests (Observer)

Peter Gerstenberger (Observer)

Sabeena Hickman (Observer)

Andy Hillman (Observer)

Myron Laible (Observer)

Beth Palys (Observer)

Richard Rathjens (Observer)

Mary Reynolds (Observer)

Richard Roux (NFPA-780 Liaison)

Don Zimar (Observer)

ASC A300 mission statement:

Mission: To develop consensus performance standards based on current research and sound practice for writing specifications to manage trees, shrubs, and other woody plants.

Subclauses 1.1 to 1.3 excerpted from *ANSI A300 (Part 1) Pruning.*

1 ANSI A300 standards

1.1 Scope

ANSI A300 standards present performance standards for the care and management of trees, shrubs, and other woody plants.

1.2 Purpose

ANSI A300 performance standards are intended for use by federal, state, municipal and private entities including arborists, property owners, property managers, and utilities for developing written specifications.

1.3 Application

ANSI A300 performance standards shall apply to any person or entity engaged in the management of trees, shrubs, or other woody plants.

50 Part 5 – Management of trees and shrubs during site planning, site development, and construction – standards

50.1 Purpose

The purpose of this clause is to provide standards for developing specifications for the management of trees and shrubs during site planning, site development, and construction.

50.2 Reason

50.2.1 The reasons for tree management during site planning, construction, post-construction maintenance phases of development, and future maintenance is to conserve and integrate existing and future trees and shrubs that are appropriate for the owner's, owner's agent, or controlling authority's intended use and development of the site.

50.2.2 Trees and shrubs should be conserved and integrated during site planning and development for a variety of reasons, including economic, social, environmental, and cultural factors.

50.2.2.1 Trees and shrubs should be considered community assets that provide benefits including shade, air quality, storm water interception, heat island

mitigation, energy conservation, carbon sequestration, enhanced property values, and community or site character.

50.3 Implementation

50.3.1 Tree management plans and specifications for tree management plans should be written and administered by an arborist qualified in management of trees and shrubs during site planning, site development, and construction.

53.3.2 Tree management plans shall be in compliance with applicable ordinances, rules, regulations, and standards.

50.3.3 Decisions on the development of the property should be made with the knowledge of the tree resources present.

50.3.3.1 The arborist should be involved in the initial planning stages and be familiar with the community's development and tree protection ordinances and processes.

50.3.4 To ensure compliance with plan requirements; to check for symptoms of stress or signs of damage; and, to initiate remedial action as needed, monitoring of the construction process by an arborist should be specified.

50.3.4.1 Monitoring specifications should address scheduling of inspections during critical phases, including, but not limited to, the following:

Demolition;

Grading;

Road construction;

Excavation;

Trenching for footings, foundations, and utilities near trees; and,

Drainage system installation.

50.3.5 Management specifications shall be adhered to.

50.4 Safety

50.4.1 This performance standard shall not take precedence over applicable industry safe work practices.

50.4.2 Tree management shall be performed only by arborists or arborist trainees who, through related training through related training or on-the-job experience, or both, are familiar with the standards, practices and hazards of arboriculture and the equipment used in such operations.

50.4.3 Performance shall comply with applicable Federal and State Occupational Safety and Health Administration (OSHA) standards, ANSI Z133, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Federal Environmental Protection Agency (EPA) regulations as well as state and local regulations.

50.4.4 Arborists shall follow appropriate safe work practices.

51 Normative references

The following standards contain provisions that, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

ANSI Z117.1, *Safety Requirements for Confined Spaces*

ANSI Z133 *Arboriculture – Safety requirements*

29 CFR 1910, *General industry*¹⁾

29 CFR 1910.268, *Telecommunications*¹⁾

29 CFR 1910.146, *Permit-required Confined Spaces (PRCS)*¹⁾

29 CFR 1910.269, *Electric power generation, transmission and distribution*¹⁾

29 CFR 1910.331 - 335, *Electrical safety-related work practices*¹⁾

29 CFR 1926.650, *Trenching and Excavation*¹⁾

¹⁾ Available from U.S. Department of Labor, 200 Constitution Ave., NW, Washington, DC 20210.

52 Definitions (Definitions will be considered part of the ANSI A300 Part 5 standard)

52.1 arborist: An individual engaged in the profession of arboriculture who, through experience, education and related training, possesses the competence to provide for, or supervise the management of, trees and other woody plants.

52.2 arborist trainee: An individual undergoing on-the-job training to obtain the experience and the competence required to provide for, or supervise the

management of, trees and woody plants. Such trainees shall be under the direct supervision of an arborist.

52.3 conservation (retention): The deliberate retention, protection, replanting, and management of existing forests, trees, shrubs, or plants during the development process.

52.4 critical root zone (CRZ): The minimum volume of roots necessary to have for tree health and stability.

52.5 crown: Upper part of a tree, measured from the lowest branch, including all the branches and foliage.

52.6 development effects: Site development and building construction related actions that have an affect on the health, structure, stability, or live parts of trees.

52.7 drip line: The soil surface delineated by the branch spread of a single plant or group of plants

52.8 root zone: The volume of soil containing the roots of a plant.

52.9 shall: As used in this standard denotes a mandatory requirement.

52.10 should: As used in this standard denotes an advisory recommendation.

52.11 site survey: A map showing relevant, existing site features and vegetation on a site proposed for development.

52.12 specifications: A detailed, measurable plan or proposal for performing a work activity or providing a product, usually a written document.

52.13 standard, ANSI A300: The performance parameters established by industry consensus as a rule for the measure of extent, quality, quantity, value or weight used to write specifications.

52.14 suitability for conservation: A relative rating system that combines tree health and structure with species tolerance to development impacts.

52.15 tree inventory: A comprehensive list of individual trees containing descriptive and desired information for all or a portion of the project area.

52.16 tree preservation (conservation) ordinance: A local requirement defining the retention, protection, management, and mitigation of trees within a community, or on a construction or development site.

52.17 tree protection plan: A directive to control work around protected trees and within the TPZ during all phases of the project included in the construction plans and specifications.

52.18 tree protection zone (TPZ): The area surrounding a tree defined by a specified distance, in which excavation and other construction- related activities should be avoided. The TPZ is variable depending on species, factors, age and health of the plant, soil conditions, and proposed construction.

52.19 tree protection zone barriers: Devices such as fencing, berms, or signage installed to define and limit access to tree protection zones.

52.20 tree resource evaluation: A written document describing the tree resources on the site, with information provided from an inventory or survey such as: tree species, size, location, condition, plant community, structure, health, and population estimate.

52.21 tree survey: A plan or map with a location and description of trees within a defined area.

53 Management of Trees and Shrubs During Site Planning, Site Development, and Construction

53.1 Planning for trees and shrubs on a construction site

53.1.1 A resource evaluation should be conducted in conjunction with a site design or plan.

53.1.1.1 The trees within all or the affected portion of the project area and adjacent areas encroaching on the project area should be included based on defined criteria, such as species, size, condition, spacing, and structure.

53.1.2 The evaluation data should be integrated into the site design.

53.1.3 The site survey should locate the trees on the site plan or map.

53.1.4 Trees that are candidates for retention and incorporation into the site design should be identified.

53.1.5 Landscape and site plans should incorporate trees and areas to be retained.

53.1.6 An arborist or other qualified person shall complete the tree resource evaluation for the site showing all relevant features on the site and trees with roots and canopies growing over the site from adjacent properties, taking into consideration the proposed use of the site.

53.1.7 Tree mitigation should comply with existing ordinances or requirements.

53.1.8 Tree resource evaluation scope

53.1.8.1 The scope of the tree resource evaluation shall be established.

53.1.8.2 Trees adjacent to the site that will be impacted by the construction or may affect the construction activity should be included in the resource evaluation.

53.1.8.3 If a condition is observed requiring attention beyond the original scope of the tree resource evaluation, the condition shall be reported to an immediate supervisor, the owner, project manager, or the person responsible for authorizing the work.

53.1.9 Tree resource conservation

53.1.9.1 The arborist shall communicate the tree resources present on the site as found in the tree resource evaluation.

53.1.9.2 The arborist shall note the incentives and mitigation potential for the site.

53.1.9.3 The existing tree canopy and proposed tree canopy shall include recommendations for adequate space for the trees to be retained or planted.

53.1.9.4 Trees adjacent to the site that will be impacted by the construction or may affect the construction activity should be included in the resource evaluation.

53.1.9.5 The plans and specifications shall include the tree protection plan.

53.1.9.6 Suitability ratings for tree conservation should be assigned (See **Annex A-2**).

53.2 Design phase

2

53.2.1 A tree management report/plan shall be developed.

53.2.2 The tree management report/plan should include an evaluation of impacts on trees and shrubs from proposed site development and construction (See **Annex A**).

53.2.3 Tree conservation recommendations

53.2.3.1 A tree conservation plan should be integrated with the site development plan. Documentation should include and are not limited to locations of:

- a. trees to be retained;
- b. tree protection zones;
- c. tree protection zone barriers;
- d. tree protection plans
- d. soil erosion controls;
- e. soil compaction controls;
- f. staging and storage areas;
- g. utilities; and,
- h. other on-site activities.

53.2.3.2 The tree conservation recommendations should be implemented.

53.2.3.2.1 Consequences for non-compliance shall be specified.

53.2.3.2.2 Mitigation measures shall be identified.

53.2.4 The construction plans and specifications shall include a tree protection plan and details.

53.2.5 Grading and demolition plans should detail all relevant site features.

53.2.6 Grading and demolition plans shall denote all trees to be retained and removed.

53.2.7 Grading and demolition plans shall include tree protection plans for working around trees to be retained.

53.2.8 Tree protection measures shall be in place prior to starting grading or demolition work.

53.3 Pre-construction phase

53.3.1 Tree protection specifications, objectives, and plans shall be communicated to the project manager, property owner, and the contractors..

53.3.2 Tree protection zone barrier(s) shall be installed prior to construction.

54 Root management during construction

54.1 Objectives for root management during construction shall be specified.

54.1.1 Specifications should include, but are not limited to one or more of the following:

Avoid/minimize the physical loss of soil and roots that will compromise the health and structural stability of trees;

Avoid compaction and soil structure damage that will compromise the health of the trees;

Maintain root zone conditions favorable for root function, growth, and development;

Minimize changes to the ground water flow or supply; and,

Direct root growth away from infrastructure or use methods and materials to minimize root and infrastructure conflict.

54.2 Written plans outlining tree protection measures (tree protection plan) shall be prepared by a qualified arborist.

54.3 The tree protection plan should be completed prior to site design and plan development and included on construction plans.

54.3.1 The tree protection plan shall begin with the tree resource evaluation and a tree survey.

54.3.2 The tree protection plan shall be developed after reviewing the proposed grading, demolition, excavation, utilities, construction and landscaping plans.

54.4 The arborist shall review preliminary grading, demolition, excavation, utilities, construction and/or landscaping plans.

54.5 The arborist shall communicate all tree protection specifications clearly to those persons involved in the development process. ,.

54.6 A pre-construction meeting shall be held to communicate the objectives of the tree protection plan.

54.7 A tree protection zone (TPZ) shall be delineated around all trees to be protected during a project.

54.7.1 The radius or measurement of the TPZ should be calculated on the basis of species tolerance, age, and health, rooting depth and soil conditions.

54.7.1.1 Arborists should allow a minimum of .5 feet to 1.5 feet of distance for each inch of trunk diameter (DBH) depending on species tolerance to root loss, tree age and health.

54.7.2 The TPZ of individual trees should be off set by no more than 20 percent.

54.7.3 Warning signs shall be posted to alert equipment operators and contractors about the protected status of the TPZ.

54.7.4 Activities within the root protection zone that compact the soil or physically damage roots shall be mitigated.

54.7.5 Fencing

54.7.5.1 Fencing to prevent access to the TPZ shall be erected around protected trees prior to site grading and demolition, and maintained throughout construction and landscaping.

54.7.5.2 The type of fencing, manner of installation, and conditions for encroachment into the TPZ shall be specified.

54.7.5.3 When areas within a tree's TPZ can not be fenced, an alternative to protect the tree and soil shall be developed.

54.7.6 Demolition

54.7.6.1 Restrictions regarding demolition methods, type and size of equipment allowable within the TPZ shall be included with the tree protection plan.

54.7.6.2 Clearance of vegetation within the TPZ shall be performed manually.

54.7.6.3 Soil protection measures shall be taken while working within the TPZ of trees.

54.7.6.4 Soil protection measures shall be in place prior to vehicle and heavy equipment traffic in the TPZ.

54.7.6.5 Routes should be established that direct traffic around the TPZ.

54.7.6.6 Equipment and methods used to clear vegetation around the TPZs shall be appropriate to avoid damage to the tree. .

54.7.6.7 Appropriate vehicles and prevention shall be used to avoid compaction within the TPZ. Soil conditions vary with moisture content. Operations shall consider the appropriate equipment and methods for the current conditions.

54.7.6.8 Demolition of existing pavement over tree roots within the TPZ shall be broken up and removed without excavating roots beneath the soil surface.

54.7.6.8.1 Removal equipment should be positioned on undisturbed pavement, soil protection surface within the TPZ, or outside the TPZ.

54.7.6.9 The removal of stumps with roots entangled with the roots of trees designated for retention shall be carefully ground or severed with the least disturbance to roots on trees to be retained..

54.7.6.10 The movement and/or parking of vehicles and equipment within the TPZ shall be prohibited unless sufficient measures are taken to prevent compaction and soil contamination.

54.7.6.11 The felling or removal of trees near those designated for retention shall be performed by a qualified arborist to avoid damage to remaining trees.

54.7.6.12 Burning of brush and woody debris shall be in designated areas well away from trees to be preserved.

54.7.7 Storage of equipment, building supplies, etc.

The storage of soil, construction materials, petroleum products, water, toxic building wastes, building refuse or equipment, vehicles within the TPZ shall be avoided.

54.7.8 Disposal of building wastes

54.7.8.1 Disposal of petroleum products, concrete, stucco mix, concrete tank-rinse, solvents, paint, etc., shall be performed in compliance with NPDES standards and not be permitted within the TPZ.

54.7.8.2 Disposal methods shall avoid flow, leakage, or seepage into the TPZ.

54.7.8.3 Spoil zones shall be established for cleaning construction equipment and storing toxic materials.

54.7.8.3.1 Spoil zones shall avoid flow, leakage, or seepage into the TPZ.

54.7.8.4 Disposal of all building waste products shall be performed in a manner so the materials do not flow, leak or seep into the TPZ. All disposal of materials shall comply with NPDES standards.

54.7.9 Fill soil (grade change)

54.7.9.1 Fill within the TPZ should not be permitted unless mitigated in a way to avoid soil oxygen reduction, diversion of drainage and ground water availability to existing roots.

54.7.9.2 Fill outside the TPZ shall not significantly affect drainage to the tree. If drainage is directed towards the TPZ and tree, measures should be taken to divert or control surface flow.

54.7.9.3 When fill placement within the TPZ can not be avoided, a specified material designed to have the least impact on the tree shall be used.

54.7.9.4 Compaction of fill within the TPZ should be avoided. If compaction of fill is required within the TPZ, an alternative fill material or construction method shall be considered.

54.7.9.5 When fill must be placed within the TPZ, a well shall be considered around the trunk flare area. The minimum radius of a well to be constructed around the trunk should be at least 3 times trunk diameter (DBH).

54.7.10 Excavation/Trenching

54.7.10.1 Design changes or alternative building methods shall be considered to avoid root loss within the TPZs of trees designated for retention resulting from excavation and trenching.

54.7.10.2 Where structural footings are required within the TPZ for building foundations, retaining walls, etc., alternative building methods, such as discontinuous footings piers and structural grade beams, should be recommended by the arborist to minimize the need for root pruning.

54.7.10.2.1 Grade beams set on footings should not require excavation of soil to place the beam.

54.7.10.3 Excavation and construction equipment shall be selected, positioned, and operated to avoid damage to branches and trunk.

54.7.10.3.1 If clearance is inadequate for equipment access, pruning to raise the crown should be considered prior to beginning excavation and construction work.

54.7.10.4 Roots shall be cut prior to excavating the root to minimize the damage to the root from ripping.

54.7.10.5 Roots shall not be ripped or torn during excavation.

54.7.10.6 Ripped or damaged roots shall be carefully excavated and the damaged section cut cleanly and relatively perpendicular to the length of the root.

54.7.10.7 Discontinuous footing or footing bridges over roots should also be recommended for decks, storage sheds, etc., located within the TPZ.

54.7.10.8 Utilities or pipes that can not be routed around the TPZ should be installed by tunneling at a depth greater than 36 inches, or by 'tunneling' under roots greater than 2-inch in diameter using hand- tools or hydraulic or pneumatic soil excavation tools in a manner to minimize root damage.

54.7.10.9 Trenches made within the TPZ should be made by 'tunneling' under roots greater than 2-inch in diameter using hand- tools , hydraulic, or pneumatic soil excavation tools in a manner to minimize root damage.

54.7.10.9.1 When possible, trenches should be located perpendicular to the trunk and extend in a radial manner to minimize root disturbance.

54.7.10.10 When permitted, utilities should be routed in one common trench or grouped as closely as permitted or placed under pavement areas to minimize potential root loss and maximize soil volume for plant growth.

54.7.10.11 The placement of roads, driveways, patios and other paved surfaces within the TPZ should be avoided to prevent the loss of roots from excavation and the adverse effects of soil compaction and an impervious surface.

54.7.10.11.1 Re-routing or materials and construction method options should be utilized to achieve the desired design.

54.7.10.12 To avoid excavation, and minimize soil compaction, 'no-dig' or shallow pavement systems shall be considered for driveways or patios built within the TPZ.

54.7.10.13 When portions of the TPZ must be paved, methods and materials such as reinforced concrete or asphalt placed over a relatively thin layer of sub-base on a geotextile fabric should be used to reduce the depth of excavation and sub-grade compaction.

54.7.10.14 When paving covers more than one-third of the TPZ, permeable paving material should be used to allow for aeration and water penetration.

54.7.10.14.1 Soil under permeable surfaces should not be compacted to more than 85 percent Proctor density.

54.8 Construction phase

54.8.1 Implementation of the recommendations and tree protection plans shall be monitored by an arborist.

54.8.2 Levels of compliance shall be documented and reported to the project project manager or owner designate.

54.8.3 In the event of damage to barriers and/or trees, damage should be reported, documented and specific corrective measures recommended and implemented.

54.8.4 Tree health should be monitored during the construction phase.

54.8.5 If tree health is a concern, mitigation recommendations should be made and implemented.

54.9 Landscape phase

54.9.1 Tree conservation measures shall be included in the landscape and lighting design.

54.9.2 Tree protection plans shall be in place during site landscape and lighting installation.

54.9.3 Levels of compliance should be documented and reported by the project arborist.

54.9.3.1 The project manager shall be made aware of any instances where the tree protection plan is not being implemented.

54.10 Post-construction phase

54.10.1 Tree mitigation recommendations shall be revised if the construction activity has significantly altered tree health and maintenance needs.

54.10.2 A remedial and long term maintenance plan should be specified for both existing and new landscaping to specify the level of care to be provided and to guide maintenance over the life of the project.

54.10.2.1 Specifications for remedial and post-construction care should consist of, but are not limited to, one or more of the following:

- a. soil moisture management (see ANSI A300 Part 2 – *Soil Management* standard);
- b. mulching;
- c. integrated pest management;
- d. pruning (see ANSI A300 Part 1 – *Pruning* standard);
- e. thinning and spacing of new landscape;
- f. monitoring period, including length and frequency;
- g. nutrient management (see ANSI A300 Part 2 – *Soil Management* standard);
- h. maintenance/removal of tree support systems (see ANSI A300 Part 3 – *Supplemental Support Systems* standard); and,
- i. lightning protection (see ANSI A300 Part 4 – *Lightning Protection Systems* standard).

54.10.2.2 For optimum tree and landscape care after construction, long term maintenance plans should be included in CC&R's, deeds, and permit conditions.

54.10.2.3 Responsibility for maintenance and care should be transferred with the property when ownership changes hands.

54.10.2.4 Affected trees should be monitored for symptoms of decline for a specified period following construction.

54.10.2.5 Specification of an appropriate length of time shall be considered, depending on the extent of construction activities, tree protection plan, and compliance with the tree protection plan and considering that most tree symptoms of construction damage occur from two to five years, or more, after the construction process.

54.10.2.6 Desiccation of exposed roots should be minimized by covering exposed roots with moistened burlap, a water absorbent material, or moist fill soil.

54.10.2.6.1 The cover material should be inspected at least daily and kept moist to avoid root desiccation.

55.10.2.7 An appropriate layer of organic mulch should be applied to as much of the root protection zone as possible to conserve soil moisture.

55.10.2.7.1 The mulch should be spread in a manner that avoids soil compaction.

55.10.2.8 Temporary irrigation shall be considered prior to, during, and after excavation and trenching within the TPZ to mitigate stress from water loss.

55.10.2.8.1 Irrigation method and schedules should consider local soil conditions, topography, climate, time of year, species, extent of root loss and tree health.

55.10.2.8.2 Installation of irrigation systems shall be designed and installed to provide water to remaining roots within the TPZ.

55.10.2.9 Pruning foliage or branches to compensate for root loss, root pruning, or root damage should be implemented when crown density or tree stability is a concern.

55.10.2.9.1 Tree pruning shall not be performed in combination with root loss unless determined necessary for tree stability or to reduce risk.

55.10.2.10 Unless a nutrient deficiency had been identified by soil or foliar analysis, fertilizer should not be applied. Fertilizer use should be in accordance with ANSI A300 Part 2 – *Soil Management*.

Annex A – Management report information

A-1 Some factors to consider when evaluating suitability for conservation:

A-1.1 Tree health

Healthy, vigorous trees are better able to tolerate impacts than are non-vigorous trees. Typical construction impacts include: root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction.

A-1.2 Structural integrity

Trees with significant wood decay and/or other structural defects or conditions that may present a high failure risk should be carefully evaluated before conserving in areas where high risk of injury to people or damage to property is likely.

A-1.3 Species response

There is a wide variation in the response of individual species to construction impacts and changes in the environment.

A-1.4 Tree age and longevity

While having significant emotional, heritage, and aesthetic appeal, old trees may have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change. Tree protection may vary based on the age and importance of a tree to the site.

A-1.5 Cost-benefit analysis

The relationship between cost of conservation and the benefits of the tree should be considered. The cost to establish a new tree and the time it takes for the tree to grow and produce the benefits should be compared to the cost of retaining existing trees.

A-2 Example of suitability ratings

A-2.1 Good: These are trees with good health and structural stability that have the potential for longevity at the site.

A-2.2 Moderate: Trees in this category have fair health and/or structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the “good” category.

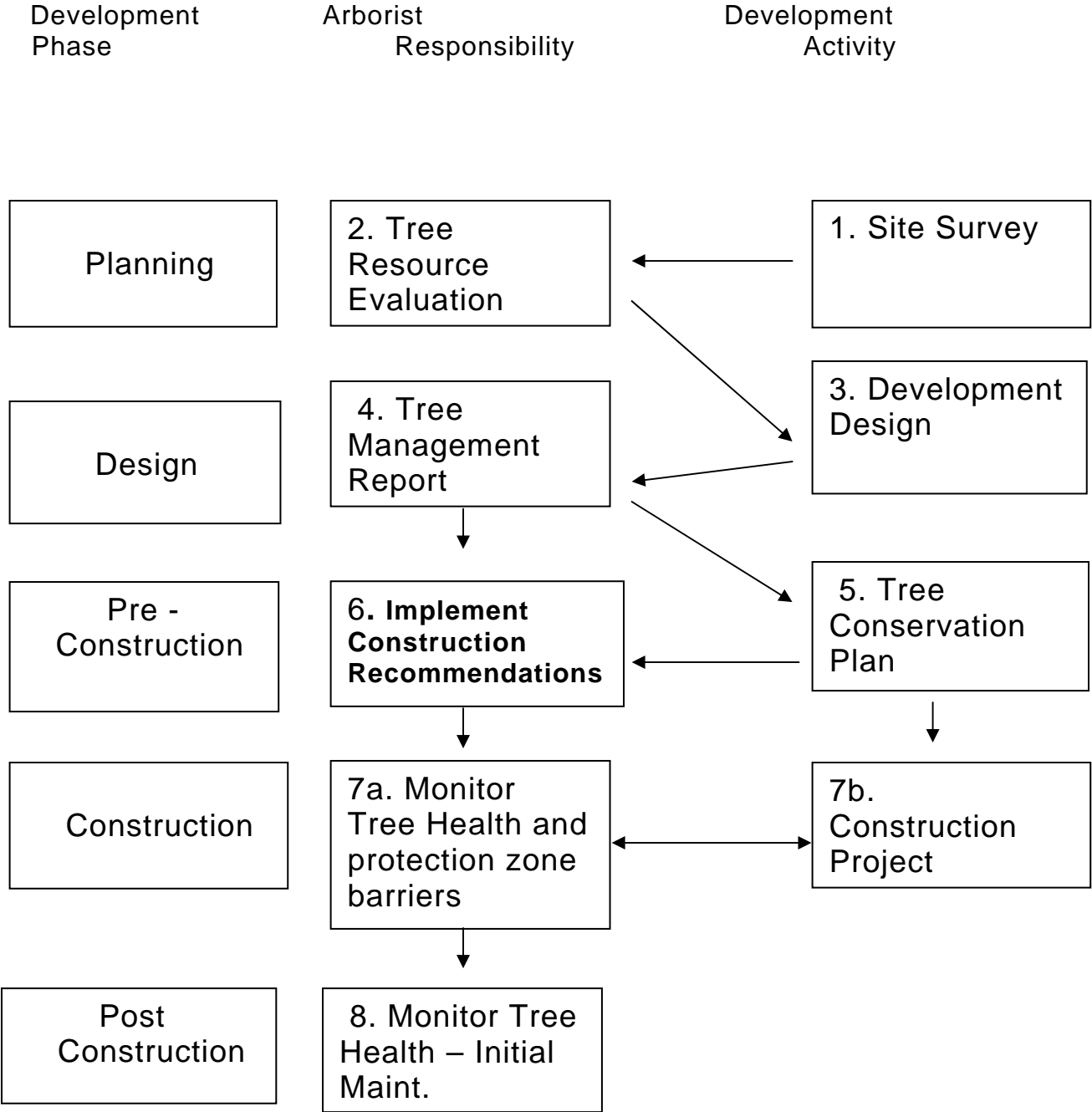
A-2.3 Poor: Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are incompatible or undesirable in landscape settings or be unsuited for the intended use of the site.

A-3: The tree management report should include:

- A.** tree locations shown on the land survey or plot plan;
 - B.** description of the applicable tree population (information such as: species, size, condition and replacement value);
 - C.** suitability for conservation ratings (Good, Moderate, Poor);
 - D.** limits of construction, including demolition, grading and drainage, site and utility construction, and landscape plan;
 - E.** evaluation of proposed construction impacts to trees;
 - F.** notes on the proximity of trees to existing and proposed structures, roads, utilities, etc.;
 - G.** recommendations for retention/removal (see 53.4.3);
 - H.** recommendations for design changes (see 53.4.3);
 - I.** tree conservation recommendations and specifications (see 53.4.3);
- and,
- J.** post-construction recommendations and specifications.

Annex B – Management planning flow chart
into standard format, send to DZ

Place flowchart



Annex C – Purpose and implementation information

C-1 ASC A300 believes the true value of this standard is in setting the requirements and recommendation for a standard tree preservation report.

C-2 Specifications are not provided directly in the standard because they vary depending on species of tree; soil condition; construction/demolition activity; etc.

C-3 Agencies with land or resource preservation ordinances or tree preservation requirements often require a tree conservation plan to be filed (much like an environmental impact statement) if triggered by specific criteria adopted by the town, city, or jurisdiction such as number of trees affected; size and species of trees affected; lot size; type/zoning of development. ANSI A300 Part 5 is the standard for what the required plan should contain. Actual contents of the plan could also be altered based on the scope of specific projects.