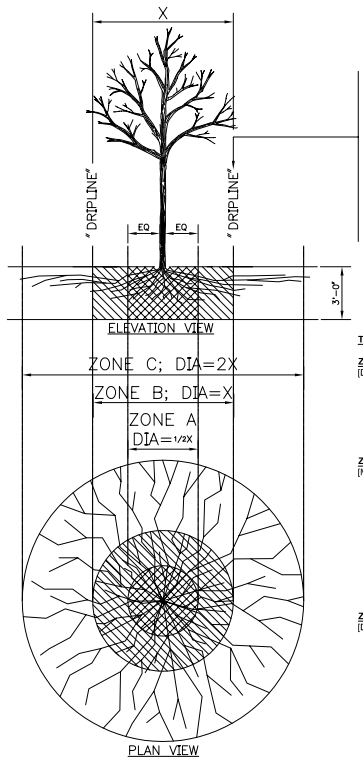

FENCING/ROOT PROTECTION
6' HIGH CHAIN LINK FENCING SHALL BE PROVIDED AND MAINTANED AT THE DRIPLINE OF EACH TREE OR AROUND A GROUP OF TREES AT THE DRIPLINE OF OUTSIDE TREES.

THE ENGINEER'S APPROVAL IS REQUIRED FOR USE/ACCESS WITHIN ZONE B. PERMISSION FOR USE/ACCESS REQUIRES SURFACE PROTECTION FOR ALL UNFENCED, UNPAVED SURFACES WITHIN ZONE B AT ALL TIMES.

* SURFACE PROTECTION MEASURES
1. MULCH LAYER, @ 6"-8"DEPTH
2. 3/4" PLYWOOD
3. STEEL PLATES

Trenching / Excavation

Zone A (Critical Root Zone)
[Defined as trunk diameter multiplied by 0.5]

1. No disturbance allowed without site-specific inspection and approval of methods to minimize root damage
2. Severance of roots larger than 2 inches in diameter requires an engineer's approval
3. Tunnelling required to install lines 3 feet below grade or deeper

Zone B (Dripline (define))
[Maximum width of branch extension on tree]

1. Operation of heavy equipment and/or stockpiling of materials subject to (specify individual) approval
2. Surface protection measures required
   Trenching allowed as follows:
   - Excavation by hand or with hand-driven trencher may be required
   - Limit trench width, Do not disturb Zone A (Critical Root Zone) maintain 2/3 or more of Zone B (Dripline) in undisturbed condition
3. Tunnelling may be required for trenches deeper than 3 foot
4. Use of pneumatic air wand and excavation may be considered where the trench depth does not exceed 4 feet

Zone C (Absorbing Root Zone)
[Defined as trunk diameter multiplied by 2.0]

1. Operation of heavy equipment and or stockpiling of materials subject to (specify individual) approval
2. Surface protection measures may be required and is to be determined by (specify individual)
   Trenching with heavy equipment allowed as follows:
   - Minimize trench width
   - Maintain 2/3 or more of Zone C in undisturbed condition
   - Or as specified by (specify individual)

1 TREE PROTECTION DETAIL
PARKS STD. DETAIL # 02950.57 NOT TO SCALE

TREES IN PARKS AND ADJACENT PLANTING STRIPS		
HEAVY EQUIPMENT OPERATION	ROOT PROTECTION	NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN THE DRIP LINE OF ANY TREES. ALL NON-PAVED SURFACES IN ZONE B SUBJECT TO IMPACT (COMPACTION) BY CONSTRUCTION ACTIVITIES SHALL BE PROTECTED WITH 6"-8" OF MULCH LAYER, 3/4" PLYWOOD PANELS OR STEEL PLATES. PROVIDE WOOD PLANKING OR STEEL PANELS UNDER BACKHOE STABILIZERS PLACED ANYWHERE IN ZONE B. NO STORAGE OF MATERIALS OR EQUIPMENT SHALL BE ALLOWED IN ZONE B WITHOUT PROPER SURFACE PROTECTION AND WRITTEN AUTHORIZATION FROM THE ENGINEER. RETAIN EXISTING PAVING DURING CONSTRUCTION AS LONG AS PRACTICABLE AND SCHEDULE PAVEMENT REPLACEMENT TO MINIMIZE EXPOSURE OF SURFACE ROOTS TO DRYING, EQUIPMENT DAMAGE, COMPACTION, ETC.. EXPOSURE FOR LONGER THAN 48 HOURS REQUIRES MULCH APPLICATION.
	CANOPY PROTECTION	OVERHEAD BRANCHING LIKELY TO BE DAMAGED BY EQUIPMENT OPERATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. PREVENTIVE MEASURES (PRUNING OR TIE-BACK OF BRANCHES) AS APPROVED BY THE ENGINEER SHALL BE PROPERLY EXECUTED BEFORE COMMENCEMENT OF THE CONSTRUCTION ACTIVITIES.
	TRUNK PROTECTION	PROVIDE 6' MIN. HEIGHT CHAIN LINK CONSTRUCTION FENCING FOR INDIVIDUAL FENCE INSTALLATIONS AROUND EACH TREE OR AROUND GROUPINGS OF TREES AS DIRECTED BY THE ENGINEER WITHIN THE WORK AREA. OPTIONAL 4' HIGH ORANGE OR GREEN PVC WEB FENCING MAY BE USED IN SOME APPLICATIONS ONLY AS APPROVED BY THE ENGINEER.
TRENCHING AND/OR TUNNELING		WHEN TRENCHING FOR UTILITIES WITHIN ZONE B, HAND DIG OR TUNNEL AROUND ROOTS WHENEVER POSSIBLE. CUT ALL ROOTS CLEANLY WITH SHARP PRUNERS OR SAWS. IF ROOTS OVER 2" DIA. ARE ENCOUNTERED, NOTIFY THE ENGINEER FOR INSPECTION AND APPROVAL PRIOR TO PROCEEDING. ROOT PRUNE ONLY AS DIRECTED BY THE ENGINEER. AIR OR WATER-SPADING, OR BORING MAY BE REQUIRED BY THE ENGINEER IN ZONE A OR ZONE B IF CONDITIONS WARRANT. FOR INSTALLATION OF SILT FENCING, DO NOT TRENCH IN ZONE A OR ZONE B; INSTEAD SECURE TOE OF FENCING WITH DRAIN ROCK OR SUITABLE SOIL AND MONITOR/MAINTAIN FENCING AS NECESSARY TO PREVENT EROSION.

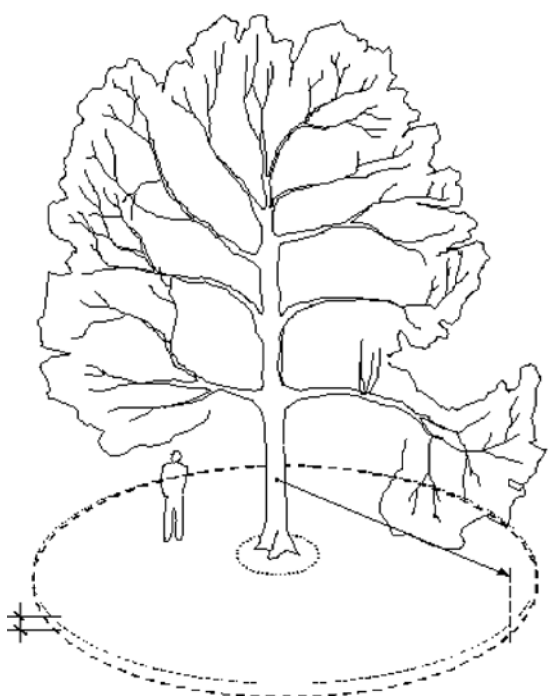

Figure No.1: General Illustration of Tree Protection Area

Figure Notes:

A: Install / maintain a 12 inches/300mm depth of woodchip mulch (absolute minimum)

B: Install / maintain a 12 inches/300mm woodchip mulch from the outer limit of branch spread or specified tree protection area; whichever is furthest.
Protection hoarding is required, unless otherwise stated, and should be installed prior to site works; install at point **B** around the edge of the protection area.

C: Maintain area at base of trunk free of mulch. As a guide use the following formula to determine the distance:
Girth X 0.5 = distance mulch should be kept away from the trunk

D: Maintain an absolute uniform minimum 12 inches / 300mm depth of woodchips. No construction / development equipment, materials, and or spoil within area **B** described above and illustrated in Figure No.1, General Illustration of Tree Protection Area.

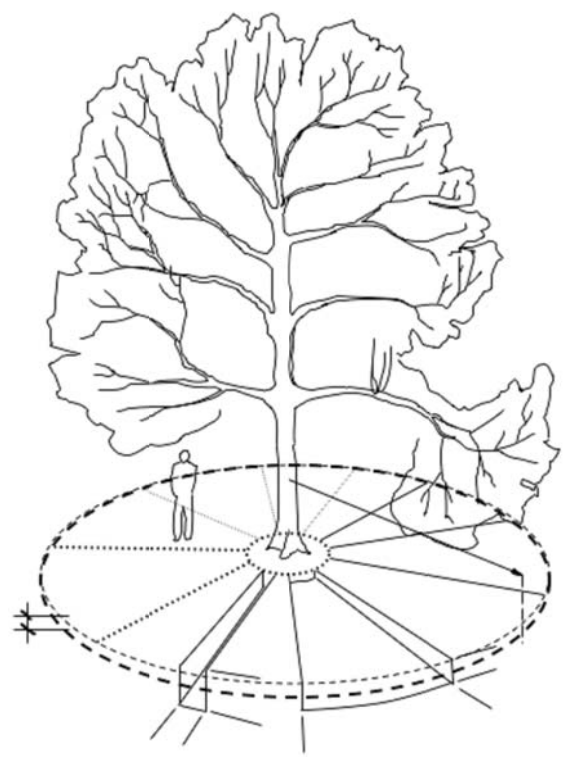

Figure No.2: Radial Trenching and Root Re-invigoration / Soil Amendment Treatment

Figure Notes:

A: The labeling **a - c** refers to radial trenching. The radial trench shall be 18 inches depth.

B: Trench width shall be 12 inches.

C: Trench length shall be to the limits of the dripline (Zone B) or further as specified by (identify). The trench shall be backfilled with 50% compost and 50% native soil. Water should be applied to each trench once backfill is completed. The trench shall be 3 feet from the trunk base. This treatment is to be repeated for the entire tree with radial trenches installed for the entire area beneath and within the dripline (Zone B and A).

D: A two inch layer of compost is to be applied to the entire area beneath and within the dripline (Zone B and A)

E: Root invigoration treatment refers to the areas **e** and also **f** and **g** in Figure No.2 (above). The root invigoration shall be to a depth of 12 inches. A two-inch layer of compost shall be pneumatically (air) incorporated into this treatment area identified as **e** in Figure No.0 (above). Areas should have water applied following treatment.

F: A maximum of 50% surface area beneath the dripline and within (Zone A and B) shall be treated in a single growth period.

G: Treatment depth is limited to 12 inches unless otherwise specified by (identify).

TREE & PLANT PROTECTION GENERAL NOTES:

The term "the Engineer" shall include but not be limited to qualified professionals such as Seattle Parks & Recreation (SPR) Urban Forester or other International Society of Arboriculture (ISA) Certified Arborist associated with the project.

The text contained in Section 01 56 39 - Temporary Tree & Plant Protection should be included onto a separate drawing sheet and not combined with the C.S.C. sheet(s).

Temporary Construction Security Fencing shall be provided and maintained according to SPR Std. Specification Section 01 56 26 - Temporary Fencing. See SPR Std. Detail #01 57 13.19 - Temporary Security/Construction Fencing.

Notice Signs shall be posted on fencing @ 15 Feet O.C. - and shall read "<<<WARNING>>> Protective Tree Fencing, Do Not Enter, Move or Remove - Contact SPR Urban Forester, Ph. #684-4108".

The Fencing shall define and demarcate a specific protection area for each tree or group of trees and shall be fixed in position. The barriers shall remain until all construction Work has been completed and only removed with the approval of the Engineer.

[***See Section 01 56 39 - Temporary Tree & Plant Protection, PART 2 - PRODUCTS; 2.01 Rigid Tree Protection Fencing: 1 - 3 should remain unchanged. Point 4 should be altered to allow for fixed positioning of the fence posts and the entire fence alignment.***]
Construction Trailers and all Construction Traffic must remain outside the fenced protection areas at all times.

All new underground utilities, drainage or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunnelled, bored & jacked or air-spade within the protection areas per Specification Section 01 56 39, Part 3.03.

No construction materials, spoils, waste, washout / wastewater (i.e. cement) or equipment may be deposited, stored, or parked within the tree protection zone (fenced area) at any time.

Additional tree pruning required for clearance during construction shall be performed by a qualified ISA Certified Arborist and not by construction personnel per Specification Section 01 56 39 Part 3.02 Above-grade Work. Also refer to the City of Seattle Standard Specifications which cite the American National Standards Institute (ANSI) A300 pruning standards.

During construction activities, if injury to any tree should occur, the SPR Urban Forester or the Arborist should evaluate it as soon as possible so that appropriate treatments can be applied. No appropriate treatment shall be applied without the prior approval from the certified arborist.

All trees shall be irrigated at least three times per week over the duration of the project for the period of June 1-September 31. Irrigation must wet the soil within the tree protection zone to a depth of 24 inches.

Before grading or trenching, pad preparation, or excavation for foundations, footings, or walls, trees shall be root pruned 12 inches outside the tree protection area by cutting all roots cleanly to a depth of 24 inches. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root-pruning equipment.

Within the protection area any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw per Section 01 56 39, Part 3.03, B.

Spoil from trenches or other excavations shall not be placed within the specified tree protection area, either temporarily or permanently.

Within Zone A, B, or C of the protection area the Engineer's approval is required for any use/access. Permission for use/access requires surface protection for all unfenced, unpaved surfaces within Zone A, B or C.

Surface Protection Measures (to be applied to Zones A, B and C):

1. Mulch layer 12 inch depth with a geo-textile fabric underlay (normal protection area, light access, storage, equipment operation).
2. 4x8 sheets of ¾ inch plywood (storage).
3. Steel plates (equipment operation, access bridging over root zones).
4. 4 - 8 inch quarry spall, with a geo-textile fabric underlay to a minimum 12 inch depth (construction access or haul routes).
5. Irrigation, as previously specified shall be applied to un-affected areas within the entire tree protection area as specified.

Root re-invigoration/soil amendments and Radial Trenching of specified trees may require this treatment. Exposed and available rooting areas should have all ground covers manually removed (i.e. grubbing of turfgrass). The soils shall have a root invigoration treatment that will de-compact and allow for the incorporation of compost. This is achieved by using a pneumatic air wand. The use of a compost blend designed for soil enhancement, is required for all areas affected. This treatment should be completed to a depth of 18 inches for radial trenching and 12 inches for root reinvigoration and shall include, at a minimum, the area within the dripline (zones A and B).

>>>>CAUTION - CALL 811<<<<
UTILITY NOTIFICATION CENTER
BEFORE YOU DIG!
WWW.CALLBEFOREYOUDIG.ORG

NOT LESS THAN **2** OR MORE THAN **10** BUSINESS DAYS PRIOR TO COMMENCING EXCAVATION OR DEMOLITION, SECURE THE SERVICES OF A COMMERCIAL UNDERGROUND UTILITIES LOCATOR SERVICE TO IDENTIFY BELOW-GROUND IMPROVEMENTS THAT MAY NOT BE INDICATED ON THE DRAWINGS, ADDITIONALLY, TO REQUEST ON-SITE UNDERGROUND UTILITY SYSTEMS LOCATES, CALL **SPR INSPECTION REQUEST LINE @ (206) 684-7034.** REFER TO SECTIONS 02100 & 02120 OF THE SPECIFICATIONS FOR INSTRUCTIONS ON HOW TO PROCEED.

NO.	REVISION – AS BUILT	DATE
3		
2		
1		

REVIEWED: PARK ENGINEER DATE

All work done in accordance with the City of Seattle Standard Plans and Specifications in effect on the date shown above, and supplemented by Special Provisions.

SEATTLE PARKS AND RECREATION

FACILITY NAME

PROJECT NAME

TEMPORARY TREE & PLANT PROTECTION

DESIGNED X
DRAWN X
CHECKED X
DATE X
SHEET X OF X
ORDINANCE NO.
CONTRACT NO.
SCALE X

Sht. No.