



SECTION 16950

VEGETATION CONTROL PROGRAM

PART 1. GENERAL

1.1 Purpose

The purpose of these specifications is to provide direction for properly pruning and/or removing trees, shrubs, vines, and other vegetation, which are in contact with, or have the potential (in the right-of-way, easement, or pruning zone as described herein) to come in contact with power lines. All pruning shall be in accordance with Tree Line USA requirements as described in "Pruning Trees Near Electric Utility Lines: A Field Guide for Qualified Line-Clearance Workers" by Dr. Alex L. Shigo, Best Management Practices – Utility Pruning of Trees, and ANSI A300 guidelines.

PART 2. MATERIALS

Not Used.

PART 3. EXECUTION

3.1 GENERAL GUIDELINES

- A. All pruning and clearing shall comply with KUB Standards and Specifications Section 16945 and Section 16950. CONTRACTOR's work shall be guaranteed for one (1) full year. CONTRACTOR shall correct any deficiencies (rework) of a completed circuit within thirty (30) business days upon notification from OWNER or OWNER's Resident Project Representative. If after thirty business days or upon notification from CONTRACTOR that rework is complete, OWNER or OWNER's Resident Project Representative determines that areas have still not been completed satisfactorily, the actual cost of labor, transportation, and overhead for future inspections shall be deducted from CONTRACTOR's payment. OWNER may elect to use other resources to correct deficiencies and deduct cost from CONTRACTOR's payment. OWNER may use past CONTRACTOR performance in evaluating future CONTRACTOR bids.

3.2 TRANSMISSION LINES, DISTRIBUTION LINES, SECONDARIES, STREET LIGHTS, AND SERVICE DROPS

- A. All pruning within the transmission line right-of-way will require close coordination between CONTRACTOR and OWNER's Resident Project Representative. Pruning of trees near the transmission conductors may require the line to be de-energized. This will be coordinated by CONTRACTOR's supervisor through OWNER's Resident Project Representative. Clearance of transmission lines is both weather and

load dependent, and may not be available upon request. Clearances should be requested a minimum of 48 hours in advance of work. **All overhanging limbs are to be removed.** All brush and trees less than six inches in diameter, with the exception of landscape-quality and ornamental trees in maintained homeowner's yards, are to be removed from the right-of-way and all brush is to be chipped. All trees larger than 6 inches in diameter located in the right-of-way shall only be removed at the direction of OWNER or OWNER's Resident Project Representative. All side-pruning of trees shall be a minimum of twenty-five (25) feet from the energized conductor. The transmission right of way is to be mechanically cleared (i.e., mowed or bush-hogged) to a minimum of twenty-five (25) feet from the centerline of the line or a total width of fifty (50) feet unless otherwise noted on the map or drawing. Mechanical equipment is not permitted in residential areas. No mechanical brush removal shall be performed within a five (5) foot radius of poles, guys, or structures; hand-cutting is required in these areas. The contractor shall not use mechanical equipment directly adjacent to streams, creeks, or rivers or in wetlands and shall not remove low growing varieties of brush that are growing directly adjacent to streams, creeks and rivers or in wetlands. CONTRACTOR must notify OWNER or OWNER's Resident Project Representative to determine an appropriate buffer zone in which to leave low growing vegetation. All brush or bushes left in these areas must be varieties that would not reasonably be expected to grow to a height that would endanger the reliability of the transmission line. Tall-growing vegetation directly adjacent to streams, creeks, or rivers must be removed by hand-cutting. Where transmission lines have distribution lines underbuilt, CONTRACTOR is required to complete pruning for a minimum of ten (10) feet of clearance for the underbuilt distribution at the same time pruning for a minimum of twenty-five (25) feet of clearance for the transmission line is completed.

- B. All distribution line right-of-way must be cleared to a minimum of ten (10) feet from any energized conductor. Two and three-phase distribution lines are not permitted through trees, and all overhanging limbs must be removed; only side and top pruning are permitted with a minimum clearance of ten feet from the energized conductors. Leaving overhanging limbs will only be considered in certain unsafe conditions and when a tree is granted a "Special Status" exception by the OWNER, but in no case will a clearance of less than 10' be allowed. The final decision concerning leaving overhanging limbs will rest solely with OWNER or OWNER's Resident Project Representative. All diseased, weak, and dead limbs above ALL conductors must be removed. Trees six inches (6") or less in diameter that will require pruning in future years shall be removed from the right-of-way, with the exception of low-growing trees (for example, dogwoods, redbuds, or ornamental trees) and landscape quality trees six inches (6") or less in diameter, which shall only be removed at the direction of OWNER or OWNER's Resident Project Representative. In some cases, the OWNER may have a customer agreement to leave tall-growing trees six (6") or less in diameter in the right-of-way. In these cases, all vegetation will be pruned for a minimum of 10' clearance. All trees larger than 6 inches in diameter located in the

right-of-way shall only be removed at the direction of OWNER or OWNER's Resident Project Representative.

- C. Secondary Conductors shall be pruned a minimum of ten (10) feet from bare conductors and five (5) feet from conductors with weather-proof coating . The definition of a "Secondary Conductor" for tree pruning is as follows: Open three-wire or triplex conductors that carry current from the secondary side of a distribution transformer to a lift pole or poles serving more than one customer. Secondary Conductors shall be pruned from the connection at the transformer to the last lift pole..

Street Lighting Conductors shall be pruned a minimum of five (5) feet.

- E. Service Drops are not pruned. The definition of a "Service Drop" is as follows: Secondary Conductors, which carry current from the secondary side of a distribution transformer to a single customer connection or from the last lift pole serving more than one customer. Service drops are not pruned by CONTRACTOR.

3.3 TREE PRUNING

(See Figure 1-16950-a, Figure 2-16950-b, Figure 3-16950-c Figure 4-16950-d,)

The following KUB Vegetation Control Practices are in accordance with TREE LINE USA requirements as described in "BEST MANAGEMENT PRACTICES – UTILITY PRUNING OF TREES" OR "PRUNING TREES NEAR ELECTRIC UTILITY LINES: A FIELD GUIDE FOR QUALIFIED LINE-CLEARANCE WORKERS" BY DR.ALEX L. SHIGO. Documentation of training in proper pruning techniques according to ANSI A-300 and "BEST MANAGEMENT PRACTICES – UTILITY PRUNING OF TREES" or "PRUNING TREES NEAR ELECTRIC UTILITY LINES" by Dr. Alex Shigo shall be furnished to OWNER upon OWNER's request. CONTRACTOR shall be able to provide OWNER, upon OWNER's request, documentation that all appropriate employees and/or subcontractors of CONTRACTOR have completed the above training. Contractor shall provide the field guide by Dr. Shigo to each crew who performs line clearance pruning. This guide will be available at each work site as a quick reference. Specifically, the following practices shall be followed:

- A. Techniques consistent with the practices of natural, lateral, and drop crotch shall be utilized. All limbs shall be pruned back to the lateral. The lateral point shall be a minimum of ten (10) feet from all distribution lines and twenty-five (25) feet from transmission lines.
- B. Cuts are to be made back to the main stem or to a branch, which is at least one-third the diameter of the portion being removed. Cuts made back to "water sprouts" (small green twigs) are not acceptable. In no case shall deciduous tree

limbs be stubbed off at the edge of the clearing limits. Wherever possible, all pruning cuts shall be made to direct future growth and sprouting away from the power lines.

- C. Conifers should be pruned in a natural manner that allows them to retain as much of their natural shape as possible.
- D. All dead branches overhanging primary lines at any height shall be removed.
- E. A minimum of cuts should be utilized to achieve required clearances.
- F. Where practical, cuts should be primarily restricted to large diameter branches made well within the crown. Shaping through the use of many cuts of small diameter branches in the outer crown must be avoided.
- G. Remove living branches by making cuts as close as possible to the branch collar. Remove dead branches by making cuts as close as possible to the living tissues that surround the dead branch at the base.
- H. Precautions shall be taken to avoid stripping or tearing of bark when cutting large-diameter limbs.
- I. Where line-clearance pruning adversely alters the shape of a tree, additional pruning may be done to give the tree satisfactory shape and appearance, but in no case will trees be topped or rounded over.
- J. Climbing irons or "hooks" shall not be used except in cases involving tree removal work.
- K. Special effort shall be made to eliminate all tree parts and growth points beneath the power lines, and all weak, diseased and dead limbs above the power lines, which may fall or blow into them.
- L. All hanging and severed limbs shall be removed from the trees. The branches, brush, and debris resulting from the pruning shall be collected and disposed of during the same workday. The premises shall be left as neat as they were before the work started. If CONTRACTOR is unable to dispose of brush, wood, debris, and litter that same workday, CONTRACTOR shall request approval from OWNER or OWNER's Resident Project Representative and notify customer(s), providing a date when worksite will be cleared. If customer(s) is unavailable at worksite, CONTRACTOR shall leave KUB door hanger with notification of when worksite will be cleared.
- M. Where pruning according to the contract specifications will require removal of more than twenty five percent of the tree's crown, CONTRACTOR is to notify OWNER or OWNER'S Resident Project Representative before pruning so that

OWNER may negotiate tree removal (at the unit cost provided in the Contract Documents) with the customer. Negotiation for tree removal is at the sole discretion of OWNER and if removal is not negotiated, CONTRACTOR shall prune the tree according to contract specifications.

- N. Circuit trimming shall begin at the substation and proceed in a logical, orderly manner unless another starting point is identified by OWNER or CONTRACTOR requests permission to begin at another location. CONTRACTOR shall not skip around on the Circuit Area.

3.4 TREE, BRUSH, AND VINE REMOVAL

- A. Trees six inches (6") or less in diameter that will require pruning in future years shall be removed from the right-of-way, with the exception of low-growing trees (for example, dogwoods, redbuds, or ornamental trees) and landscape quality trees six inches (6") or less in diameter, which shall only be removed at the direction of OWNER or OWNER's Resident Project Representative. In some cases, the OWNER may have a customer agreement to leave tall-growing trees six (6") or less in diameter in the right-of-way. In these cases, all vegetation will be pruned for a minimum of 10' clearance. All stumps of deciduous woody vegetation must be treated with a suitable chemical herbicide to prevent sprouting and new growth.
- B. All trees larger than six inches (6") in diameter located in the right-of-way shall only be removed at the direction of OWNER or OWNER's Resident Project Representative.
- C. If CONTRACTOR is instructed by the homeowner that he wishes to have any trees larger than six inches (6") in diameter removed, CONTRACTOR shall inform OWNER or OWNER's Resident Project Representative of the request immediately. CONTRACTOR shall not remove trees larger than six inches (6") in diameter until approval is received from OWNER or OWNER's Resident Project Representative.
- D. Unless otherwise specified by OWNER OR OWNER'S RESIDENT PROJECT REPRESENTATIVE, all cutting for existing right-of-way clearing shall be as close to the ground as the topography and type of soil will allow, with a maximum remaining height of four inches (4") for brush stubs and six inches (6") for tree stumps.
- D. All tall dead or dying trees located outside the pruning zone shall be removed if, in the sole opinion of OWNER OR OWNER'S RESIDENT PROJECT REPRESENTATIVE, they present a hazard to the new or existing power line. In such case and if directed by OWNER or OWNER's Resident Project

Representative, CONTRACTOR shall remove such tree(s) for the unit cost for removal so noted in the Contract Documents. It is the intent of OWNER that if CONTRACTOR is awarded trimming and unit removal on a circuit, both will be done as CONTRACTOR proceeds in working along the circuit in a logical, orderly manner. CONTRACTOR shall not skip around on the Circuit Area. Crews should be multi-functional with the ability to perform both trimming and removal together. OWNER wants to lessen the impact on its customers and wishes not to have a two-part operation of trimming, then removals.

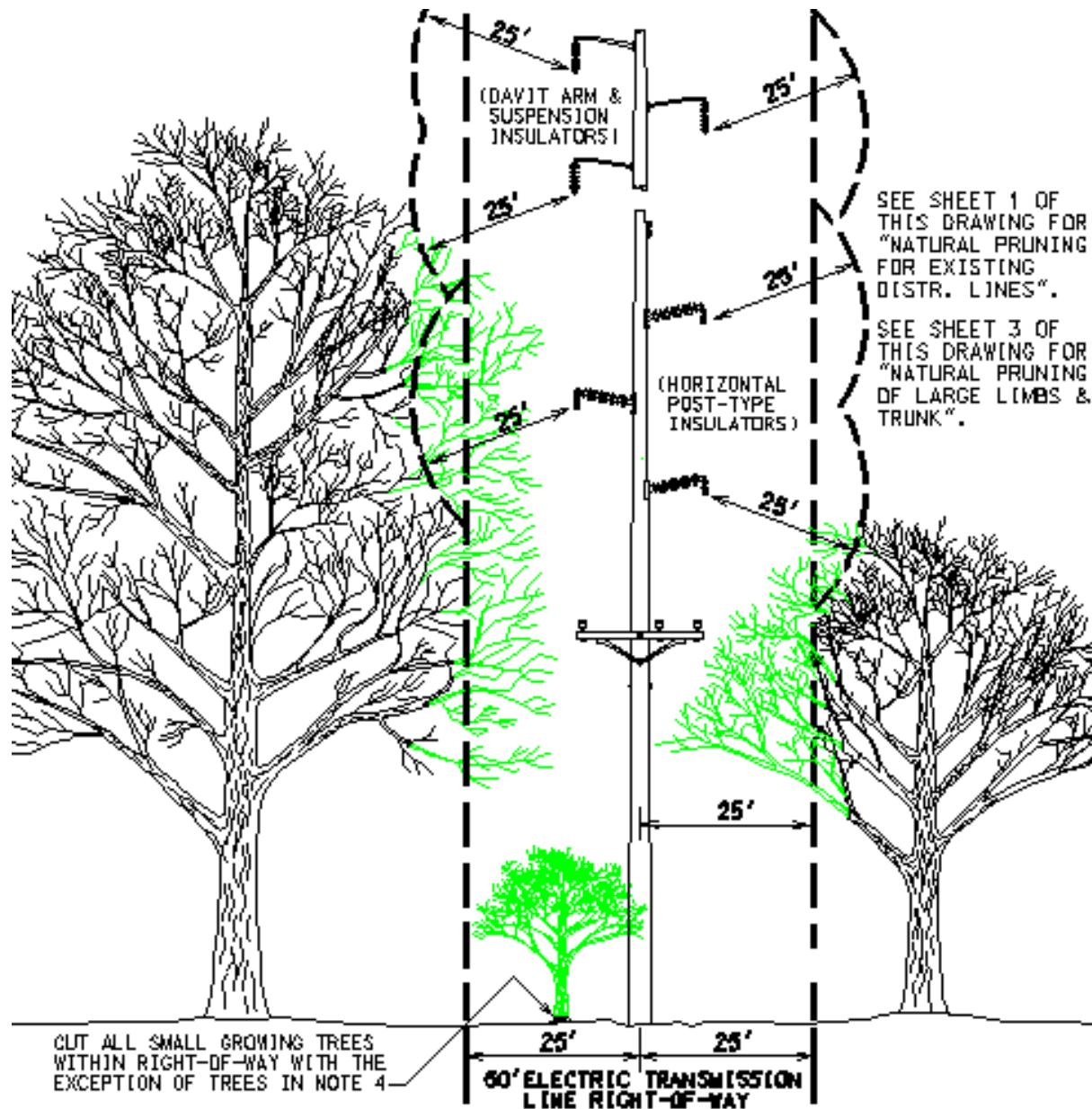
- F. Brush, wood, and debris shall be handled in such a manner as to avoid obstructing roads, paths, or waterways, except as may be required during emergencies. All worksites will be cleared daily and left free of prunings, brush, wood, debris, and litter. If CONTRACTOR is unable to dispose of prunings, brush, wood, debris, and litter that same workday, CONTRACTOR shall request approval from OWNER or OWNER's Resident Project Representative and notify customer(s), providing a date when worksite will be cleared. If customer(s) is unavailable at worksite, CONTRACTOR shall leave KUB door hanger with notification of when worksite will be cleared.
- G. All vines are to be removed from all poles, guys, power lines, and structures. Vines shall be cut off at ground level and immediately chemically treated with suitable herbicide to prevent re-growth. All precautions shall be taken to prevent drift or run off of herbicide to adjacent property.
- H. Kudzu is to be cleared ten feet (10') from all poles, structures, and power lines. All Kudzu within the right of way shall be treated with Transline herbicide (clopyralid) with I.R. Sticker surfactant from June through September.
- I. CONTRACTOR shall clear trees and brush in a ten-foot (10') radius from all poles and a five-foot (5') radius from all guys and structures in non-residential portions of the right-of-way. Clearance of woody vegetation around poles in homeowners' yards shall only be performed at the direction of OWNER or OWNER's Resident Project Representative.
- J. Mechanical clearing (i.e., mowing or bush-hogging) of the distribution right-of-way is permitted only with permission from OWNER OR OWNER'S RESIDENT PROJECT REPRESENTATIVE. Bush-hogging is required in non-residential portions of the transmission right-of-way, and all trees six inches (6") or less in diameter are to be removed, with the exception of landscape-quality and ornamental trees in maintained homeowner's yards. Mechanical equipment is not permitted in residential areas. No mechanical brush removal shall be performed within a five (5) foot radius of poles, guys, or structures; hand-cutting is required in these areas. The contractor shall not use mechanical equipment directly adjacent to streams, creeks, or rivers or in wetlands and shall not remove low

growing varieties of brush that are growing directly adjacent to streams, creeks and rivers or in wetlands. CONTRACTOR must notify OWNER or OWNER's Resident Project Representative to determine an appropriate buffer zone in which to leave low growing vegetation. All brush or bushes left in these areas must be varieties that would not reasonably be expected to grow to a height that would endanger the reliability of the transmission line. Tall-growing vegetation directly adjacent to streams, creeks, or rivers must be removed by hand-cutting. CONTRACTOR shall ensure that all brush ridden down by mechanical equipment has been cut. All bush-hogged stumps must be treated with appropriate herbicide to prevent regrowth. When mechanical means (bush-hog) are utilized, required follow-up by CONTRACTOR with chain saws and /or chemicals will be at the discretion of OWNER OR OWNER'S RESIDENT PROJECT REPRESENTATIVE. Mechanical means (bush-hog) are not to be used for side-cutting of vegetation in the right-of-way.

3.5 USE OF HERBICIDES

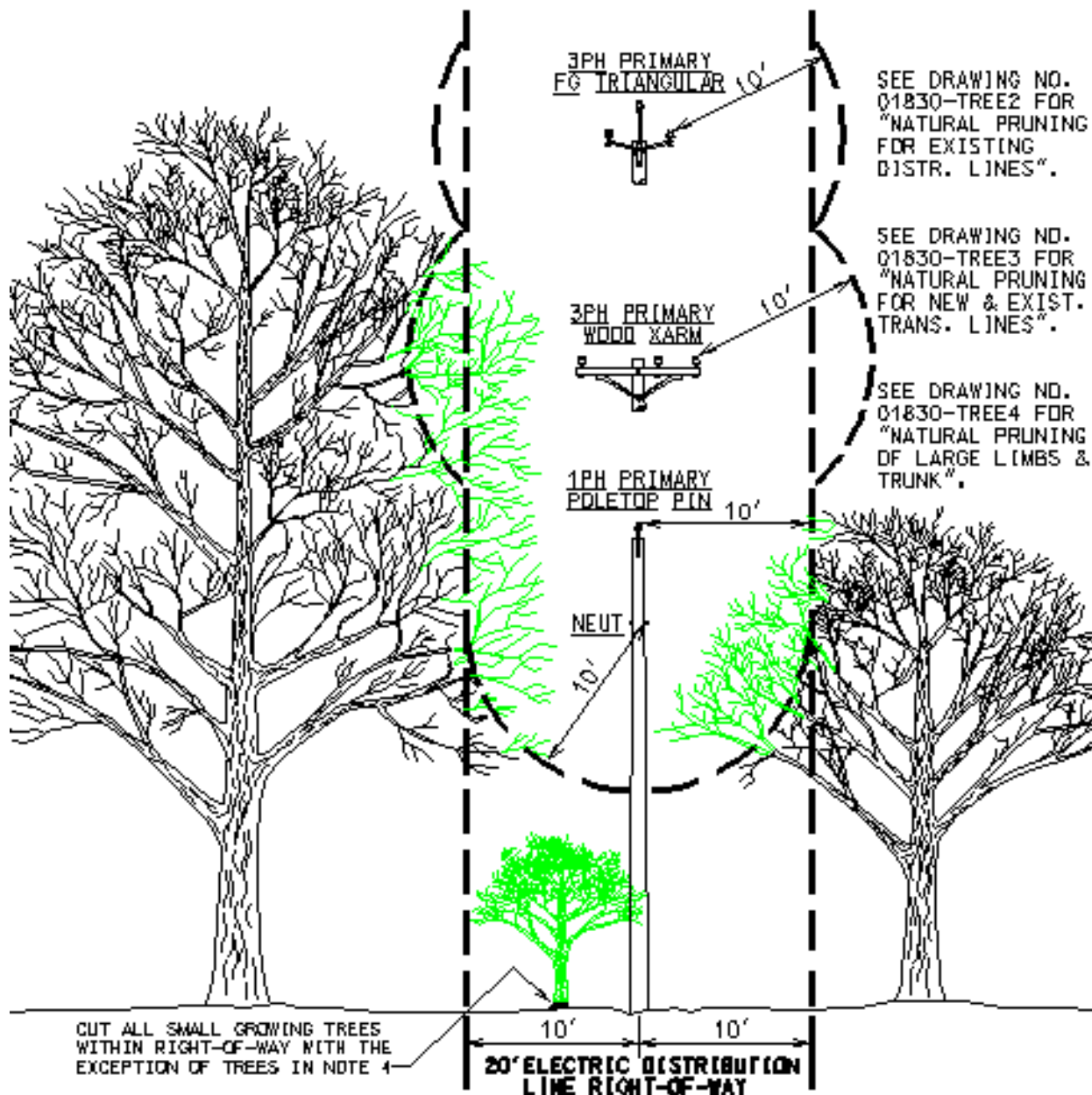
- A. CONTRACTOR shall handle, store, apply and dispose of herbicide chemicals in a prudent and safe manner in accordance with all local, state, and federal laws governing the use, disposal, and application of herbicide chemicals. CONTRACTOR shall exercise prudent work practices to ensure that the general environment is not harmed as a result of the method, location, or timing of chemical applications.
- B. CONTRACTOR employees performing herbicide application shall be licensed as required by local, state, and federal laws. Prior to beginning circuit work, CONTRACTOR shall provide OWNER documentation of certifications and/or licenses for all employees who will be applying herbicide.
- C. No stump spraying or other application can be done where damages to crops, orchards, or ornamental plants may result from chemical drift. Brush application should be used in these areas.
- D. No spraying shall be done within thirty minutes after any fog, dew, or rain heavy enough to cause run-off. No spraying shall be done with impending rain that might cause run-off. Particular attention should be paid to drainage areas and water sources to prevent contamination of streams and waterways.
- E. All chemical stump treatment must contain a locator dye in order for inspectors to locate treated stumps. The locator dye must have a longevity of at least three (3) weeks. It is highly recommended that CONTRACTOR test spray to ensure locator dyes are present in chemical products. CONTRACTOR must re-spray all stumps at CONTRACTOR's expense where locator dye is not visible.

- E. CONTRACTOR shall mix and apply chemicals in accordance with recommendations of the manufacturer and in accordance with all federal, state, and local laws, rules, and regulations.
- F. Stump application shall be used on all new stumps at any season of the year. Stumps shall be sprayed as soon as practical. Chemical mixture shall be applied in sufficient volume to completely wet the sapwood, bark area, root crown, and any exposed roots. It is the intent of the OWNER that herbicide be applied as pruning and removal are performed on the Circuit Area in a logical, orderly manner to lessen impact of the operation on customers and to ensure stumps will not be missed.
- G. Basal application shall be used on brush of any size at any season of the year, where indicated by OWNER or OWNER's Resident Project Representative. Chemical mixture shall be applied to completely wet the surface of the stem or trunk from the root crown up the stem eighteen inches (18"), with emphasis on completely wetting the root crown.
- H. Chemicals suitable for basal stem and cut stump treatment are Stalker (3%)/Garlon 4 Ultra or generic equivalent (15%) in HY-Grade oil. Foliar application of cedars and pines shall be performed with Krenite. Kudzu shall be treated with Transline herbicide (clopyralid) with New Film I.R. Sticker surfactant from June through September. All other vines are to be treated with Garlon 4 Ultra. Approval must be obtained from OWNER for the use of chemicals not listed. OWNER OR OWNER'S RESIDENT PROJECT REPRESENTATIVE shall have the right to specify what kind, when, and where chemical application and/or spraying will be used.
- I. The cost of stump treatment shall be included in the lump sum trimming cost for trees six inches (6") in diameter and less and in the price for unit tree removal.
- J. Specimen labels for chemicals used on OWNER's system must be furnished prior to the start of any spraying operation.



- NOTE 1: UNLESS OTHERWISE SPECIFIED BY KUB, RIGHT-OF-WAY GROUND CLEARING SHALL BE AS CLOSE TO GROUND AS TOPOGRAPHY WILL ALLOW, WITH A MAXIMUM REMAINING HEIGHT OF 4" FOR BRUSH STUBS & 6" FOR TREE STUMPS.
- NOTE 2: ALL LIMBS SHALL BE PRUNED BACK TO A LATERAL (JUNCTION) POINT. (SEE SHEET 3). THE LATERAL POINT SHALL BE A MINIMUM OF 25' FROM ALL BARE CONDUCTORS. REMOVE ALL DISEASED, WEAK, & DEAD LIMBS WHICH MAY FALL OR BE BLOWN ONTO CONDUCTORS.
- NOTE 3: ANY TALL DEAD OR DYING TREES LOCATED OUTSIDE THE RIGHT-OF-WAY SHALL ALSO BE REMOVED IF, IN KUB'S OPINION, THEY PRESENT A HAZARD TO THE NEW ELECTRIC LINE.
- NOTE 4: SMALL GROWING TREES INCLUDE DOGWOODS, REDBUDS, RED & WHITE CRABAPPLES, GOLDENRAINS, PURPLE LEAF PLUMS.

Figure 1-16950-a (Clearances for Different Transmission Pole Tops)



- NOTE 1: UNLESS OTHERWISE SPECIFIED BY KUB, RIGHT-OF-WAY GROUND CLEARING SHALL BE AS CLOSE TO GROUND AS TOPOGRAPHY WILL ALLOW, WITH A MAXIMUM REMAINING HEIGHT OF 4" FOR BRUSH STUBS & 6" FOR TREE STUMPS.
- NOTE 2: ALL LIMBS SHALL BE PRUNED BACK TO A LATERAL (JUNCTION) POINT. (SEE SHEET 3). THE LATERAL POINT SHALL BE A MINIMUM OF 10' FROM ALL BARE CONDUCTORS. REMOVE ALL DISEASED, WEAK, & DEAD LIMBS WHICH MAY FALL OR BE BLOWN ONTO CONDUCTORS.
- NOTE 3: ANY TALL DEAD OR DYING TREES LOCATED OUTSIDE THE RIGHT-OF-WAY SHALL ALSO BE REMOVED IF, IN KUB'S OPINION, THEY PRESENT A HAZARD TO THE NEW ELECTRIC LINE.
- NOTE 4: SMALL GROWING TREES INCLUDE DOGWOODS, REDBUDS, RED & WHITE CRABAPPLES, GOLDENRAINS, AND PURPLE LEAF PLUMS.

Figure 2-16950-B (Clearances for Different Distribution Pole Tops)

SEE DRAWING NO. 01830-TREE1
FOR "TREE CLEARING FOR NEW
DISTRIBUTION LINES".

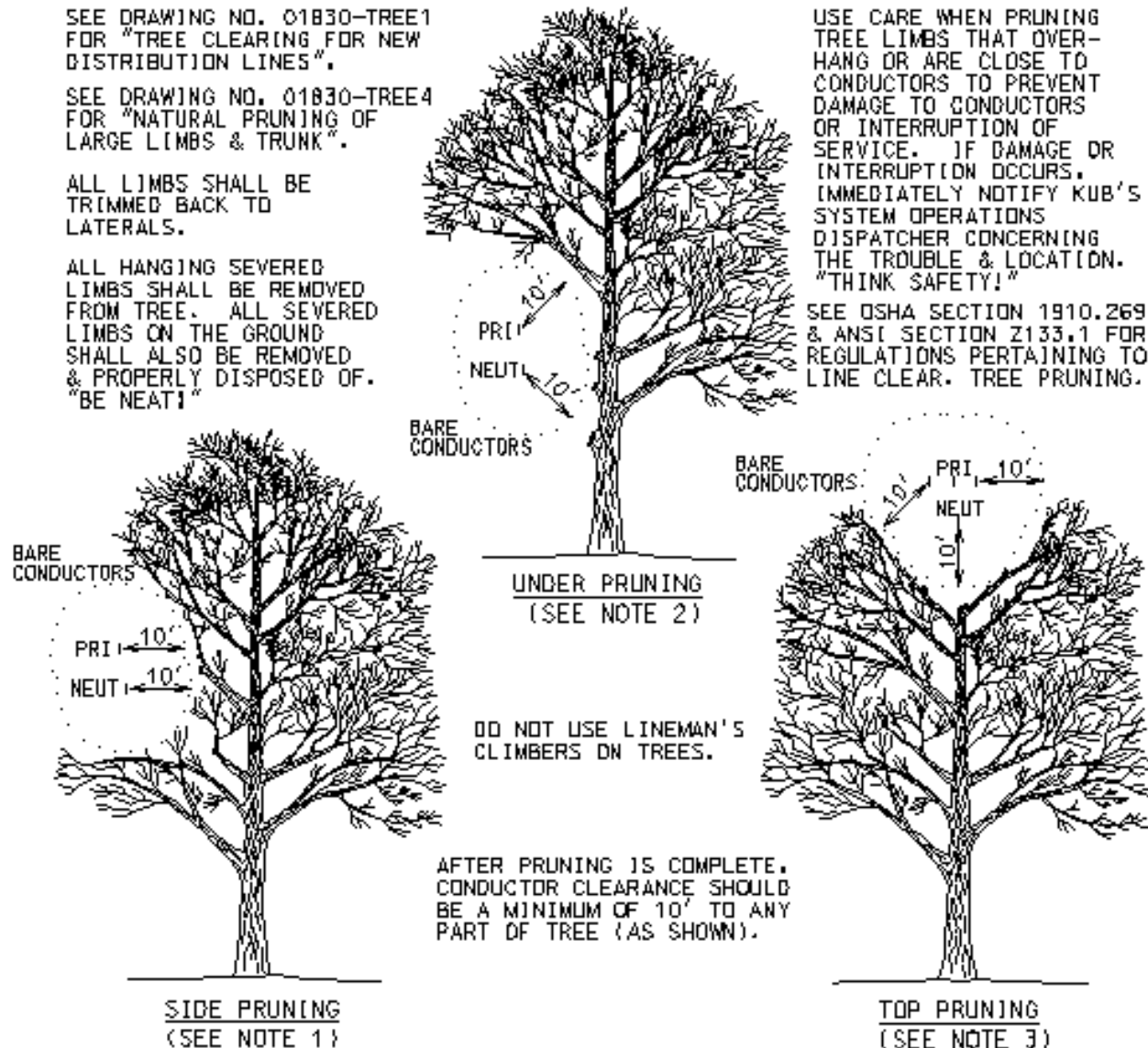
SEE DRAWING NO. 01830-TREE4
FOR "NATURAL PRUNING OF
LARGE LIMBS & TRUNK".

ALL LIMBS SHALL BE
TRIMMED BACK TO
LATERALS.

ALL HANGING SEVERED
LIMBS SHALL BE REMOVED
FROM TREE. ALL SEVERED
LIMBS ON THE GROUND
SHALL ALSO BE REMOVED
& PROPERLY DISPOSED OF.
"BE NEAT!"

USE CARE WHEN PRUNING
TREE LIMBS THAT OVER-
HANG OR ARE CLOSE TO
CONDUCTORS TO PREVENT
DAMAGE TO CONDUCTORS
OR INTERRUPTION OF
SERVICE. IF DAMAGE OR
INTERRUPTION OCCURS,
IMMEDIATELY NOTIFY KUB'S
SYSTEM OPERATIONS
DISPATCHER CONCERNING
THE TROUBLE & LOCATION.
"THINK SAFETY!"

SEE OSHA SECTION 1910.269
& ANSI SECTION Z133.1 FOR
REGULATIONS PERTAINING TO
LINE CLEAR. TREE PRUNING.

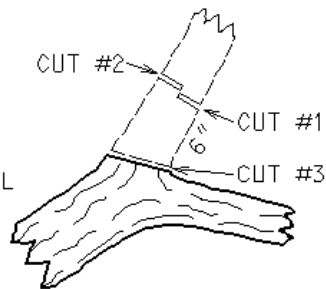


- NOTE 1: SIDE PRUNING WILL BE DONE BY SELECTIVELY CUTTING SECONDARY MAIN LEADERS BACK TO A STRONG JUNCTION OF A LARGE LIMB OR THE MAIN TRUNK. REMOVE AS MANY OVERHANGING LIMBS AS PRACTICAL. ALSO REMOVE ALL DEAD & WEAK OVERHANGING LIMBS.
- NOTE 2: UNDER PRUNING WILL BE DONE BY SELECTIVELY CUTTING LOWER BRANCHES BACK TO A STRONG JUNCTION OF A LARGE LIMB OR THE MAIN TRUNK. REMOVE ALL DEAD & WEAK OVERHANGING LIMBS. UNDER PRUNING IS NOT RECOMMENDED ON TWO-PHASE & THREE-PHASE 13.8KV CIRCUITS.
- NOTE 3: TOP PRUNING WILL BE DONE BY SELECTIVELY CUTTING BRANCHES AND/OR THE MAIN TRUNK WITHIN THE CROWN TO A STRONG JUNCTION. REMOVE ALL DEAD & WEAK LIMBS WHICH MIGHT BE BLOWN OVER INTO THE CONDUCTOR. PRUNING THAT EXCEEDS 50% OF CROWN IS NOT RECOMMENDED — THE ENTIRE TREE SHOULD BE REMOVED.

Figure 3-16950-C (Trimming Methods for Different Line Locations)

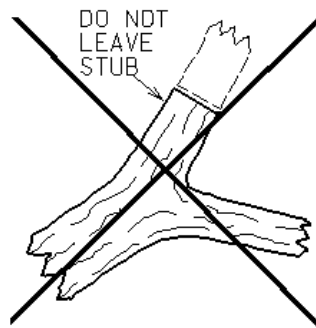
PROPER CUT TO LATERAL

(USING 3 CUTS WILL
AVOID STRIPPING
WOOD & BARK FROM
REMAINING LIMB)



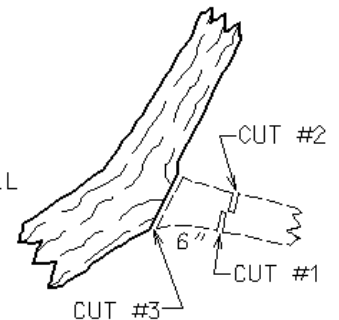
INCORRECT

(STUB IS LIKELY
TO DECAY & HARM
ADJOINING LIMB)



PROPER CUT TO LATERAL

(USING 3 CUTS WILL
AVOID STRIPPING
WOOD & BARK FROM
REMAINING LIMB)



INCORRECT

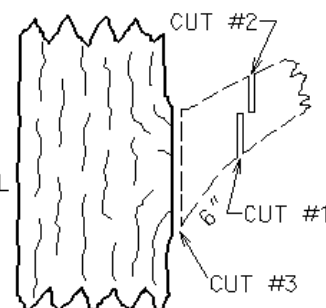
(STUB IS LIKELY
TO DECAY & HARM
ADJOINING LIMB)



PROPER CUT TO TRUNK

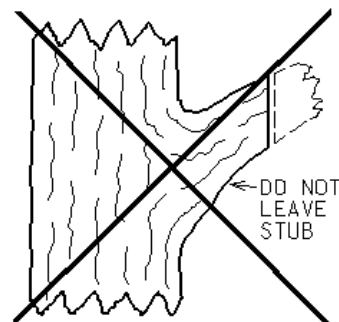
(USING 3 CUTS WILL
AVOID STRIPPING
WOOD & BARK FROM
TRUNK OF TREE)

(CUT #3 SHOULD BE
DOWNWARD)



INCORRECT

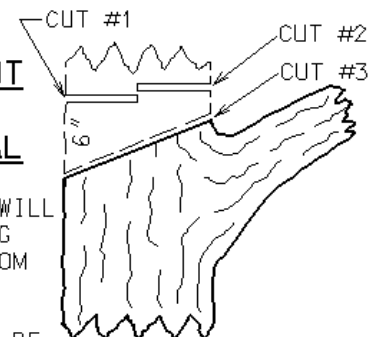
(STUB IS LIKELY
TO DECAY & HARM
TRUNK OF TREE)



PROPER CUT OF TRUNK TO LATERAL

(USING 3 CUTS WILL
AVOID STRIPPING
WOOD & BARK FROM
TRUNK OF TREE)

(CUT #3 SHOULD BE
@ APPROX. 30° ANGLE)



INCORRECT

(WATER IS LIKELY
TO COLLECT &
PRODUCE DECAY)

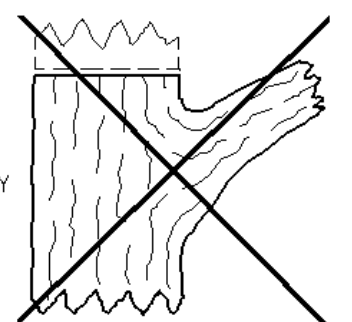


Figure 4-16950-D (Natural/Lateral Pruning Method)
END OF SECTION

[HOME](#)