



Carolina Power & Light Company

August 13, 1973

Mr. E. A. Barco, P.E.
Director, Utilities Division
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

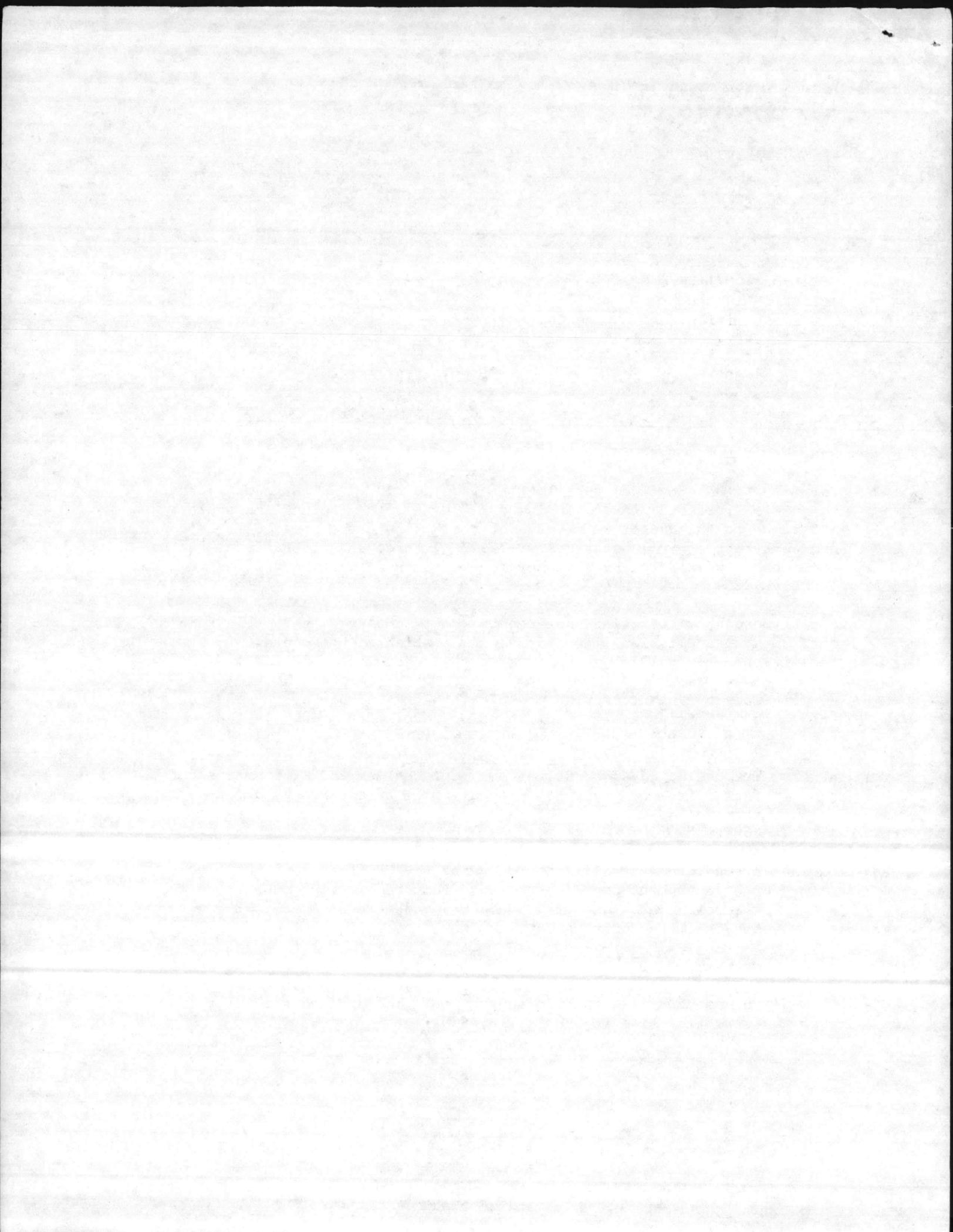
RE: 112:RDC:es
11310
3 May 1973

Dear Mr. Barco:

Our Company has reviewed your letter of May 3, 1973, which requests that we submit a proposal for extending our 230 KV transmission line approximately 4.3 miles to the Hadnot Point area of the Marine Corps Base, Camp Lejeune, and construct a new substation for 12.47 KV three phase service at the new location. We understand that service at the new location will be required by July 1976.

After thoroughly reviewing your request, our Company is agreeable to extend our 230 KV transmission line to the new location and relocate our substation facilities by July 1976, at no cost to the government, provided:

1. The government provide and clear the rights-of-way for the new 230 KV transmission facilities on government property at no cost to CP&L.
2. The estimated construction cost for the new 230 KV transmission facilities on government property will be covered by a ten-year termination clause to be made a part of the existing service contract.
3. The government will either move or pay CP&L the cost to relocate the government-owned wave traps from the existing substation to the new substation site. Should you desire CP&L to do the work, the estimated cost to move the wave traps is \$8600.
4. Government will provide an easement for a substation site in the general vicinity of the existing Camp Lejeune substation for a future CP&L distribution substation. The desired size of the substation site is 350 feet by 350 feet.



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If the government is agreeable to these conditions, we propose to convert the 115 KV transmission line between Jacksonville and Havelock to 230 KV between the spring of 1975 and the spring of 1976. This conversion will have to be done in sections in order to maintain service to the various substations along the line. Since the Camp Lejeune 230 KV tap will be on new right-of-way and can be worked without consideration of service interruption time, we will construct this line at intermittent intervals between September 1, 1975, and July 1, 1976. The right-of-way clearing must be completed before September 1, 1975.

The following comments on the 230 KV transmission tap to Camp Lejeune are submitted prior to the availability of area photographs and/or survey for specific design or estimate.

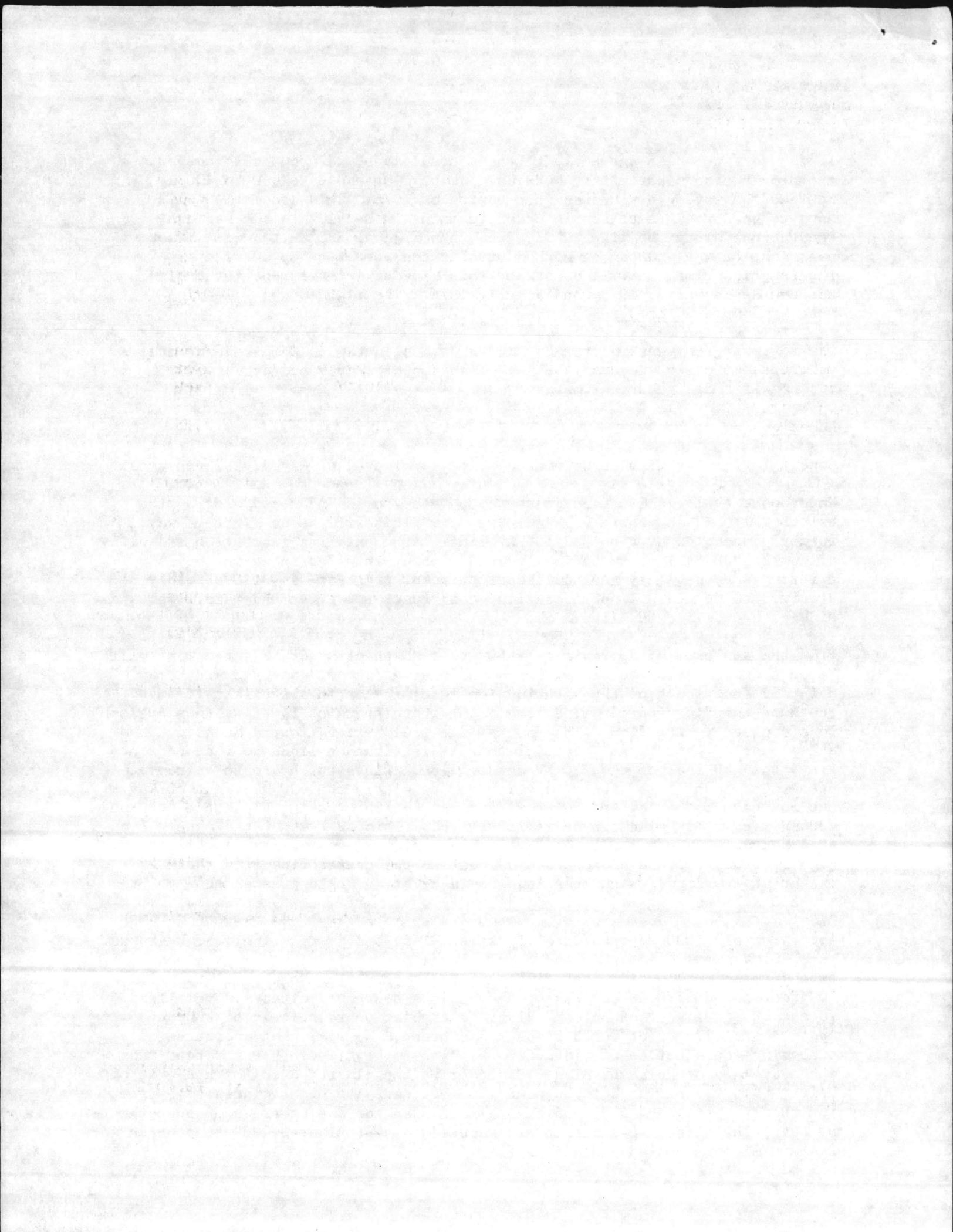
Location:

Generally the location as recommended in your letter of May 3, 1973 is used.

We propose that the 230 KV Lejeune tap be constructed near and west of the existing 115 KV tap north of N. C. Hwy. 24. This will be on right-of-way formerly occupied by a second 115 KV line to the existing substation and will allow the 230 KV line to be constructed without interfering with the existing service line. An additional strip of right-of-way will probably be required to maintain line separation, construction room at the main line, and side clearance for the line.

From the angle point approximately 500 feet north of N. C. #24, the line will be on a new location across N. C. 24 and west of the old power house to a point 65 feet south of the distribution line; thence in a straight line and south of the distribution line to a point where the distribution lines angles to a southerly direction. The 230 KV line would extend toward Brewster Blvd. at a location west of and parallel to the distribution lines so that no lines are within 50 feet of the 230 KV center line. Lines which are to be removed upon the relocation of the substation may be within the 230 KV right-of-way but may have to be lowered to provide construction or swing clearance for the 230 KV line. No buildings or wells will be within 50 feet of the center line of structures. No buried telephone cables, pipe lines, or buried utility rights-of-way will be closer than 35 feet to the center line of structures except at crossings which crossing should be at an angle greater than 45° to the 230 KV line.

Approximately 1000 feet north of Brewster Blvd. and in relatively high ground, the 230 KV line would angle and cross the existing distribution line and extend to an angle point approximately 400 feet west of Holcomb Blvd. and 400 feet north of Brewster Blvd.; thence in a southerly direction parallel to and 400 feet west of Holcomb Blvd. to a point on relatively high ground approximately 700 feet north of Bearhead Creek. We feel that adequate screening would not be provided for the line to be closer than 400 feet from the near lane of Holcombe Blvd. Considering the cleared area for and west of Holcomb Blvd., estimated to be near 100 feet, and the cleared area of 50 feet for the line right-of-way, and the thinned area for danger trees of approximately 50 feet, the effective screening is reduced to approximately 200 feet which we feel is minimum but adequate.



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From the point north of Bearhead Creek, the line would extend straight across Parachute Tower Road between the Outdoor Theater and the Parachute Tower Bldg. to a dead-end structure located 200 to 300 feet from the high side of the substation. The fenced area of the substation approximately 200' x 120' for one bank, would best be oriented with the 200 feet side perpendicular to Holcomb Blvd. The exact location must be established prior to surveying the transmission line to make adjustment in the angle of crossing Parachute Tower Road.

The estimated three-phase short-circuit capacity on the 12,470 volt transformer terminals at the Company's Camp Lejeune 230 KV Substation, based on system facilities to be installed and including a 30/40/50 MVA transformer bank supplying the load, is 293,750 KVA or 13,600 amperes symmetrical. The estimated phase-to-ground short-circuit capacity is 277,550 KVA or 12,850 amperes symmetrical.

A field inspection with Public Works personnel must be made prior to surveying. (See attached topo map and detailed map at N.C. 24)

Right-of-Way Clearing:

Attached is a copy of Company's right-of-way clearing specifications. With the Camp Lejeune personnel clearing the right-of-way on the government property, the specification in its entirety is not applicable. Certain aspects of the clearing procedures which affect the construction and operation of the line must be followed, some of which are, as follows:

An unobstructed area for construction at least 50 feet wide, 25 feet on each side of the survey line must be provided except of areas where screening would be desirable. Access through or around screening is necessary.

At angle points brush piles shall not obstruct anchor locations.

Brush piles along the right-of-way shall be kept to a minimum height to eliminate heat damage to conductors in the event of fire.

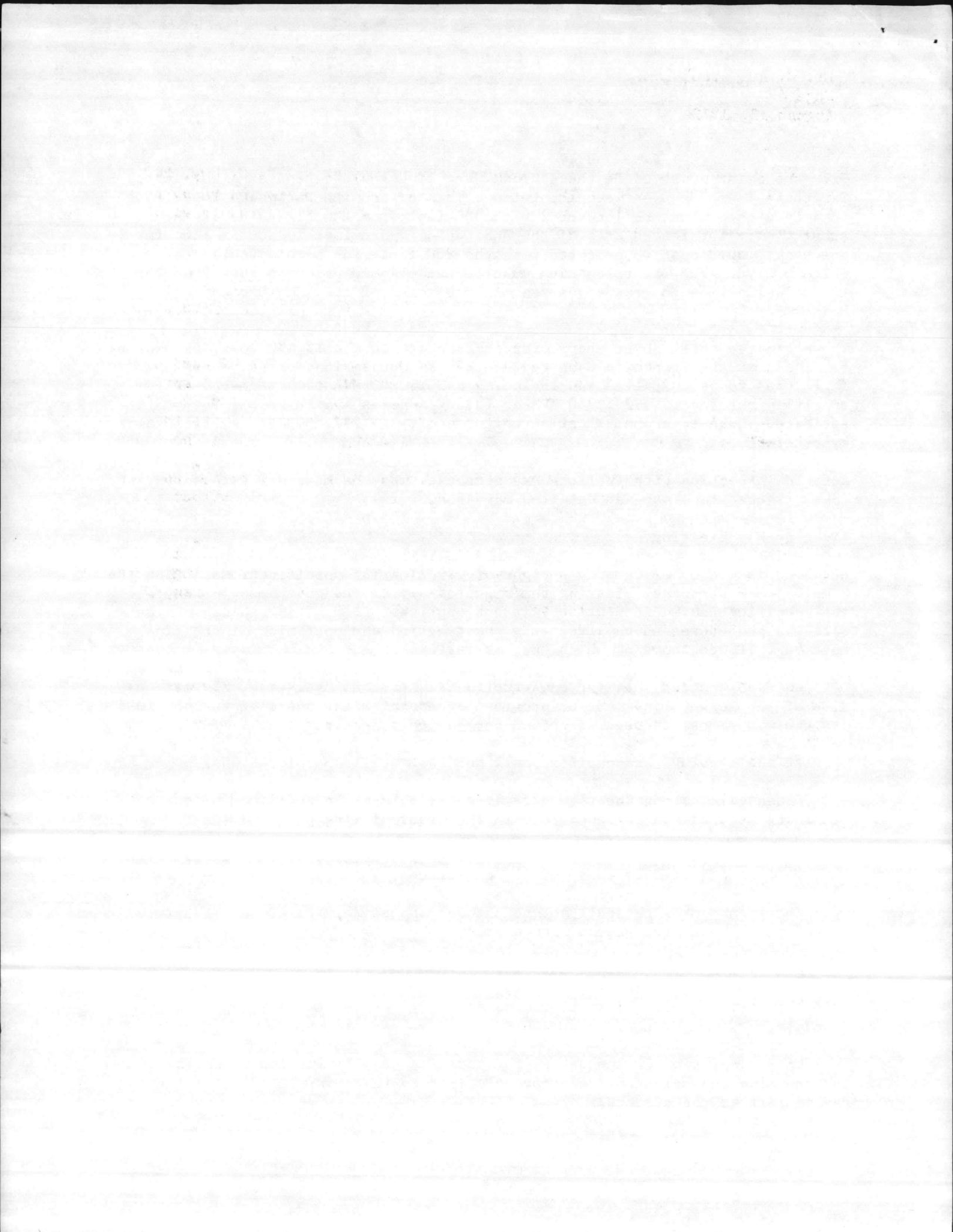
The survey stakes and tack points along the survey must not be destroyed. They will be required as construction references.

The ground profile shall not be changed appreciably to affect structure elevation or conductor ground clearance.

All danger trees must be cut.

The clearing must be completed so as not to hinder the construction schedule.

Upon completion of the design for the line we will furnish a representative to determine the height of selective clearing so that maximum height screening can be left at the streets.



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Because of the Company's interest in appearance at the N. C. Hwy. 24 crossing, we are requesting that you leave the maximum screening on both sides of the highway even beyond the Railroad. (See attached sketches of selective clearing at Hwy. crossing)

Structures:

Attached are Drawings of the four-type structures which we anticipate will be required.

T3-230H-1; H-frame structure used as tangent structure and can be used on angles of 1° to 2° depending on the weight of conductor in adjacent spans. Majority of structures are 70-foot poles extending approximately 61 feet above the ground. At distribution line crossings and at long spans the structures may be as high as 85-foot poles extending 75 feet above the ground.

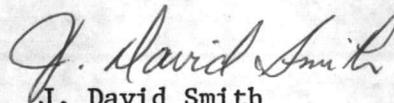
T3-230H-6; 3 pole suspension angle structure used at angles from $1\frac{1}{2}^{\circ}$ to approximately 7° . Structures are generally higher than H-frame structures to increase the conductor weight and minimize insulator swing.

T3-230H-16; 3 pole suspension angle structure used at angles from 7° to 30° . Structures heights about equal to H-frame structures with the limiting factor the bend of the conductor in the suspension clamp and the anchor strength holding the tension resultant of the conductor.

T3-230H-15; 3 pole dead-end structure used at angles from 30° to 70° . Larger diameter and more expensive poles are required, heights are kept low as required for ground clearances. The additional cost of poles, increased number of guys and anchors, increased number of insulators makes this structure cost more than four times the cost of the T3-230H-16 structure. For angles 70° to 90° the pole spacing is increased to 27 feet to maintain 18-foot conductor spacing.

We look forward to hearing from you concerning this proposal. Should you have any questions concerning any of this information, please call.

Yours very truly,



J. David Smith

Industrial Services Specialist

JDS:ph

Attachments

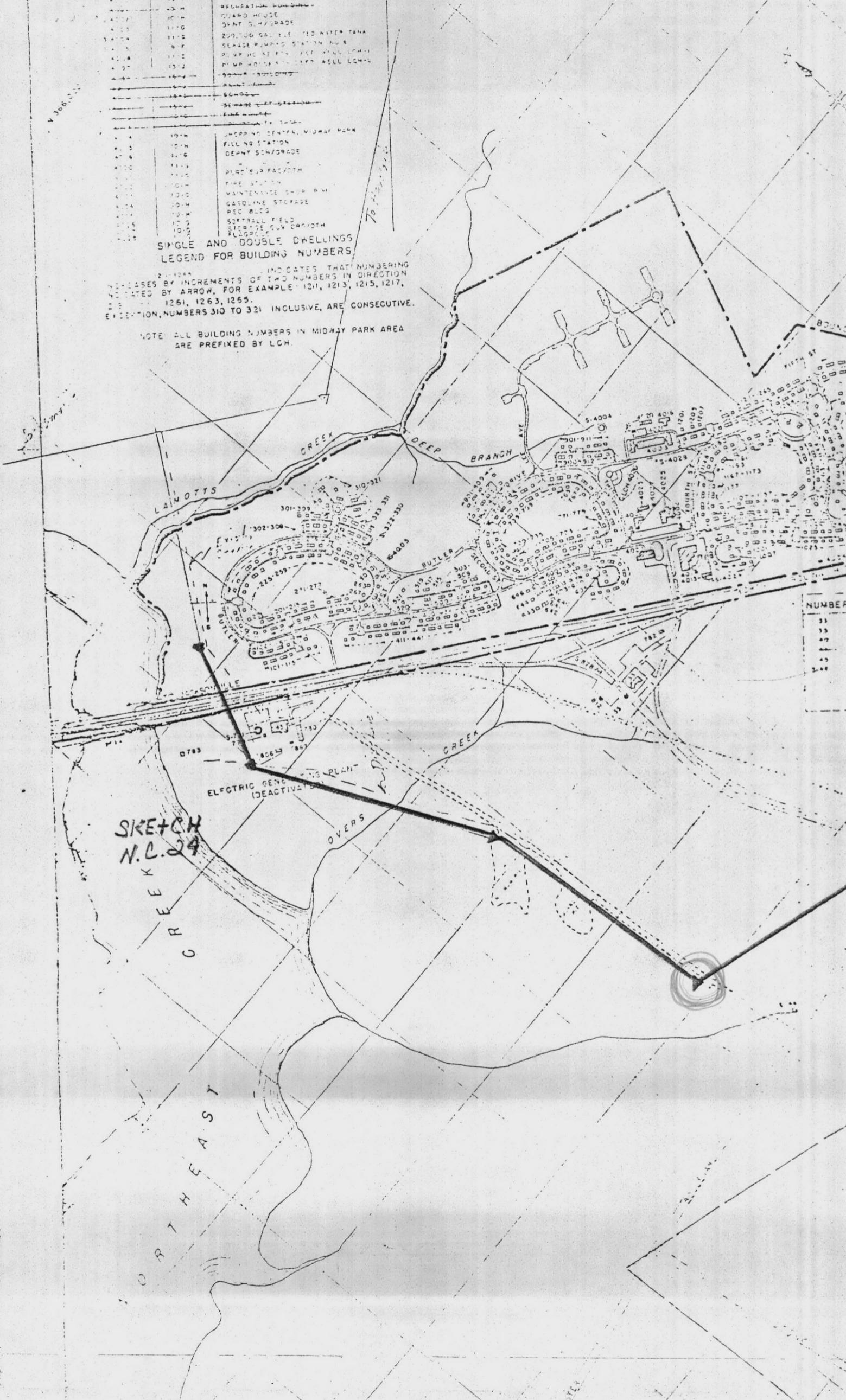
NUMBER LOCATION

1211	1211	ADMIN BLDG
1212	1212	RECREATION BUILDING
1213	1213	GUARD HOUSE
1214	1214	DEPT S.W. GRADE
1215	1215	200,000 GAL. F.E. TIED WATER TANK
1216	1216	SEWAGE PUMPING STATION IN U.S.
1217	1217	PUMP HOUSE FOR WEST WALK LCH-5
1218	1218	PUMP HOUSE FOR WEST WALK LCH-5
1219	1219	SEWER BUILDING
1220	1220	SEWER BUILDING
1221	1221	SCHOOL
1222	1222	SEWER BUILDING
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SINGLE AND DOUBLE DWELLINGS
LEGEND FOR BUILDING NUMBERS

INDICATES THAT NUMBERING
INCREASES BY INCREMENTS OF TWO NUMBERS IN DIRECTION
INDICATED BY ARROW, FOR EXAMPLE 1211, 1213, 1215, 1217,
1261, 1263, 1265.
EXCEPTION, NUMBERS 310 TO 321 INCLUSIVE, ARE CONSECUTIVE.

NOTE ALL BUILDING NUMBERS IN MIDWAY PARK AREA
ARE PREFIXED BY LCH.



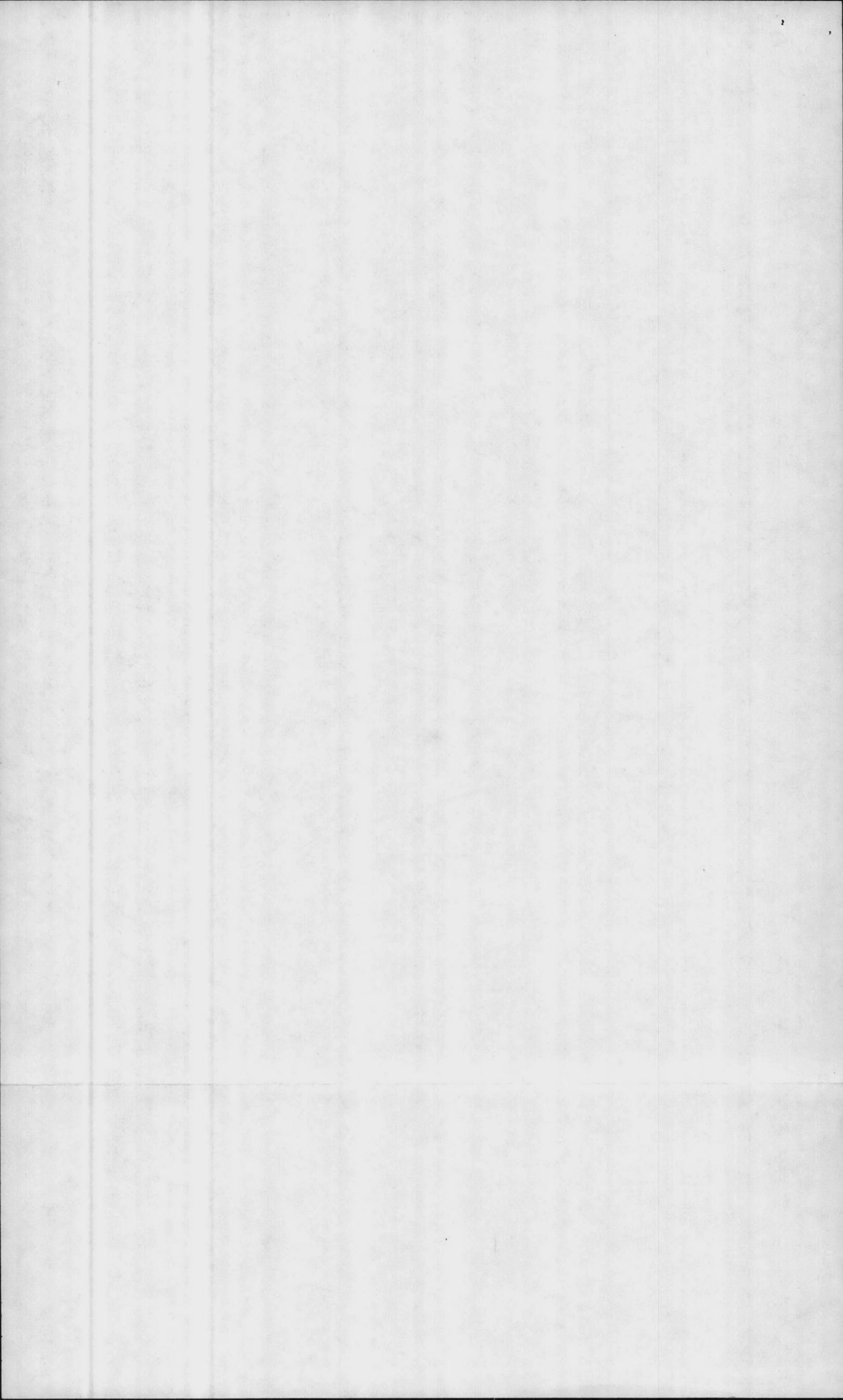
NUMBER
31
33
40
45
48

SKETCH
N.C. 24

ELECTRIC GENERATING PLANT
IDEACTIVATED

OVERS

NORTH EAST



CAROLINA POWER & LIGHT COMPANY

RIGHT OF WAY CLEARING

GENERAL SPECIFICATIONS

DATED JUNE 1, 1970

The following specifications are for the purpose of establishing general specifications for the clearing of rights of way in connection with the construction of transmission lines on the Carolina Power & Light Company system. The specifications are not intended to cover all details, but are to be used as guide lines for the clearing operations.

Scope of Work by Contractor

The contractor will furnish all necessary equipment and perform all labor required for the clearing of right of way on the project in accordance with the specifications.

Material and Services Furnished by Company

The Company will furnish the Contractor with copies of plan and profile, access road maps, and clearing specifications. The parcels of right of way that is to be released for clearing will be furnished in writing as the property is released for clearing. Parcel released will be from property line to property line based on the station number on the survey line and as shown on the right of way strip map. The contractor shall not enter upon any property until he has been notified in writing that the property is released for clearing. The plan and profile and maps that are furnished to the contractor are for orientation purposes only and may not represent conditions that might exist at the time of clearing.

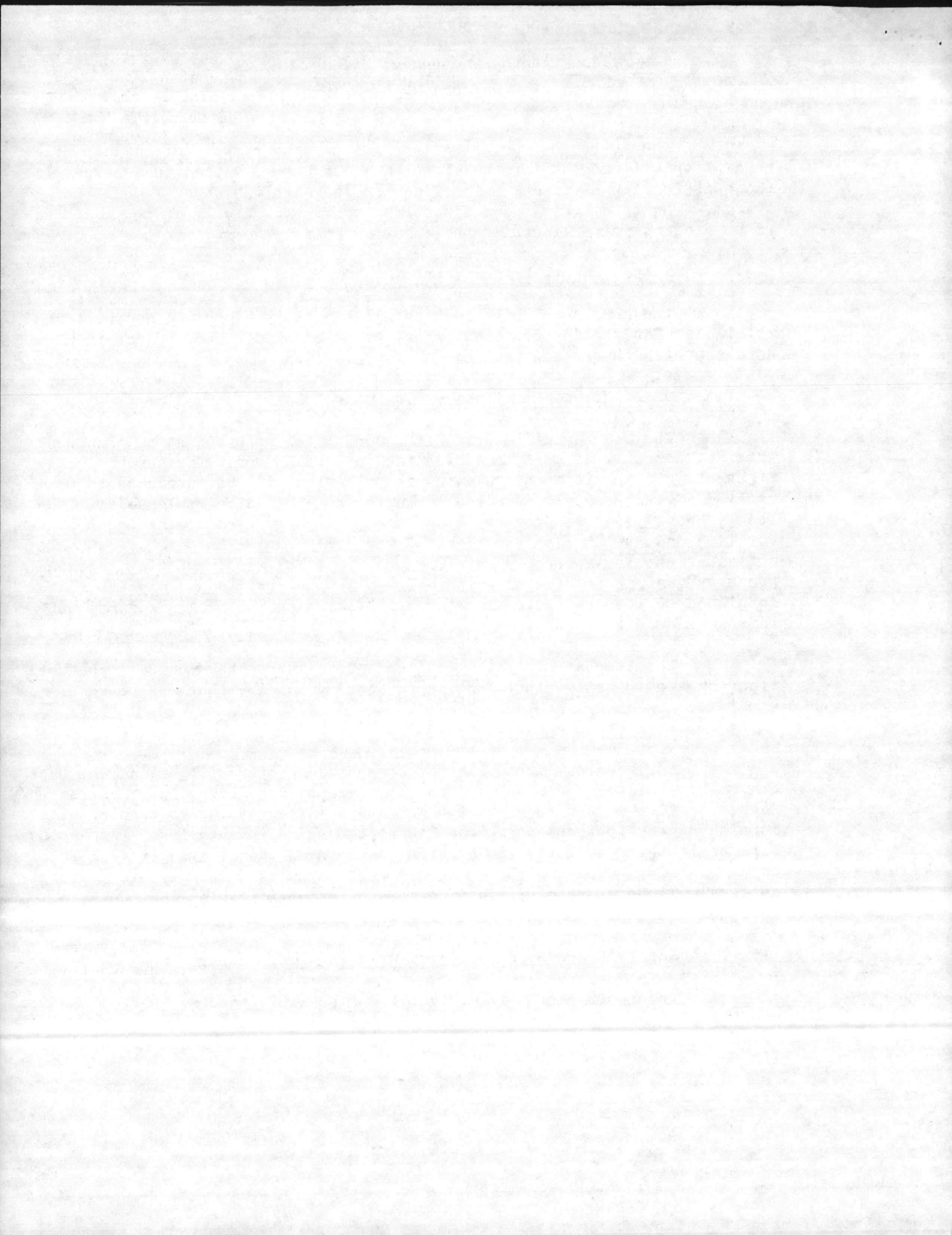
The Company will also designate areas where the various types of clearing are to apply, including any necessary burning that may be required.

Inspection and Inventory

An inventory inspection by Company inspector will be made at the convenience of the Company inspector or engineer together with a contractor's representative. Upon request of the Company inspector the contractor will furnish a crew to accompany him on inspections and inventories. Inspections will be in three to five-mile sections as soon as the clearing is complete on any section. The contractor agrees that any work to comply with specifications will be started within five days after notification that work is required and shall continue until completed.

Safety Procedures Involving Overhead Lines

The contractor will do everything possible to prevent trees and brush from touching overhead lines. He shall inform all of his personnel of the hazards involved in cutting and allowing trees to touch overhead lines.



Not only does such carelessness endanger lives, but will cause interruptions to customers or even entire towns. In the event a line is damaged or interruptions are caused, contractor shall immediately call the local office of the Company reporting time and location of trouble. This call will help prevent patrolling and searching for damage. Failure to notify Company of such damage to lines would delay repairs and increase contractors liability.

Relations with Property Owners

The contractor shall conduct his work at all times with the spirit of friendliness and coöperation toward property owner on whose property he is working and with whoever he might come in contact while performing his work. The Company requires that the contractor maintain the best relations possible at all times with all parties concerned.

The contractor shall keep the premises clean and free of litter and trash at all times and shall provide suitable containers on all equipment as necessary for disposition of litter. Employees shall clean working or rest areas of litter such as paper, bottles, cans, and abandoned parts of equipment.

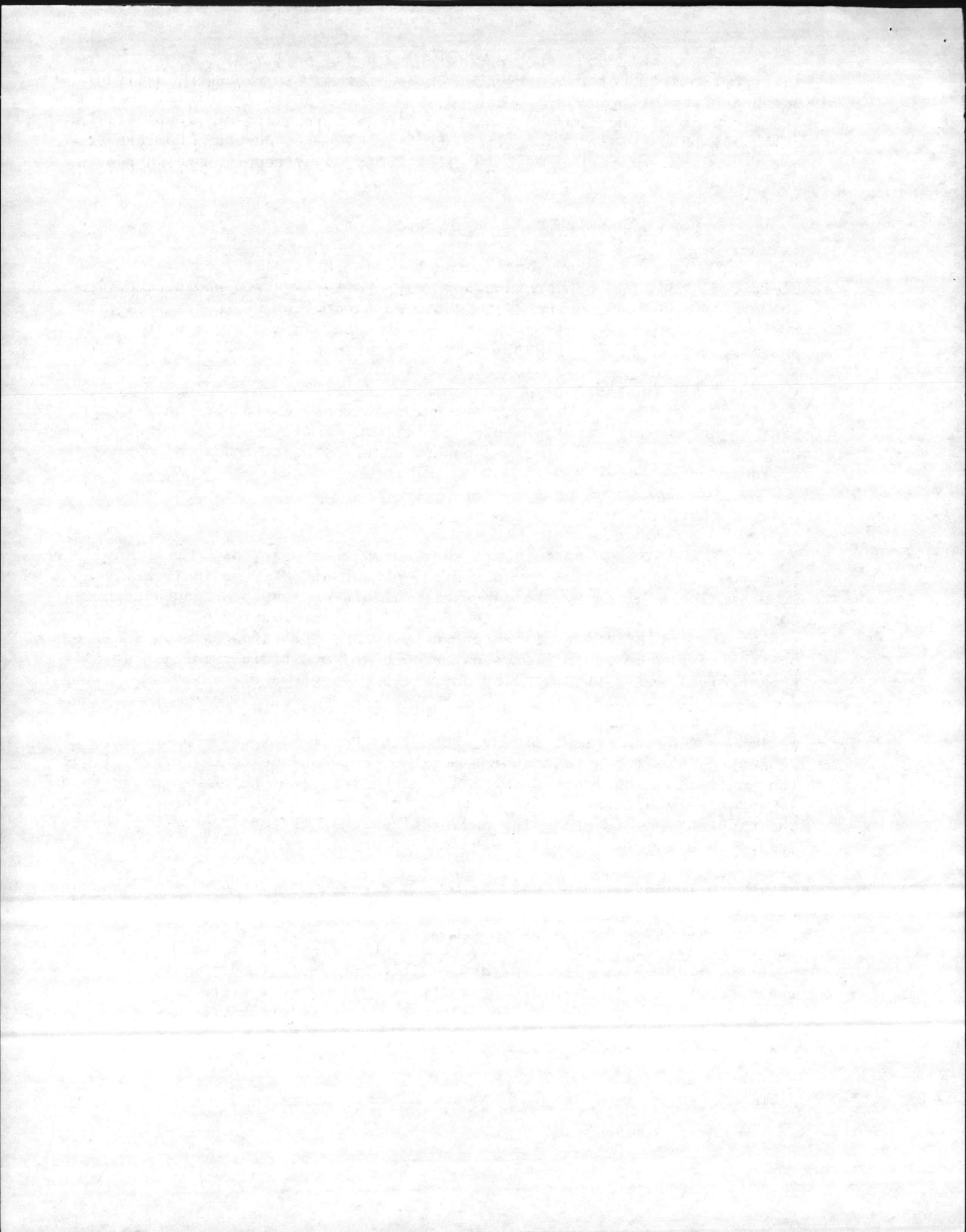
Private Property Damage

Any damage to culverts, driveways, roadways, bridges, or buildings incurred during right-of-way clearing, either directly or indirectly, shall be promptly repaired by the contractor at his expense. All such repair work shall be done to restore the damaged property to its original condition and to the satisfaction of the property owner. Private roadways shall be maintained at the contractor's expense in an accessible condition at all stages of clearing when used by contractor's employees.

The contractor shall be held responsible for any and all damage claims outside the right of way. Carolina Power & Light Company will only be responsible for a reasonable amount of crop damage on the right of way. The contractor shall not do more damage to crops on the right of way than is absolutely necessary. If in the opinion of the Company the damage on the right of way is excessive and needless then the contractor will be held responsible for the excess damage on the right of way.

Ingress and Egress

Ingress to a transmission line right of way should be, when possible, directly from a public road to the right of way, and then up and down the right of way insofar as possible. Private roads may be used only where permission is obtained by contractor from owner or reliable owner representative. Egress should follow the reverse procedure.



Reports

A weekly report shall be completed and mailed to the Assistant Manager, Transmission & Distribution Department, Carolina Power & Light Company, Box 1551, Raleigh, North Carolina 27602, so as to reach our Raleigh office each Monday. The report is to show by station numbers the location and amount of the following that has been done during the previous week:

1. Brush cut
2. Trees cut
3. Clearing complete and ready for inspection

A copy of this report shall also be mailed to the Engineer in charge with Carolina Power & Light Company or to a designated representative.

Preservation of Survey Stakes

The contractor shall take extreme care to preserve the location of the 100-foot station stakes and tack points installed by the Company surveyor. The contractor agrees to be billed for the cost of replacing stakes at these points if they have been moved or destroyed due to carelessness in clearing.

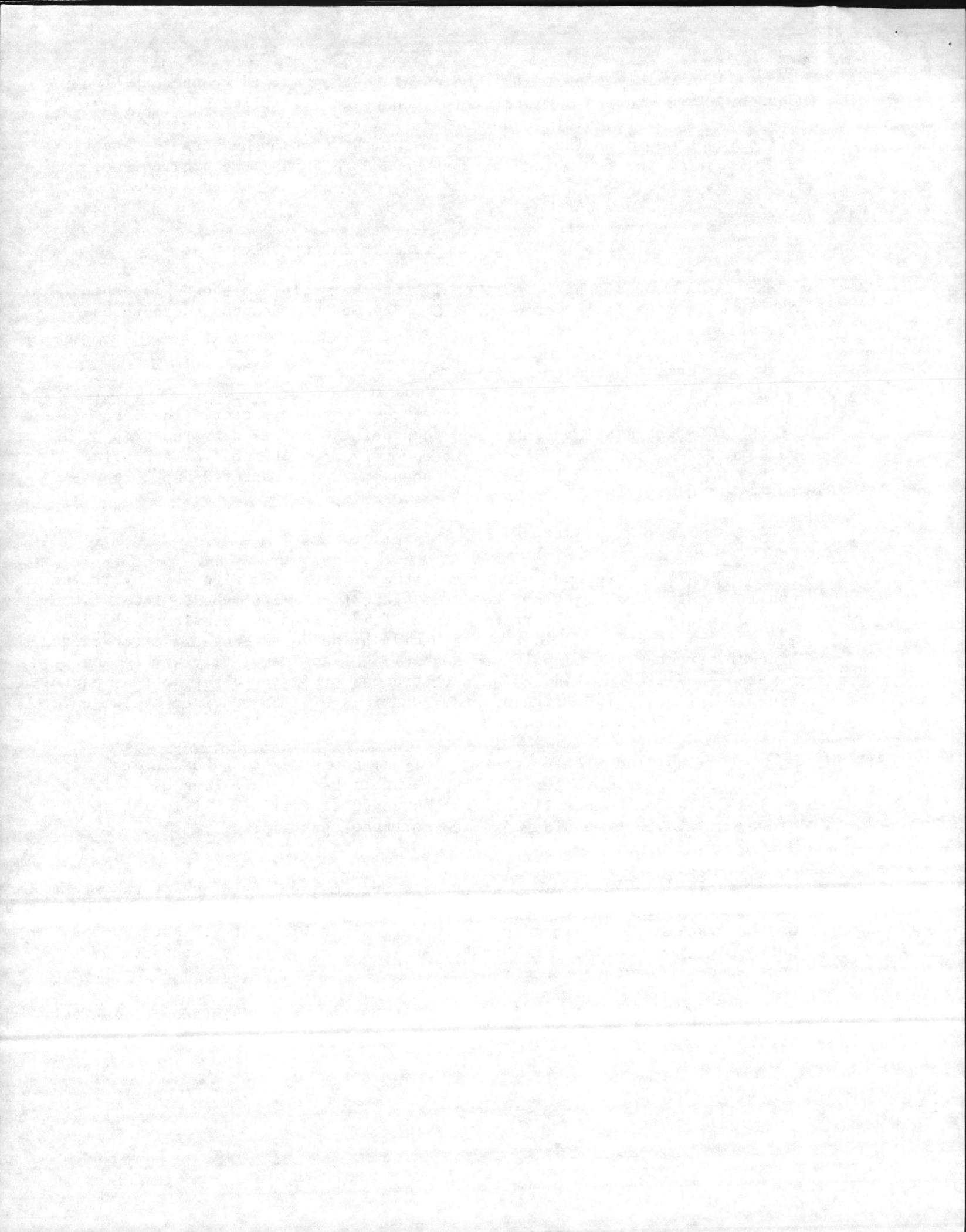
Cutting and Piling

All undergrowth, trees and stumps within the right-of-way limits shall be cut to a height not to exceed four inches from the surface of the ground on all sides. All trees, brush, limbs, logs and debris shall be removed from a specified width on each side of surveyed centerline (or centerline of structures) and piled on each side of and completely within the right-of-way limits, leaving an unobstructed strip for construction, patrolling, and freedom from fire hazard. Drawings will be provided by Company showing the widths and location of the construction strips.

Any tree within the right of way above eight inches in diameter that is cut in less than trunk length, shall be cut into lengths of 12'-3" or 16'-3" and piled parallel to the surveyed centerline, within the right-of-way limits, but outside of said construction strip.

All growth cut is to be entirely removed from the banks and runways of all ditches, drains, creeks and streams, which intersect the right of way for a distance of 10 feet on each side so as to prevent clogging or the likelihood of clogging them at normal or high water. Woods roads, paths, logging trails, fire breaks, shall be left open as necessary for continued use by the property owner.

Fences shall be clear of brush or logs for a distance of 10 feet on each side.



Where other openings are required brush piles tend to divide a pasture or large open wood tracts, contractor shall leave openings 30' wide in both brush piles approximately every 1500' located generally on high ground.

No timber, brush or refuse shall be piled on the right of way of any communication line, power line, gas line, or any other utility right of way. No ornamental tree, shrub, or fruit tree is to be cut without instructions from the Company. Isolated trees shall be completely removed from fields or pastures only upon instruction from the inspector. All foliage from wild cherry trees in pastures shall be immediately removed and disposed of outside pasture fences.

Existing stump piles and logs, crossing right of way, shall be removed for the width of construction strip to provide access along the right of way. Stumps uprooted or splinters of stumps shall be cut to conform to specifications.

The outside of all angles (PIs) will be left clear of all brush and trees. See Drawing T2-3.

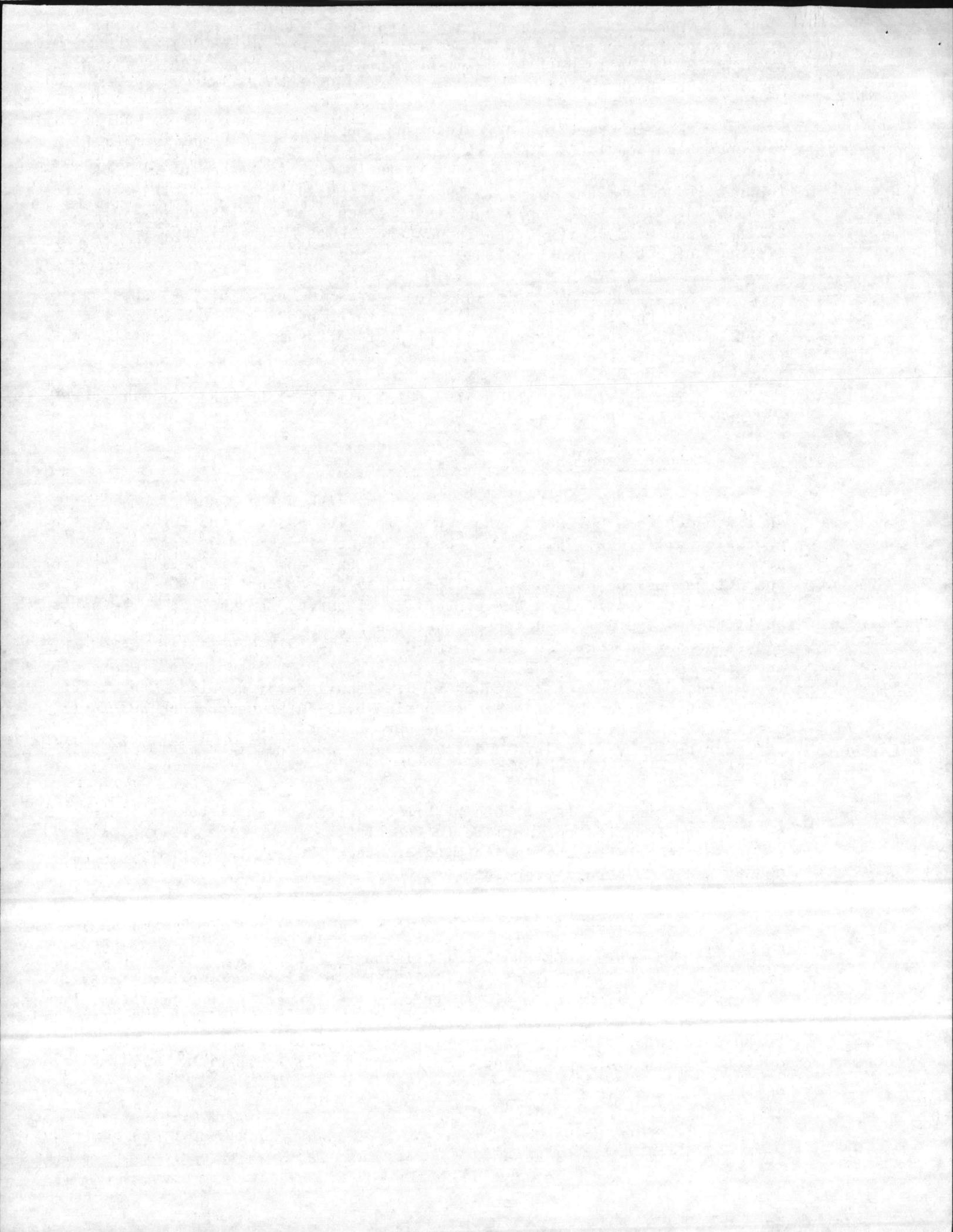
Cutting and Burning

All undergrowth, trees and stumps within the right-of-way limits shall be cut to a height not to exceed four inches from the surface of the ground on all sides. All trees, brush and debris including dislodged stumps, logs, cuttings and all debris from this and previous timber cutting operations must be pushed into piles, so as not to destroy 100-foot station stakes and tack points on the centerline of survey, and burned. The ashes shall be leveled down and spread over the right of way. All debris that cannot be burned shall be buried inside the right-of-way limits but in an area so as not to interfere with the excavation for structures. Where debris is buried, a minimum of 24 inches of dirt shall cover debris. Contractor shall compact area where debris is buried by running dozer back and forth over area. All holes created by the uprooting of stumps or by the tracks of dozer shall be filled in and leveled down and the right of way left in condition for future seeding.

Contractor is to burn at his own risk and shall take all necessary precautions to confine fire to the right of way. The contractor shall secure all necessary burning permits and to abide by all Federal, State, County and City burning regulations, whichever may apply.

Danger Tree

The contractor shall cut all danger trees. A danger tree is any tree outside the right of way whose length plus five feet equals or exceeds the distance from the foot of the tree to the closest point underneath the nearest conductor. The contractor will furnish all foremen with Teleheight to be used in determining danger trees. The location of the outside conductor on each side centerline of structures will be furnished contractor.



All danger trees shall be felled generally parallel to the centerline of the right of way to minimize crossing trunks as much as possible and not cut so as to fall out into the woods and damage growing timber. The trunk is flat on the ground and shall not be left leaning against or suspended in other trees. All danger trees cut within sight of private or public roads, new subdivisions, in pastures or in open woods shall be limbed complete. Open woods is defined as an area where a man with a power saw can walk through undergrowth without cutting a path. Pine brush and pine logs shall be felled or shall be piled so as not to come in contact with growing pine trees in order to prevent pine beetles from transferring from brush and logs to growing timber. When the work is checked for inventory purposes, questionable danger trees shall be checked with "Telcheight" by Company's inspector.

Compensation for cutting of danger trees will be included in the right-of-way acreage unit. Where the woods line crosses the right of way at an angle, compensation will be based on the stationing of the centerline survey. A unit for every 100' along the survey line will be allowed for cutting danger trees at isolated locations where no compensation is allowed for clearing.

Swamp Clearing

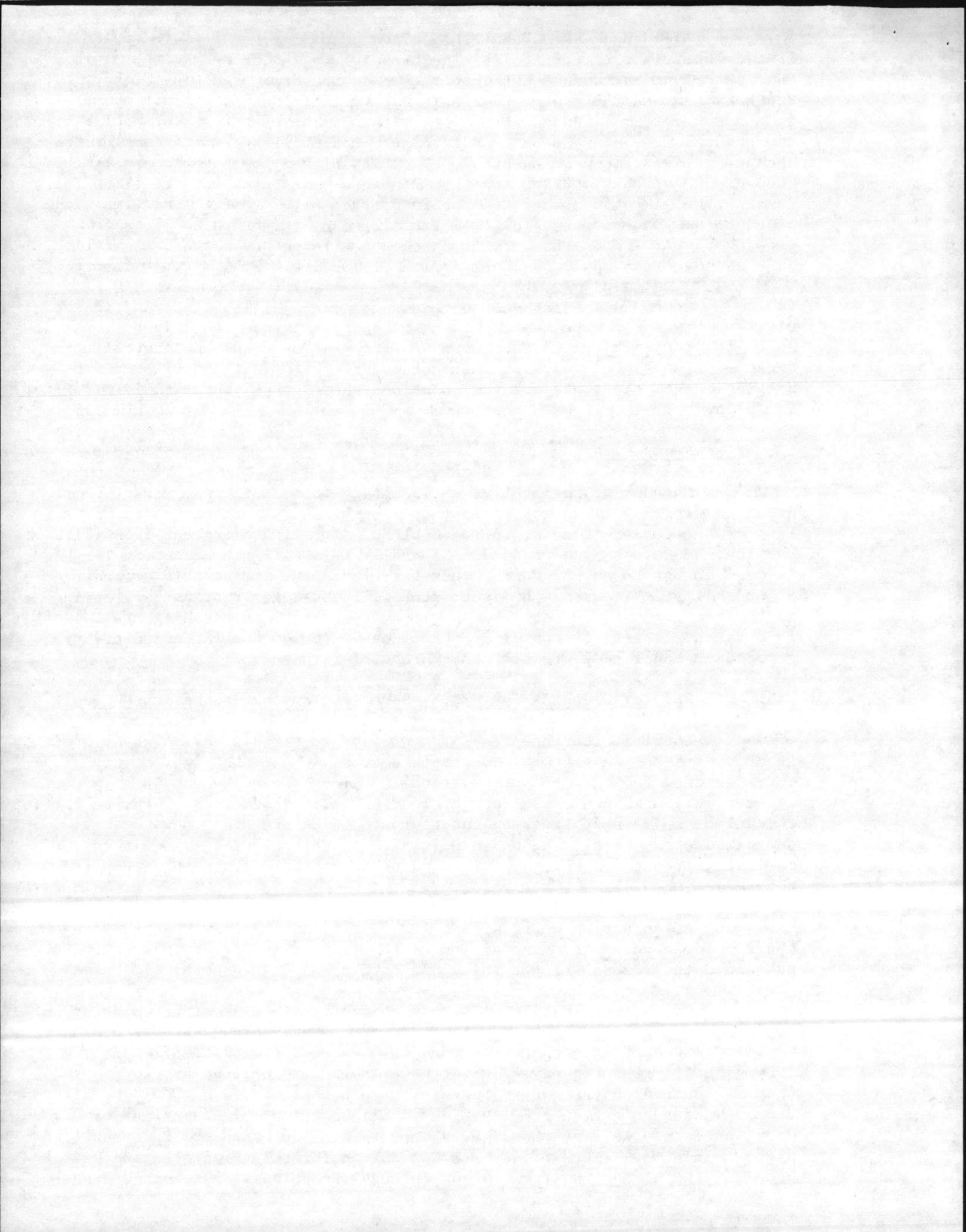
Company representative shall designate certain swamp areas where brush and logs shall be cut in 15-foot lengths and placed across the centerline of the construction strip to enable construction equipment to utilize the logs and brush as a roadway. Generally this will not be done unless muck is deep enough to submerge logs when traveled upon. Where this procedure of cross-laying is used, the contractor will cross-lay continuously as far as the trees and brush permits. No logs, trimmings, or brush are to be left in ditches, drains, or run of creeks of any description. Standard clearing procedures shall apply in all other areas.

Special Clearing for Vista Screening and Landscape Improvement

Special clearing procedures will be required at all highway crossings in order to provide the maximum possible screening of the right of way corridor from the view of person traveling along the highway. These procedures will make use of selective clearing which is defined as the selective removal of only those trees and undergrowth which are dangerous to the energized conductors. The basic objective of selective clearing is to maximize the use of existing trees and undergrowth in order to accomplish the screening.

Any clearing on or within 100 feet of any highway rights of way shall be done under the supervision of the Company inspector, who will authorize the removal of the individual trees and undergrowth.

Selective clearing will require control felling of trees so as not to damage desirable screening. Access roads opened through the screening area shall be cut in such a manner as the terrain permits to afford maximum screening from the highway. This type of screening will be provided beyond open fields and pasture where terrain is such that screening would be effective. No shrubs or low growing trees shall be cut on highway right of way where obviously left by the Highway Department. No brush or trees shall be piled on highway rights of way. Compensation for selective clearing will be based on the acreage unit extending through the selectively cleared area.

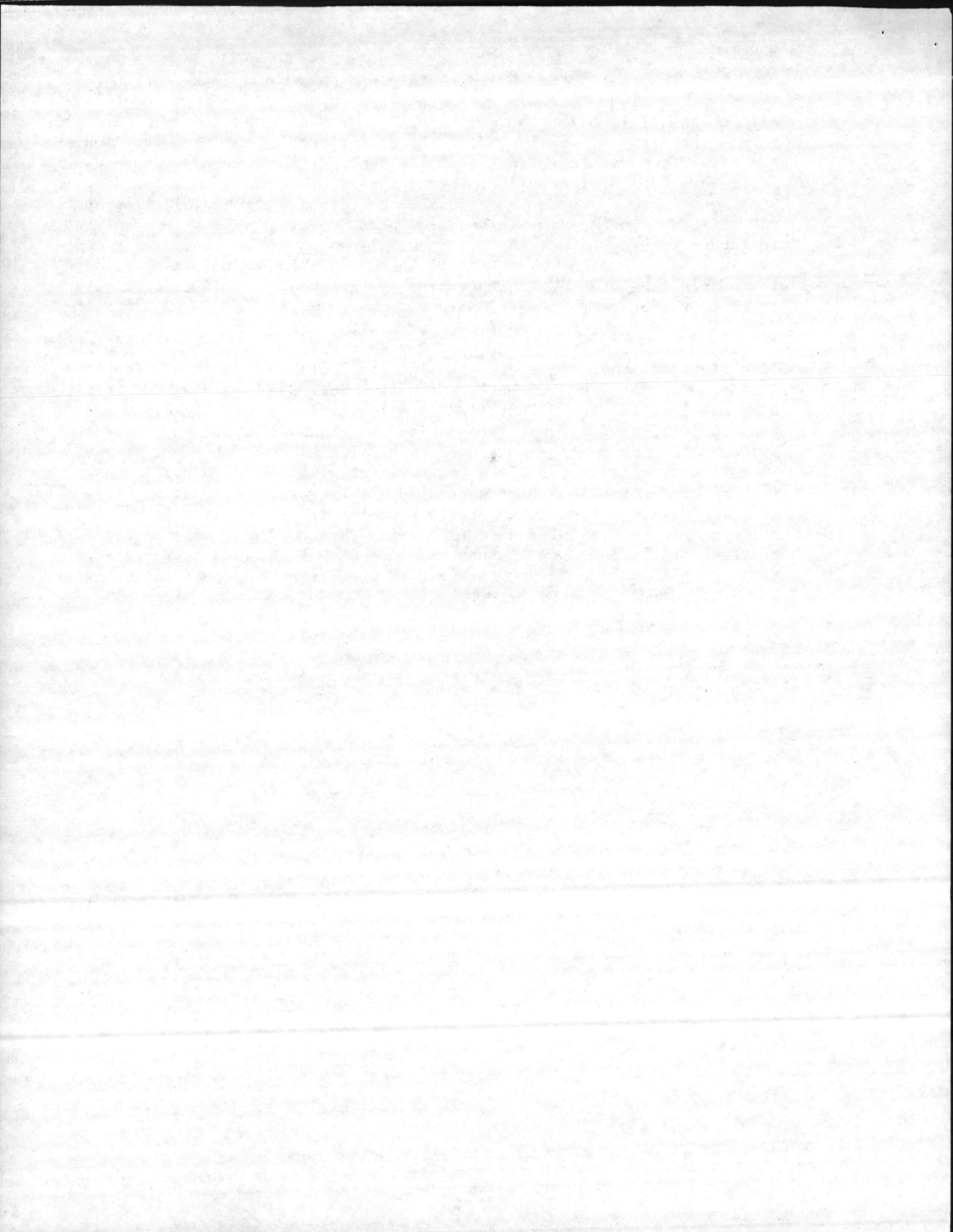


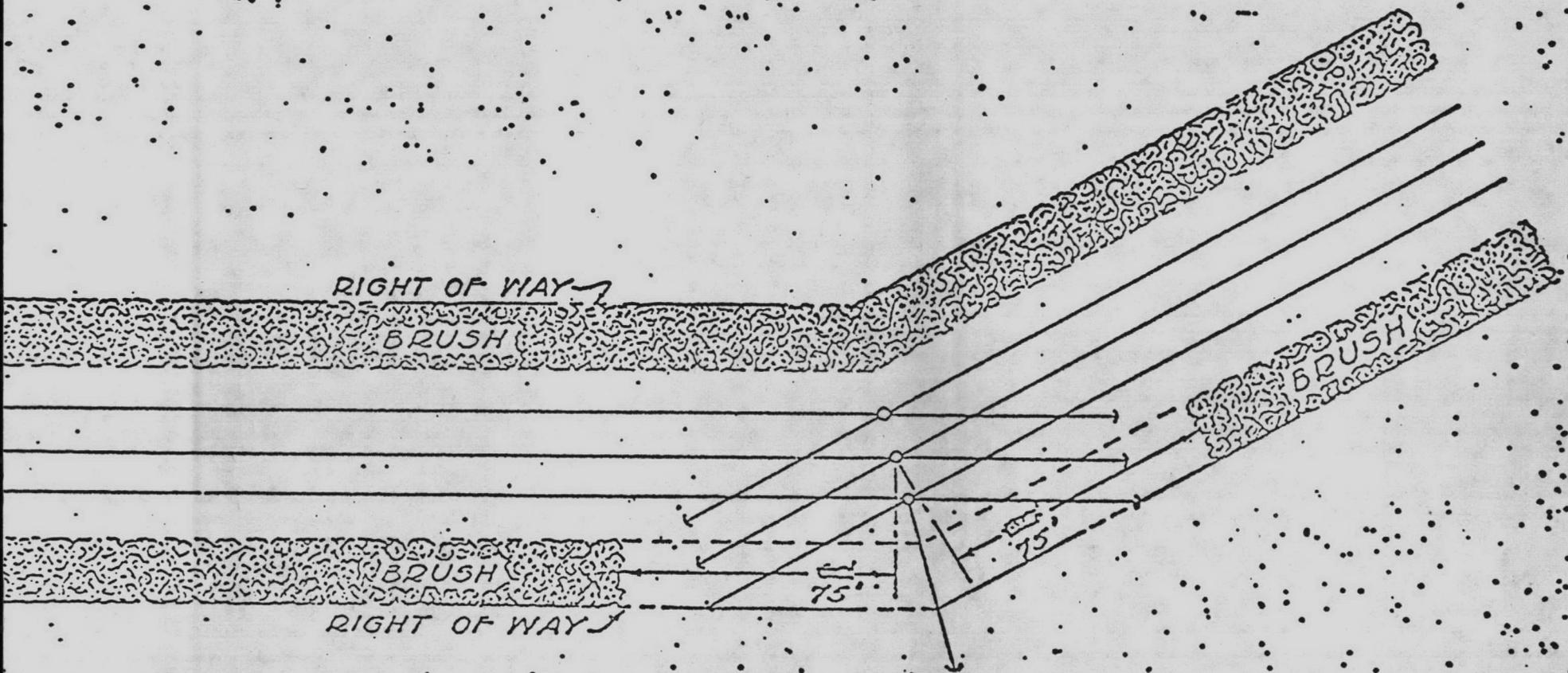
Maintenance of Fences on Right of Way

The contractor shall maintain or replace with like material at the same location, regardless of condition prior to clearing operation, all fences. This maintenance or replacement shall extend completely across the right of way including the danger tree area. When trees which support a fence are cut, fence will be removed from tree and trees cut not to exceed four inches from the surface of the ground on all sides. Company will reimburse contractor for the purchase and installation at the rate of \$1.25 per 3-inch minimum dia. pressure treated or steel post set in fences within the working area. No allowance will be made for posts cut in woods. Contractor agrees to be responsible for maintaining fences in the clearing area during operations to assure the confinement of live-stock of the property owners.

When required by Company during clearing operations on 500 KV line rights of way, contractor shall install steel posts in all fences. Company will furnish the contractor with 8-foot long, galvanized steel posts with metal clips, to be installed in all existing fences. A minimum of 2-steel posts will be installed inside the right of way and approximately 50' on each side of the centerline on all fences crossing right of way. A steel post will be installed approximately 100' apart on all fences inside the right of way that generally parallel the survey line. All posts installed will be level with existing posts either by driving down or driving down to refusal and cutting off. The contractor will be responsible for each steel fence post issued to him and shall be paid for each steel fence post installed in accordance with specifications and as directed by the Engineer or Inspector.

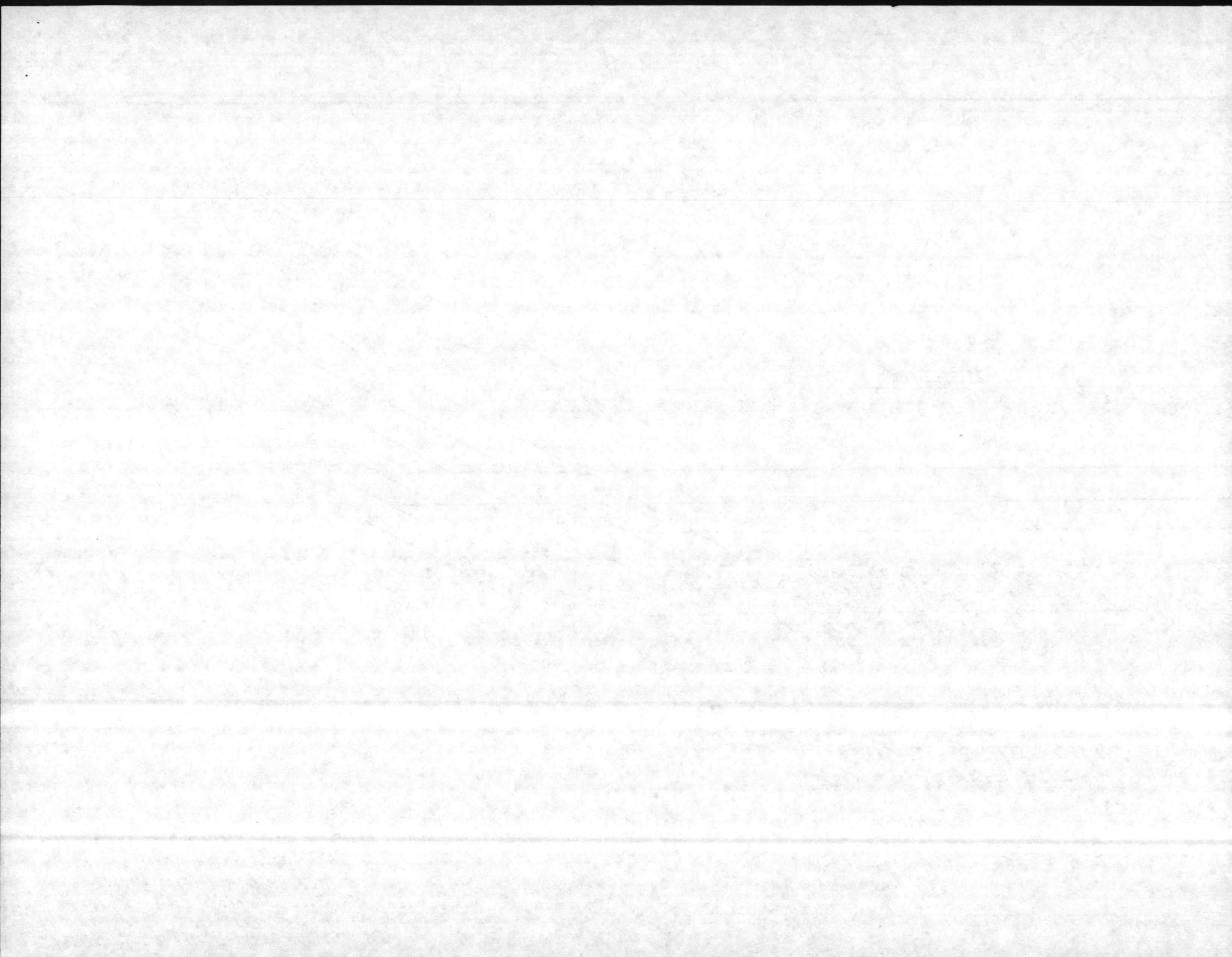
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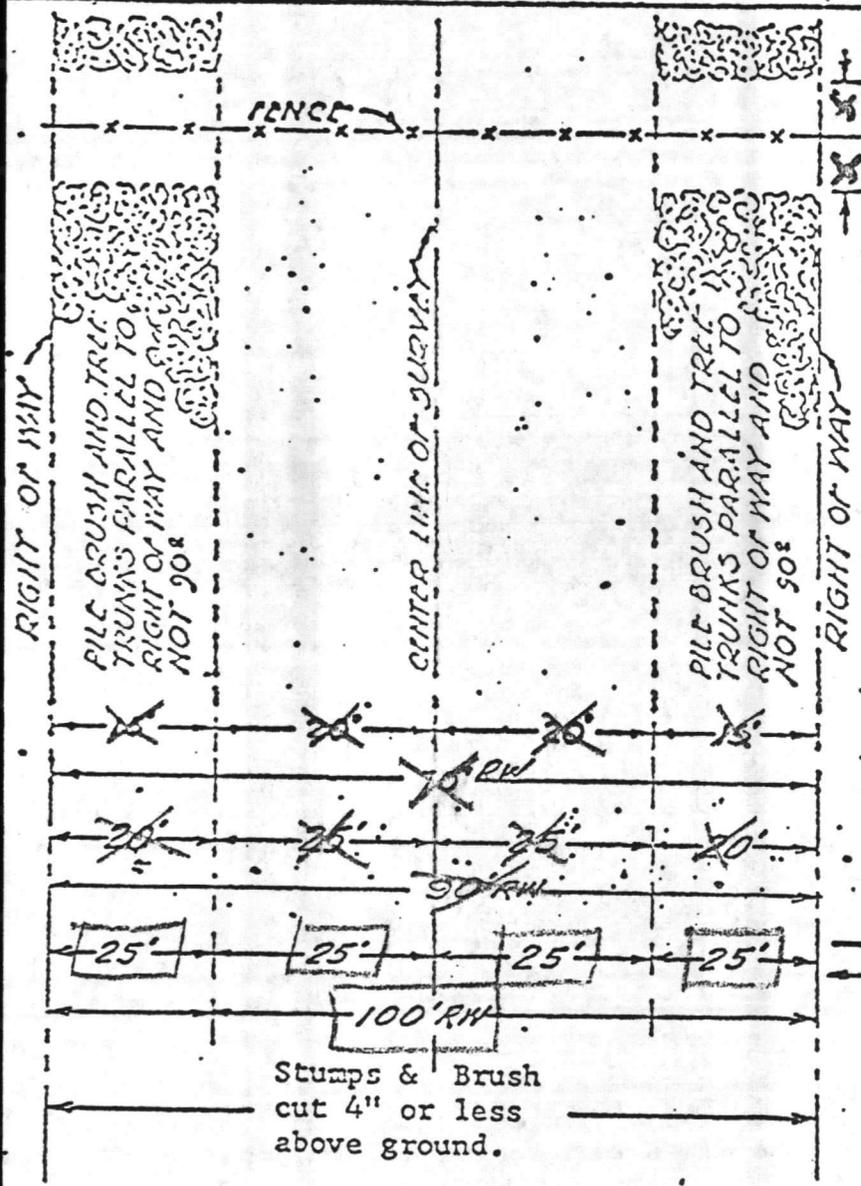




Note
FOR OTHER DETAILS
SEE DWG. T2-1

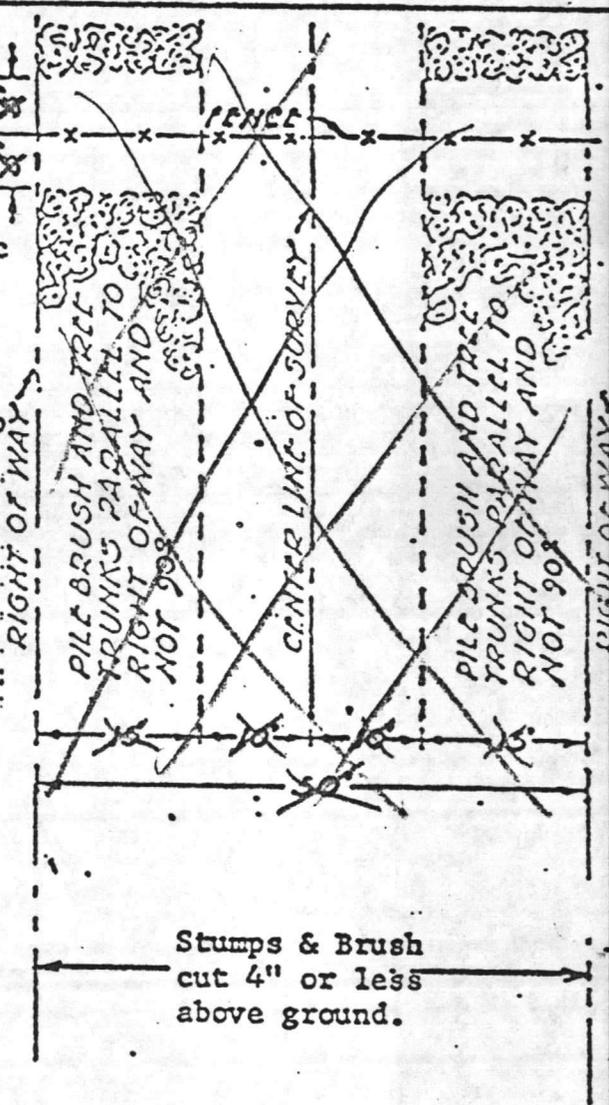
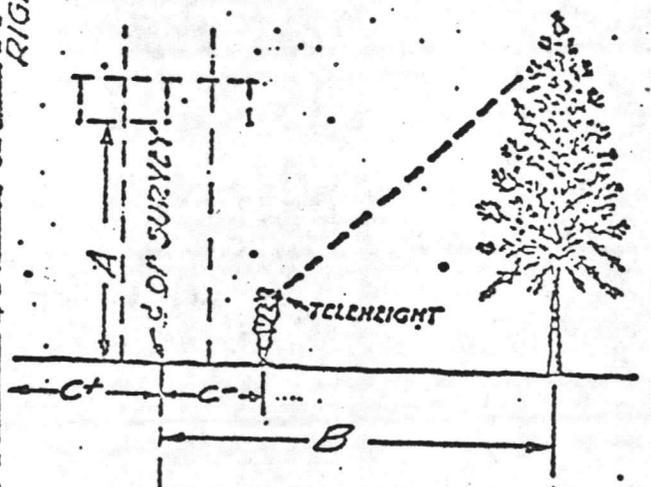
CAROLINA POWER & LIGHT CO.
RALEIGH, N.C.
TRANSMISSION LINES
RIGHT OF WAY CLEARING
SHOWING HOW
BRUSH SHALL BE PILED AT ANGLES





BRUSH SHALL NOT BE PILED CLOSER THAN 10' ON EITHER SIDE OF FENCE.

- A. Height of lowest conductor shown on profile at a specific location.
- B. Distance from survey line to tree.
- C. From chart determine distance to measure from survey line to observe tree with teleheight.



ALL FOLIAGE FROM WILD CHERRY TREES IN PASTURES SHALL BE CAREFULLY REMOVED AND DISPOSED OF OUTSIDE OF PASTURE FENCE.

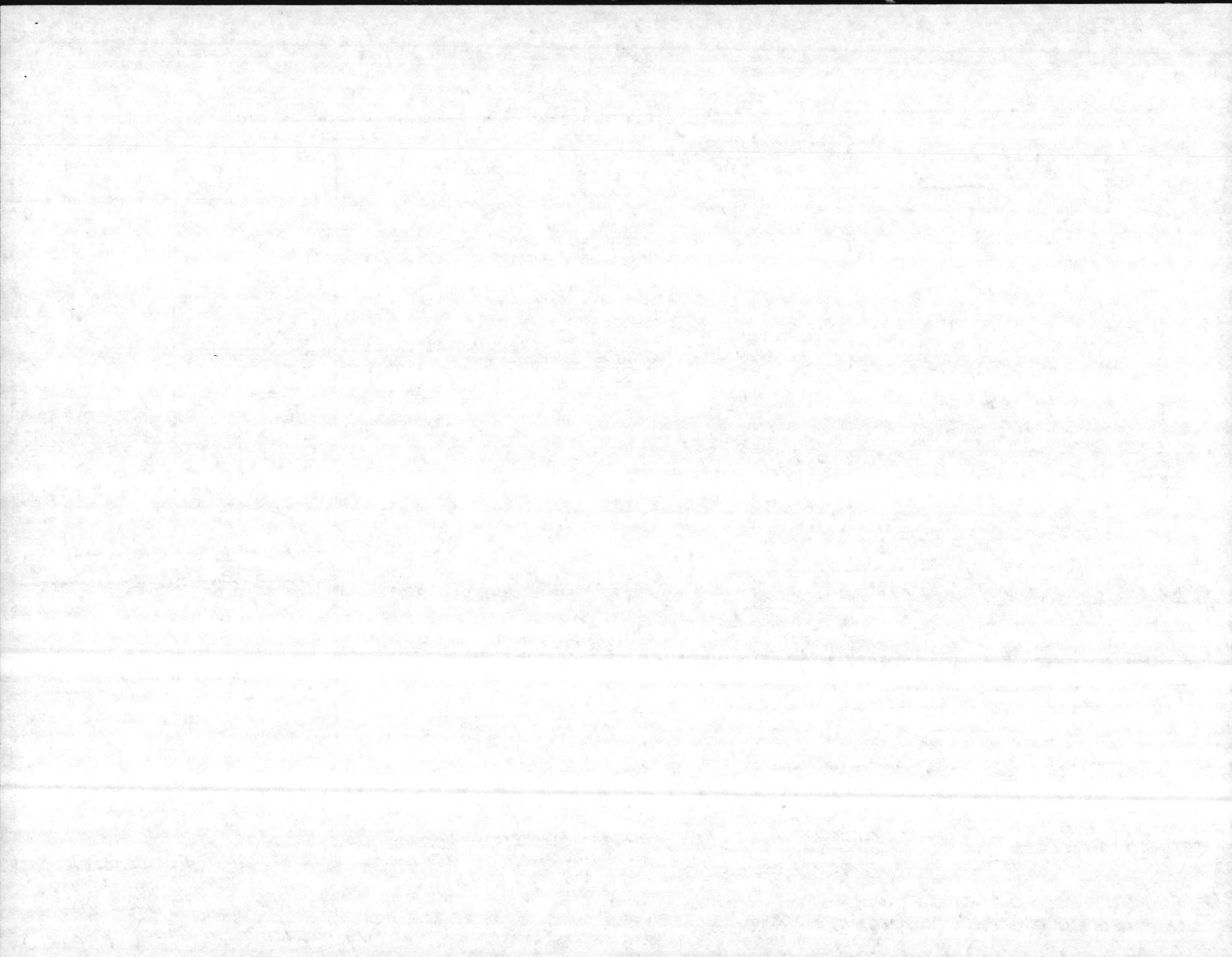
DAMAGED FENCES SHALL BE REPAIRED IMMEDIATELY.

FELLED PINE TREES OR BRUSH SHALL NOT BE LEFT IN CONTACT WITH STANDING PINE TREES.

CAROLINA POWER & LIGHT CO
RALEIGH, N.C.
TRANSMISSION LINES

RIGHT OF WAY CLEARING

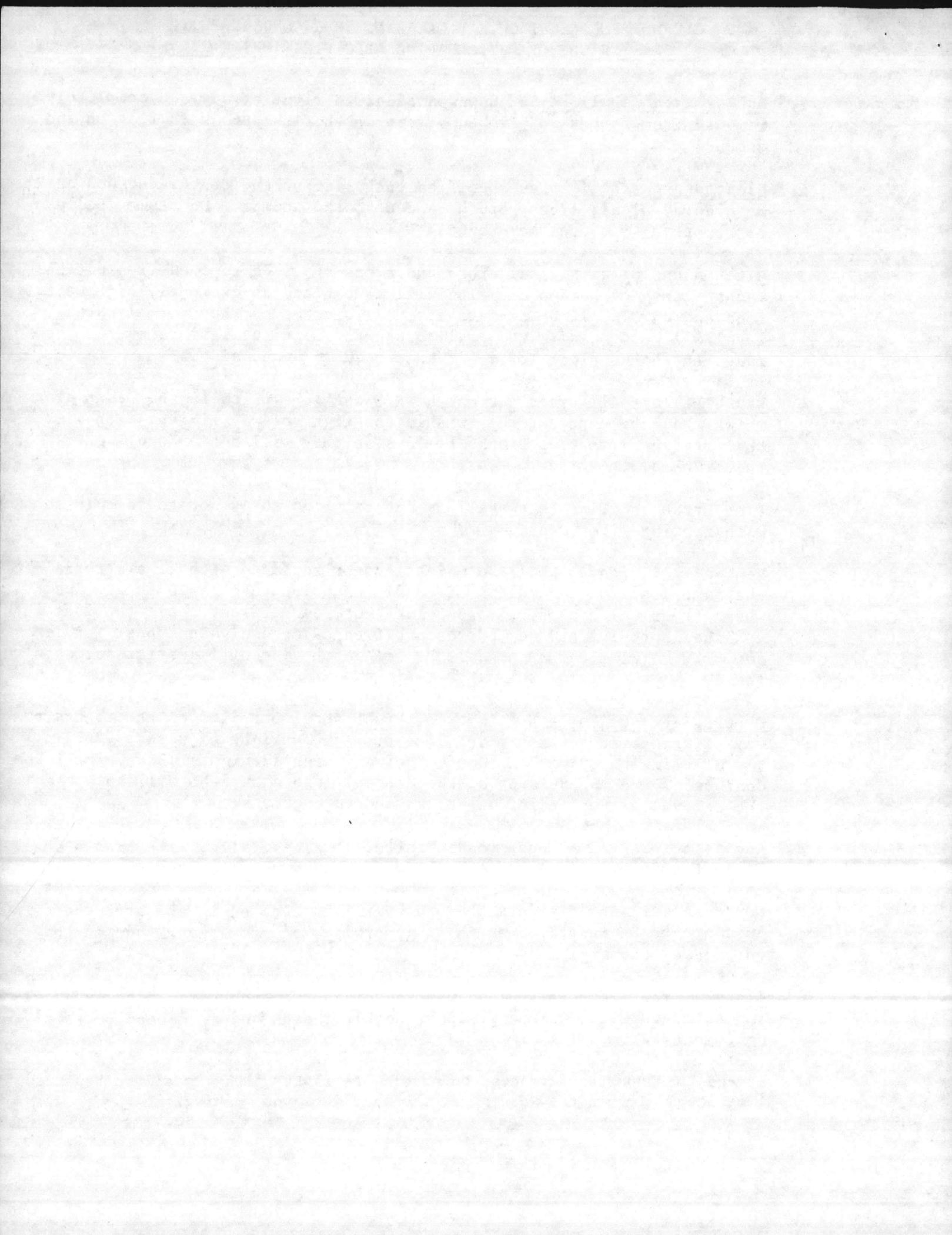
TREES BRUSH AND ECT SHALL NOT BE CUT ON



CLEANUP AND RIGHT OF WAY CLEARING IN ACCORDANCE WITH
RIGHT OF WAY CLEARING SPECIFICATIONS

1. Danger Trees shall be cut down parallel to right of way and completely removed from stumps and limbed or cut so that the trunk is flat on the ground.
2. Cleared Area shall be as specified each side of the centerline and shall be cleared of all trees, brush, and uprooted stumps. No stump shall be higher than 4" above the ground.
3. Ditches and Streams - All brush and trees shall be removed from ditches and streams so that no clogging will take place at extremely high water. Logs and dirt shall be cleaned from all ditches so that normal water level will not be affected. All brush and logs shall be removed so as to leave the banks clear for a distance of 10' on each side.
4. Brush Piles - All trees cut on the R/W shall be piled in the brush area which shall be kept entirely within the right of way limits. Top limbs shall be cut from tree trunks or laps so they will not extend higher than the trunk of the tree.
5. Pine Brush and Pine Logs shall be cut or piled so as not to come in contact with growing pine trees.
6. Fences - All fences shall be maintained or replaced with like material at the same location regardless of condition prior to clearing operation. Where trees which support a fence are cut, even if cut above the fence, you shall provide and set a pressure treated or equivalent post for fence support. A 10' clear area shall be left each side of fence for access along fence.
7. Other Rights of Way - No timber or brush shall be piled on the rights of way of any communication power line or highway right of way. Any clearing on or within 100 feet of any highway rights of way shall be done under the supervision of the Company Inspector, who will authorize the removal of the individual trees and undergrowth.
8. Access Across R/W - Woods roads, paths, logging trails, fire breaks shall be left open as necessary for continued use by the property owner.
9. Guys - At all angle points the brush will be cleared in the area where guys are to be installed which is generally 75' from the PI and on the outside of the angle.
10. Litter - Your men shall clean working or rest areas by removing and hauling to appropriate dump all paper, bottles, cans and abandoned parts of equipment.
11. Damage to slopes or terraces, on or off the right of way, shall be repaired immediately to prevent washing or the likelihood of washing.

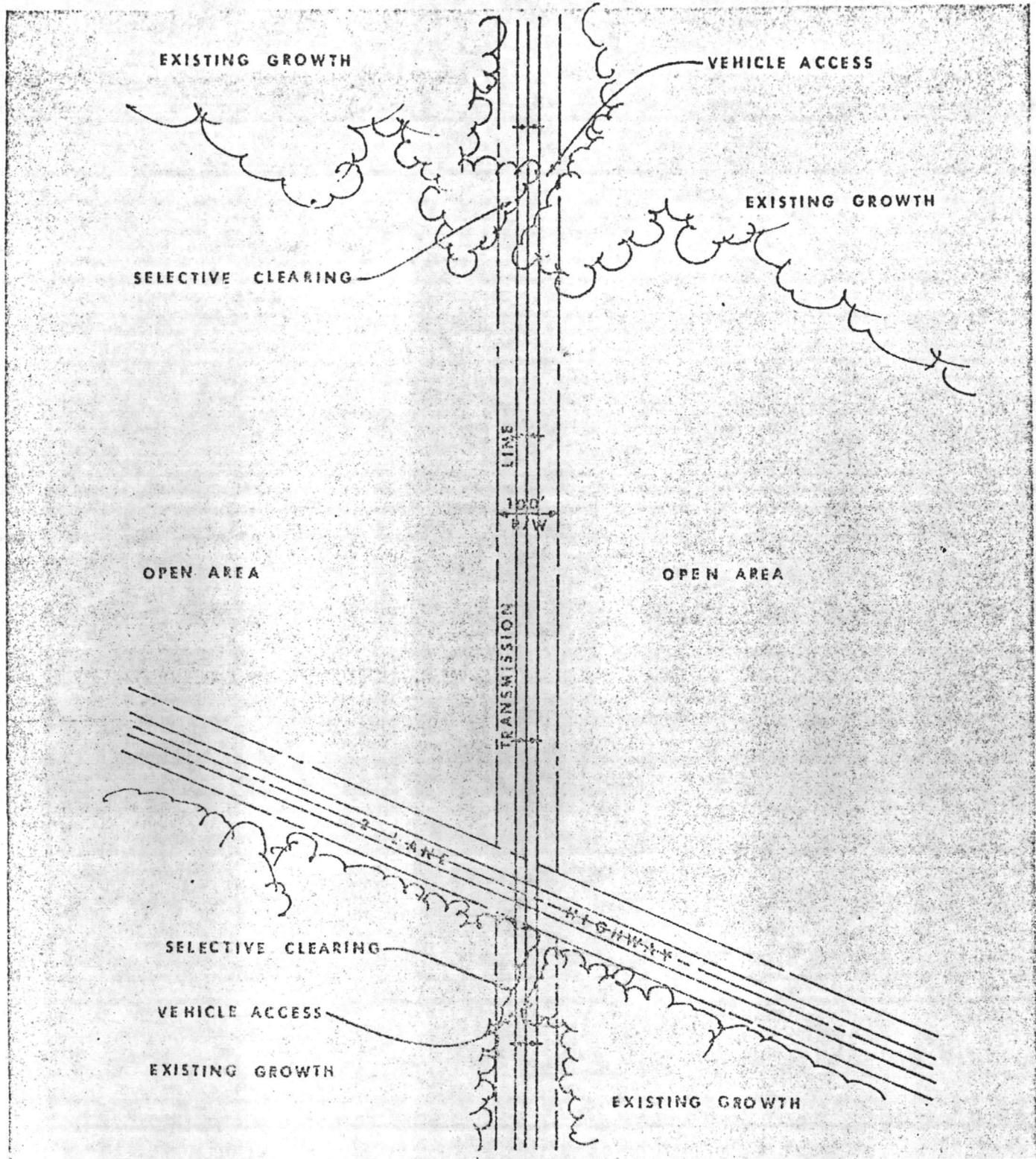
12/12/68



CLEANUP FOR RIGHT OF WAY CLEARING IN ACCORDANCE WITH
RIGHT OF WAY CLEARING SPECIFICATIONS

12. Particular care shall be made to maintain all drains and to see that ruts are leveled and that drainage is provided in small draws so that water will not back up in ruts on the right of way or on properties off the right of way.

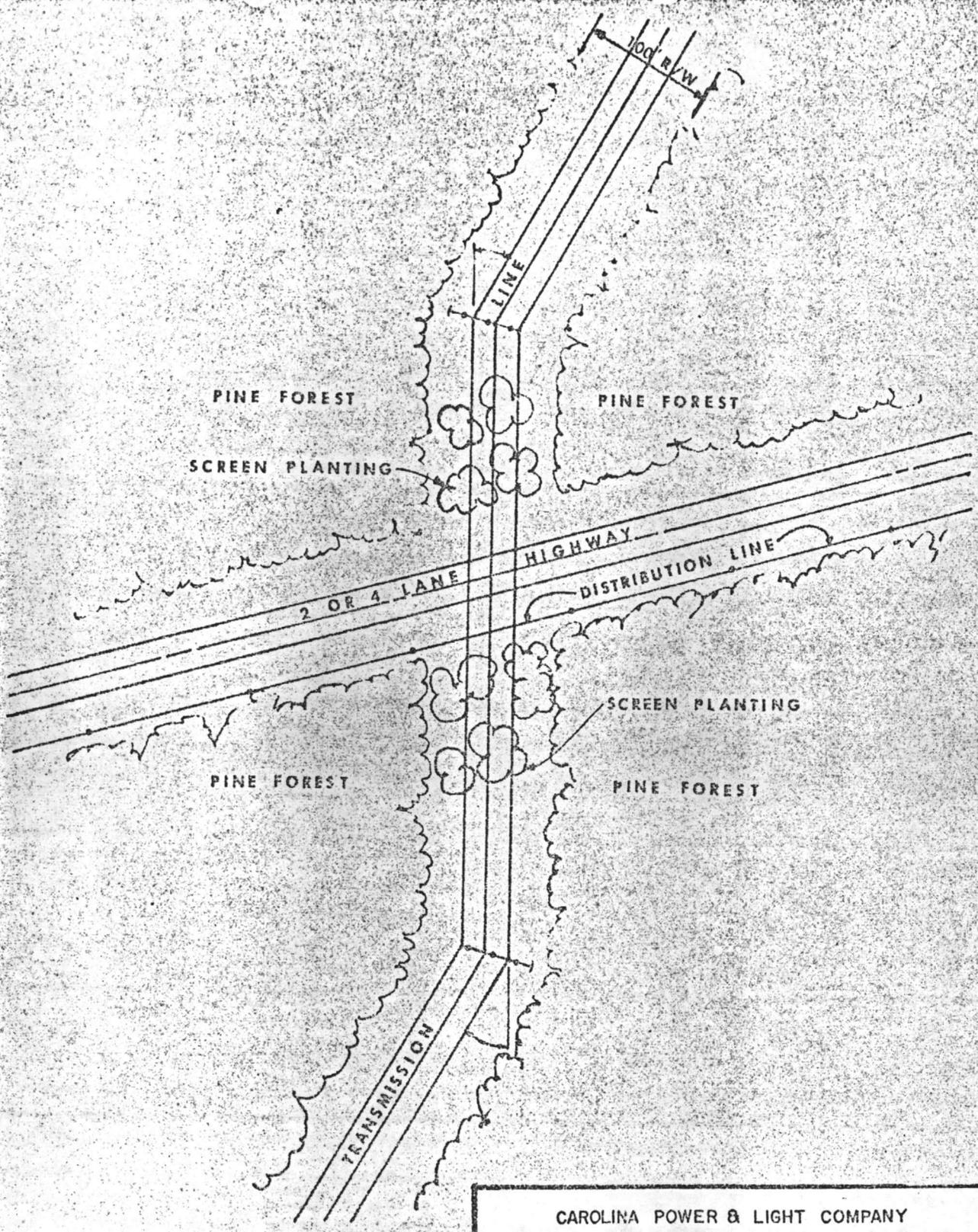
8/21/72 - Items 11 and 12 were added



CAROLINA POWER & LIGHT COMPANY
 TRANSMISSION LINE ENVIRONMENTAL REPORT

SELECTIVE CLEARING PROCEDURE AT
 CLEARED AREAS

Figure 2.2-3

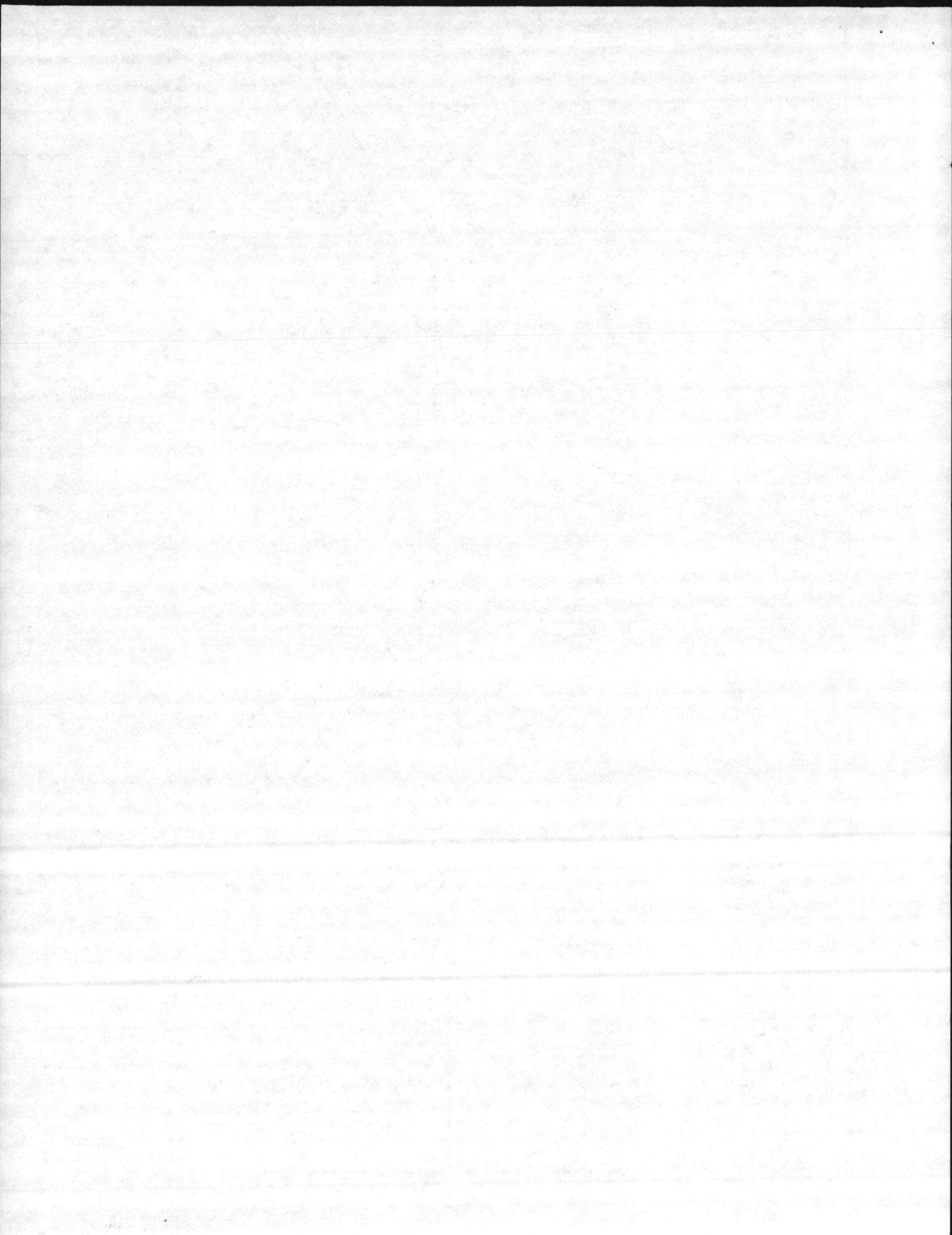


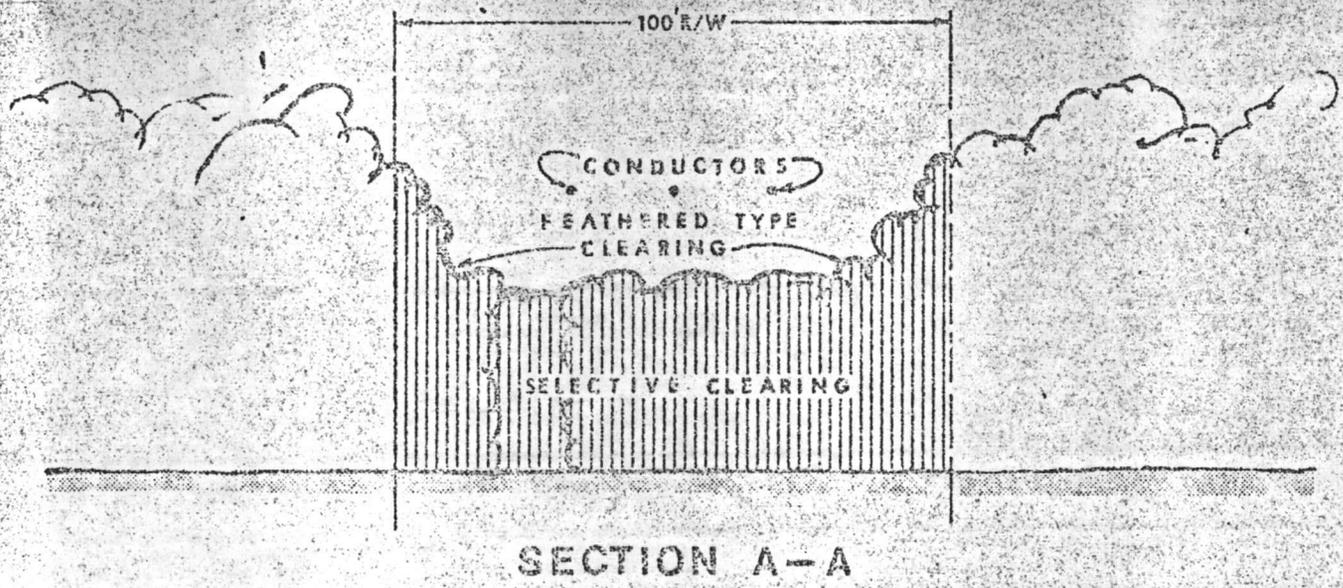
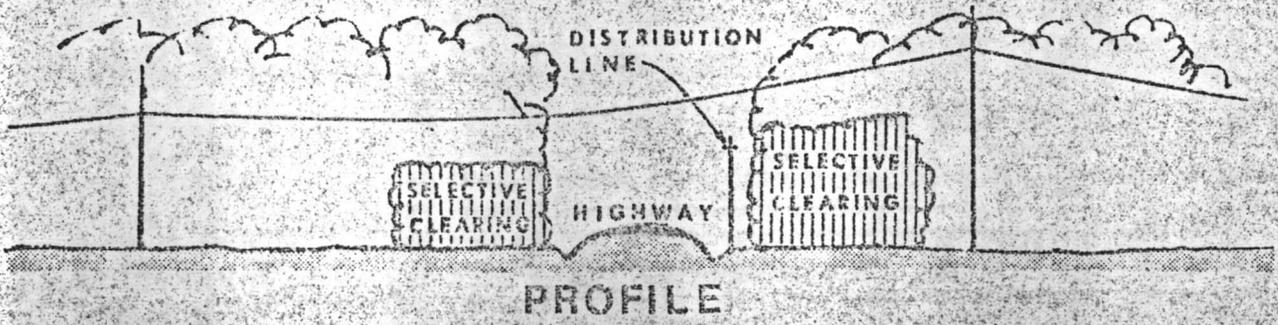
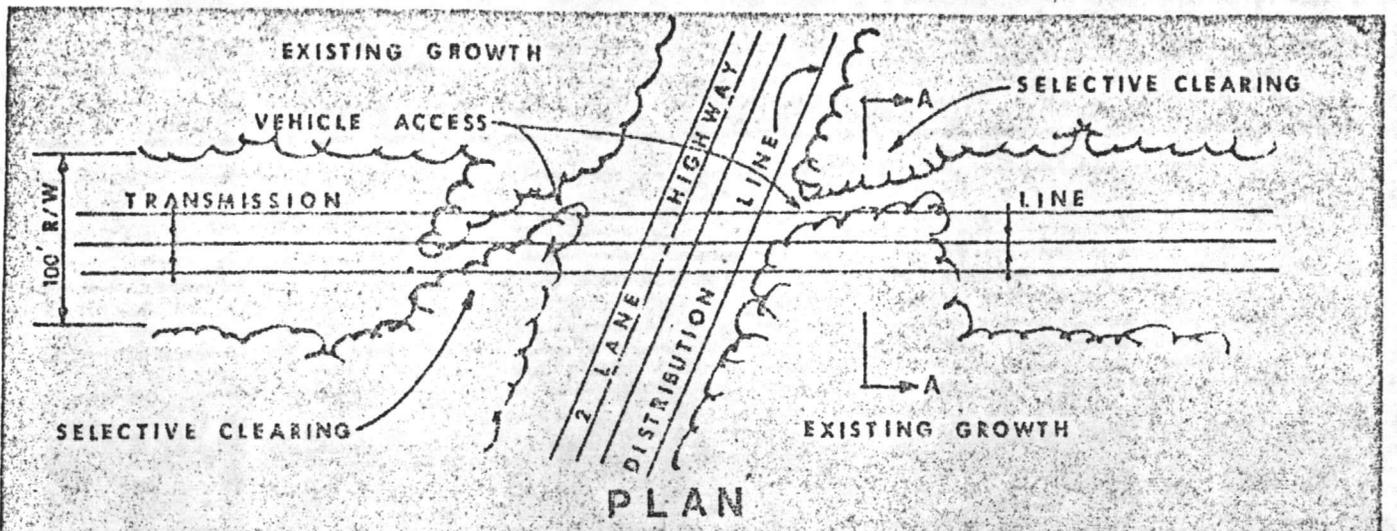
CAROLINA POWER & LIGHT COMPANY

TRANSMISSION LINE ENVIRONMENTAL REPORT

HIGHWAY CROSSING IN PINE FOREST

Figure 2.2-2



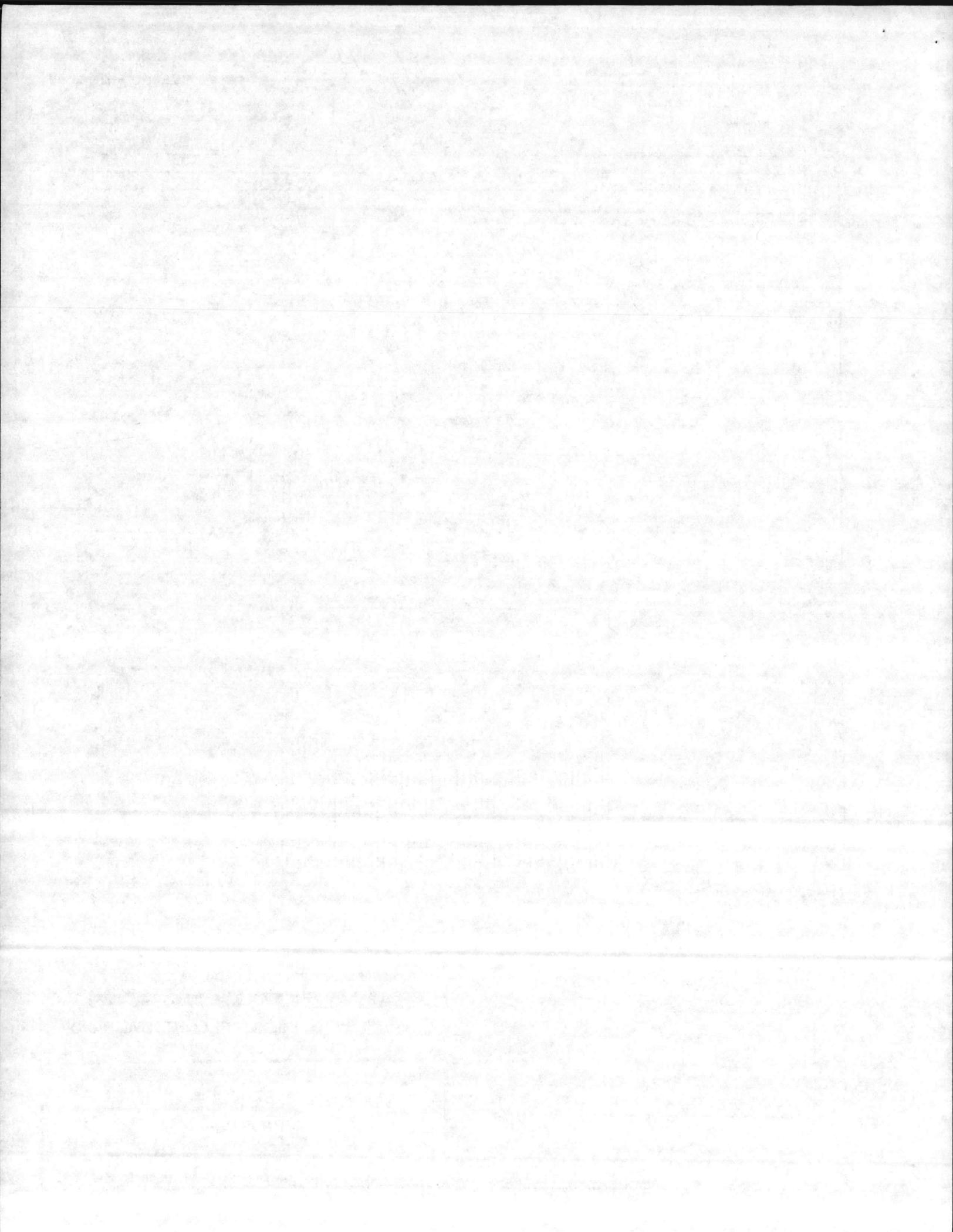


CAROLINA POWER & LIGHT COMPANY

TRANSMISSION LINE ENVIRONMENTAL REPORT

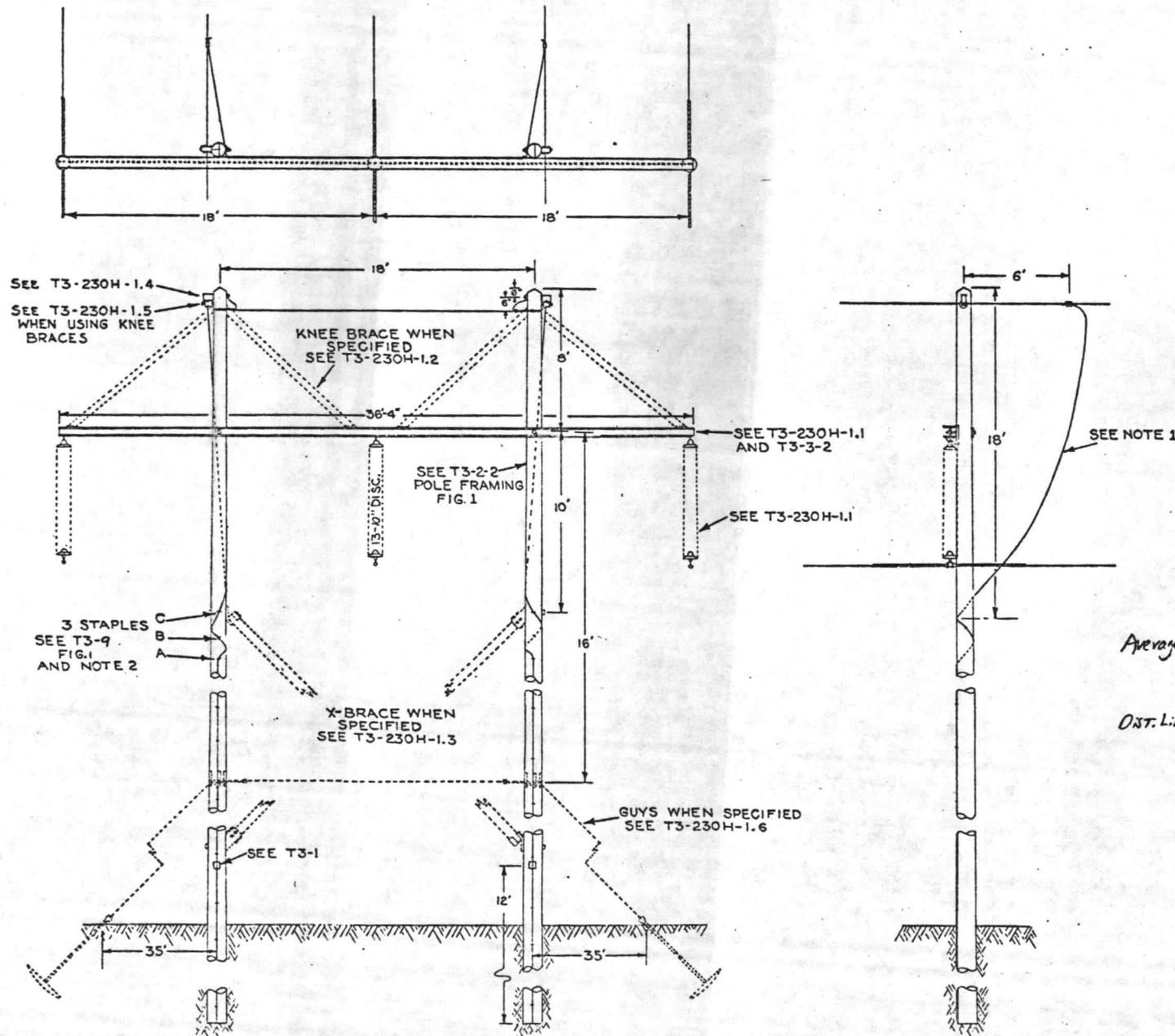
SELECTIVE CLEARING AT HIGHWAY CROSSING

Figure 2.2-1



NOTES

1. FLYING TAP SHALL BE PULLED HAND TIGHT, DO NOT PULL STATIC DOWN.
2. EACH FLYING TAP GROUND WIRE SHALL FIT CLOSE AND SNUG TO EACH POLE AND STAPLED SO THERE IS NO ABRUPT BEND, AND LEAVE EACH POLE ON THE INSIDE OF STRUCTURE.
3. ALL COTTER KEYS USED IN CONNECTION WITH INSULATORS AND FITTINGS SHALL BE SPREAD AT LEAST 1/4 INCH, UNLESS THEY ARE OF THE NON-SPREADING TYPE. ALL COTTER KEYS SHALL BE ON THE POLE SIDE OF ALL INSULATORS, HARDWARE OR FITTINGS. IN ANY CASE WHERE PINS ARE INSTALLED VERTICALLY, PLACE THE PIN SO THAT THE COTTER KEY IS ON THE UNDER SIDE.

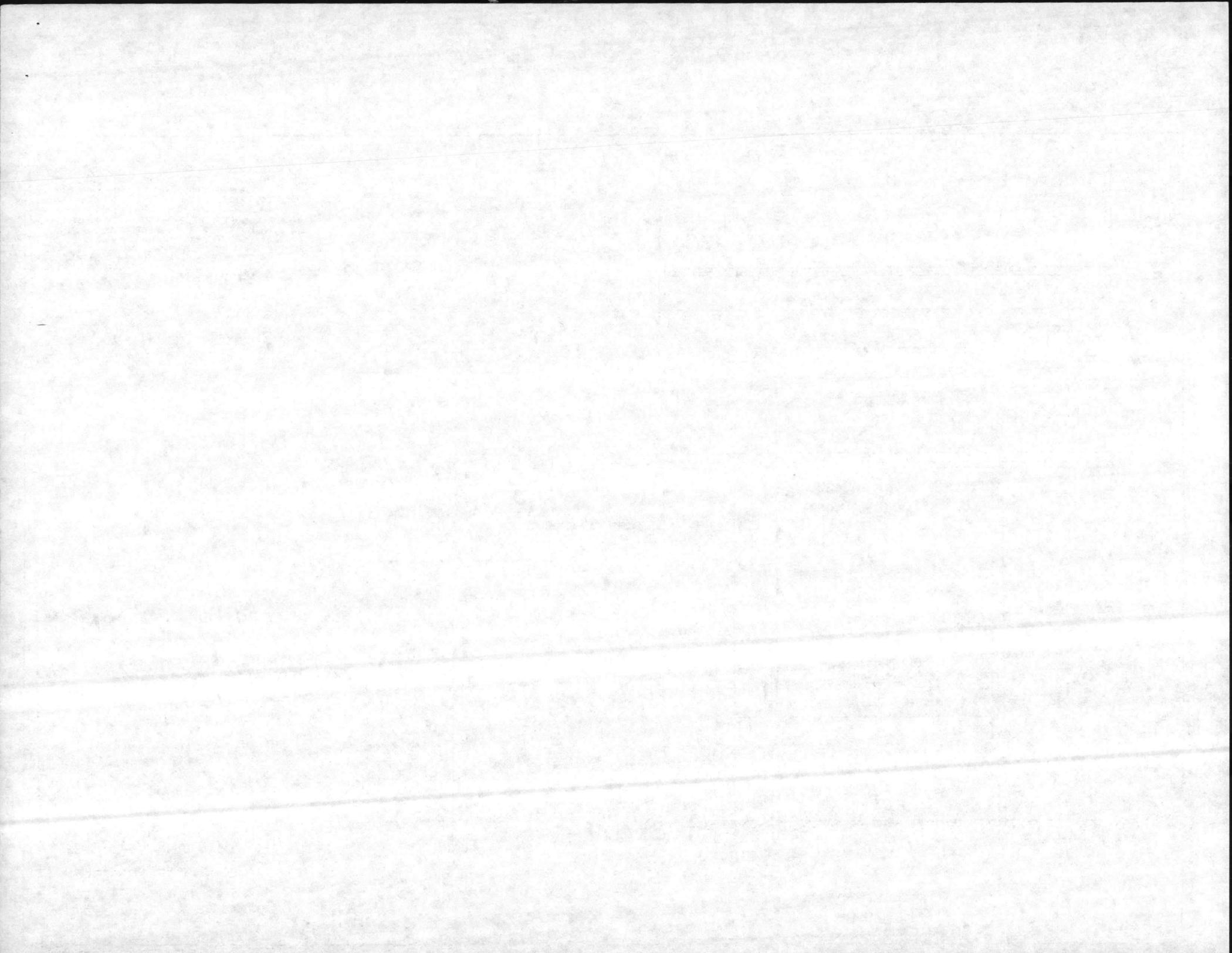


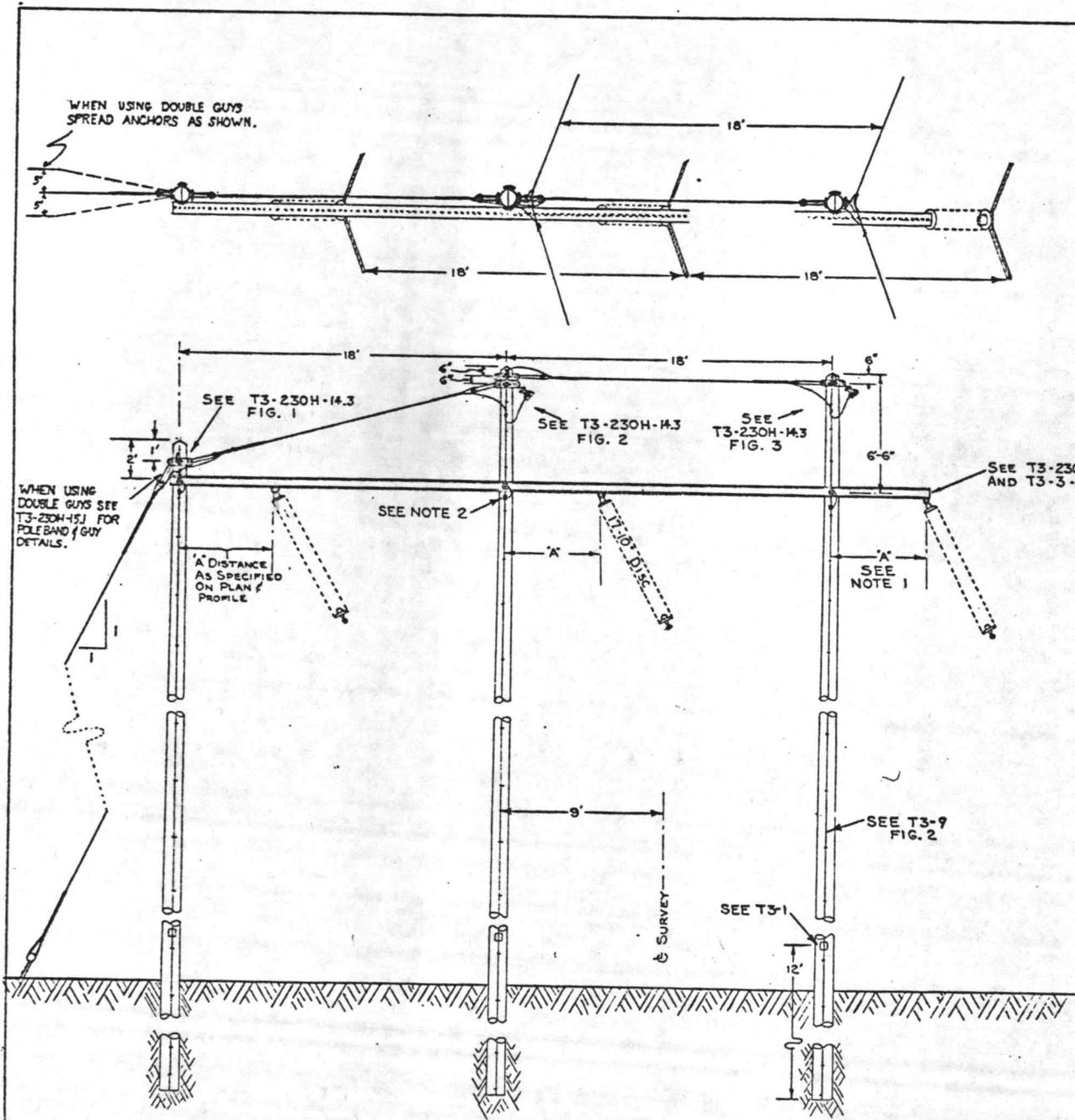
Average ≈ 70' pole - 61' above ground

Dist. Line crossings ≈ 85' pole - 75' above ground

CAROLINA POWER & LIGHT COMPANY
 RALEIGH N.C.
 230 KV TRANSMISSION LINES
 SUSPENSION STRUCTURE

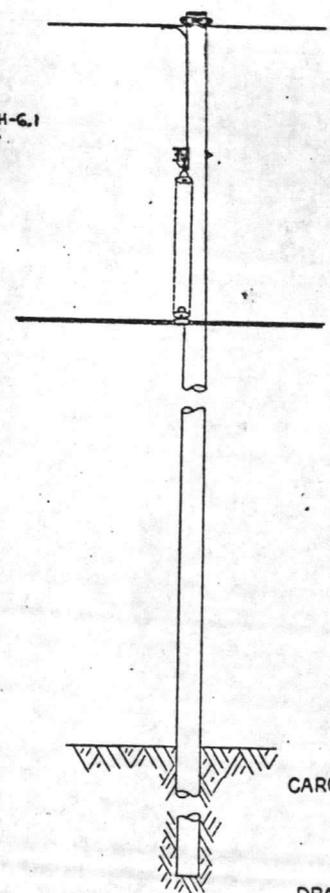
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 CHECKED APPR. FBJ





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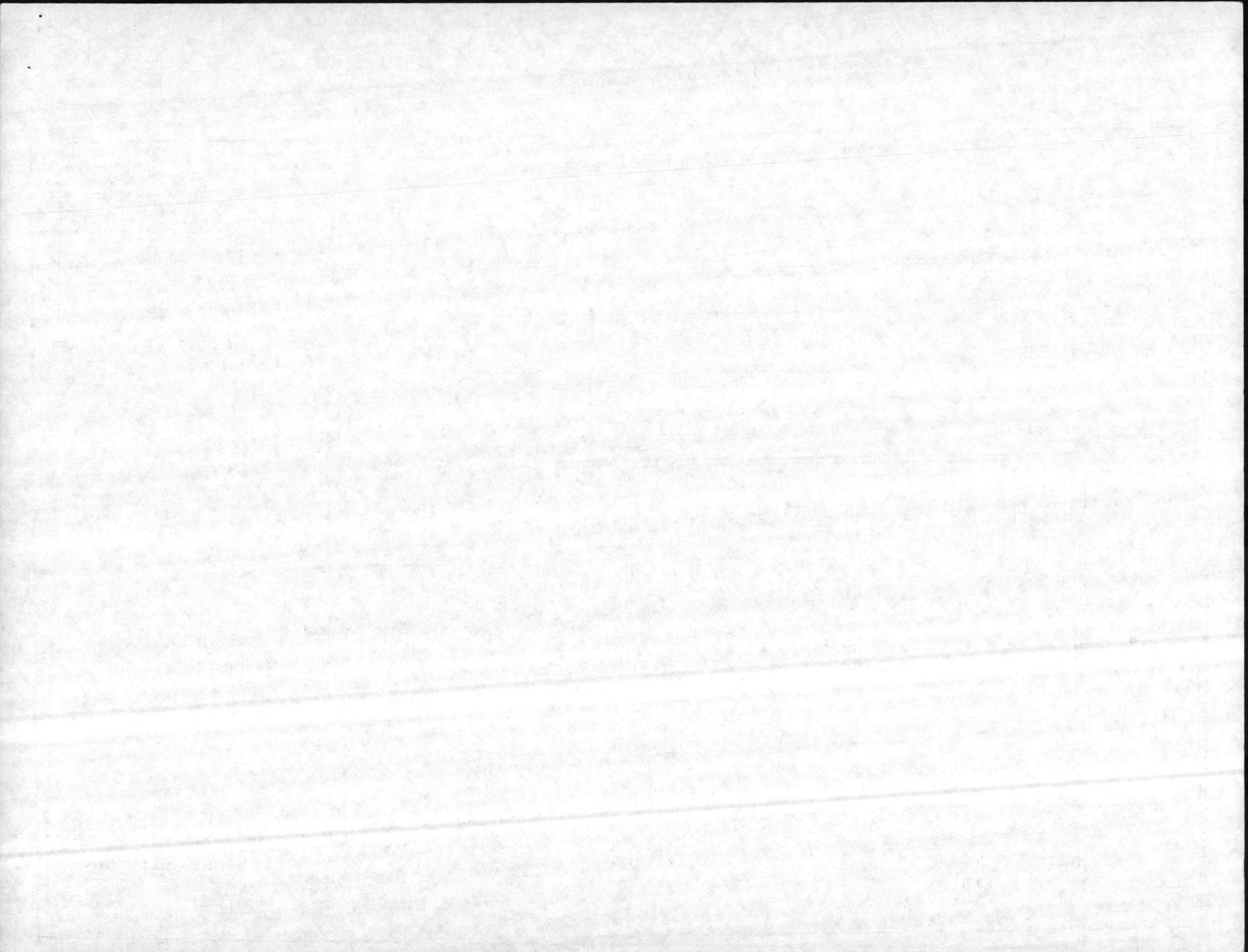
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2. GROUND ARM TO EACH POLE GROUND USING #4 IRON WIRE AND CATALOGUE NO. 111-902 SQUEEZE ON CONNECTOR. WRAP #4 IRON WIRE BENEATH 4 INCH ROUND WASHER ON 7/8 INCH THRU BOLT
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4. USE DOUBLE GUYS ONLY WHEN SPECIFIED.



CAROLINA POWER & LIGHT COMPANY
 RALEIGH N.C.
 230 KV. TRANSMISSION LINES
 LIGHT ANGLE STRUCTURE

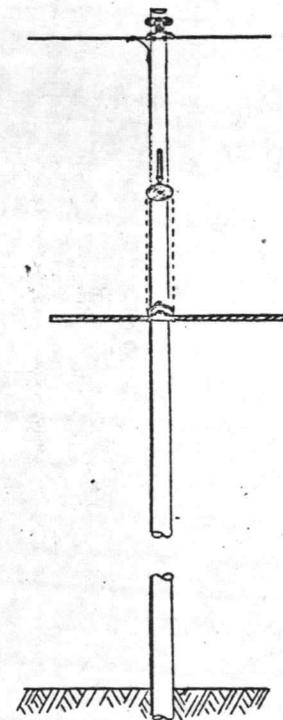
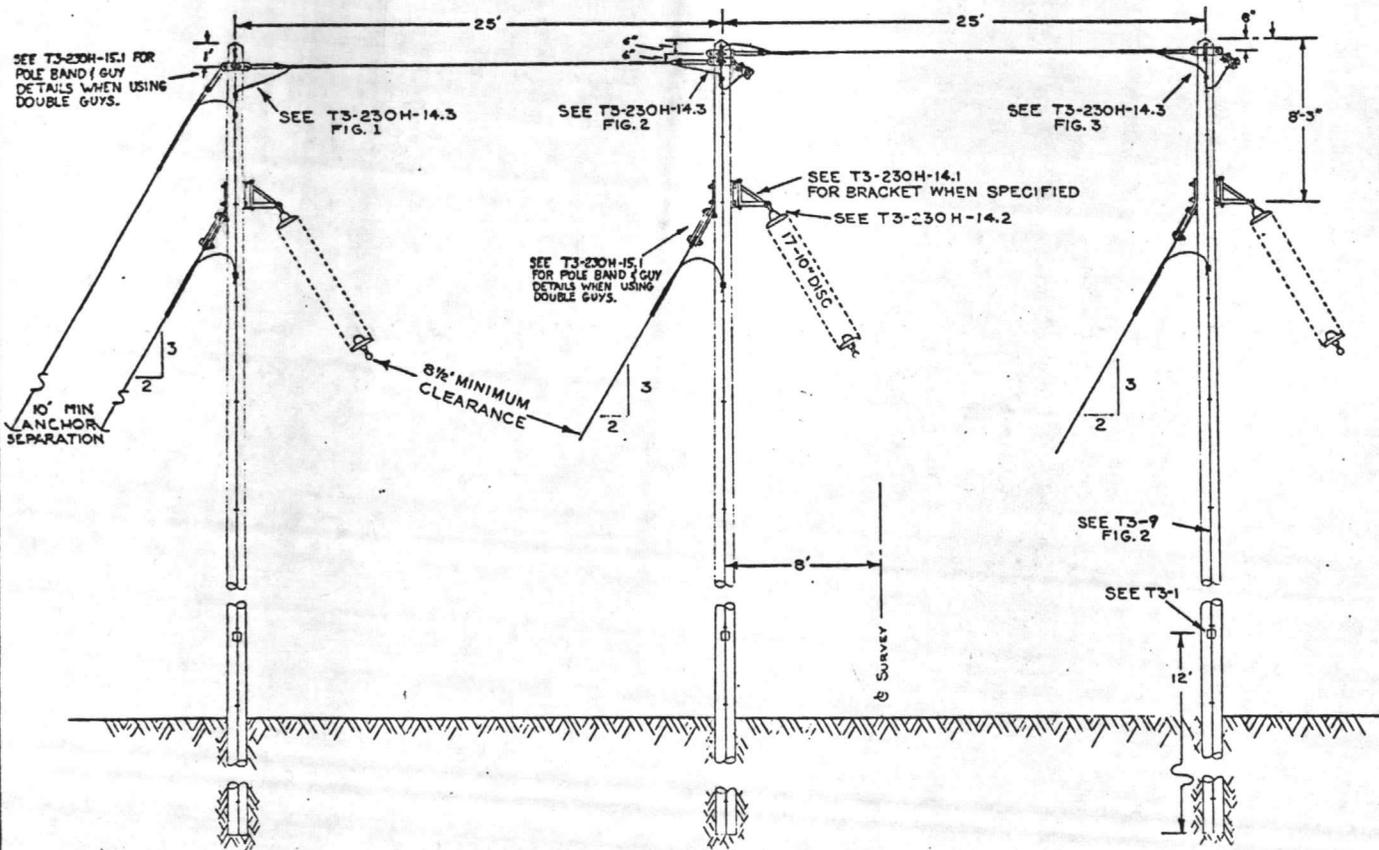
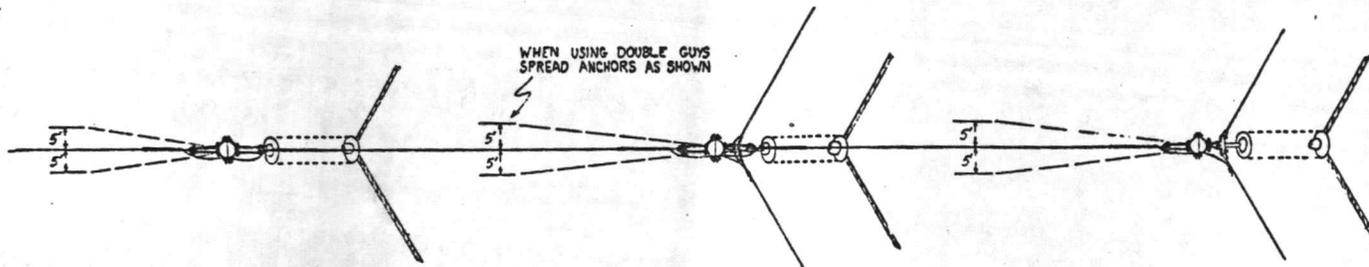
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REVISED 9-1-67 PWC T3-230H-6



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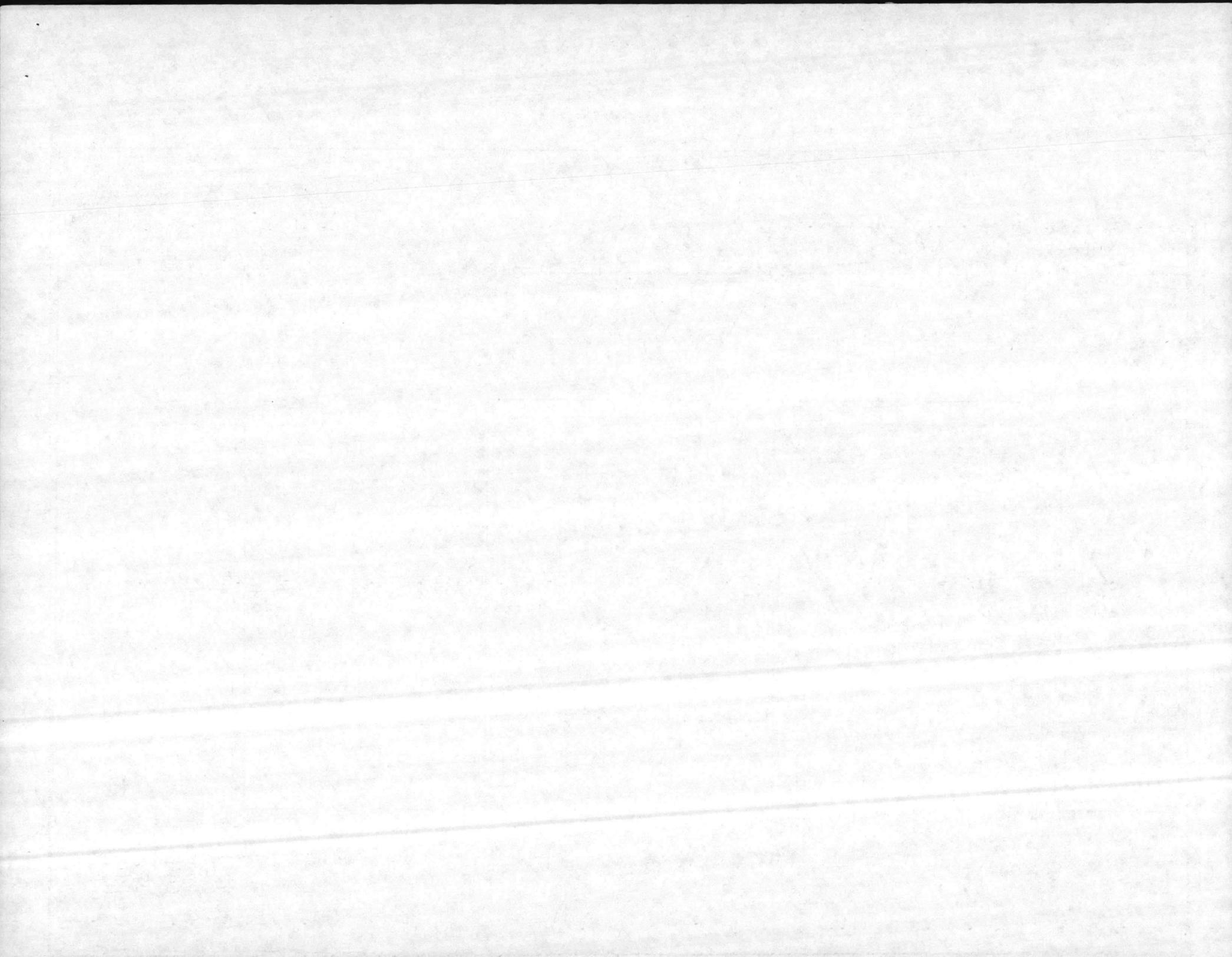
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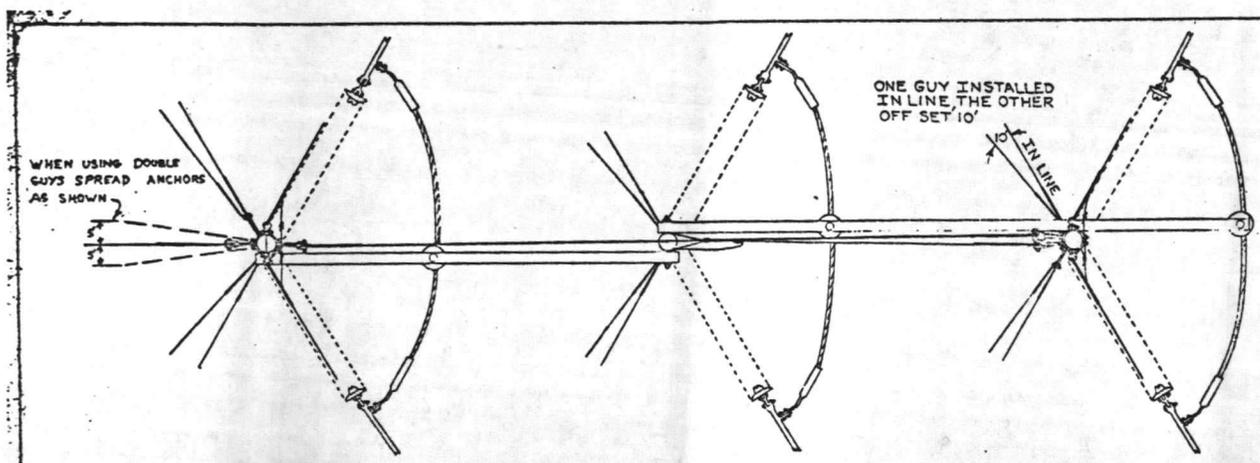


CAROLINA POWER & LIGHT COMPANY
 RALEIGH N.C.
 230 KV. TRANSMISSION LINES
 MEDIUM ANGLE STRUCTURE

DRAWN M.W.S.
 CHECKED W.W.S.

DATE 2-7-66
 APPR. F.D.J.

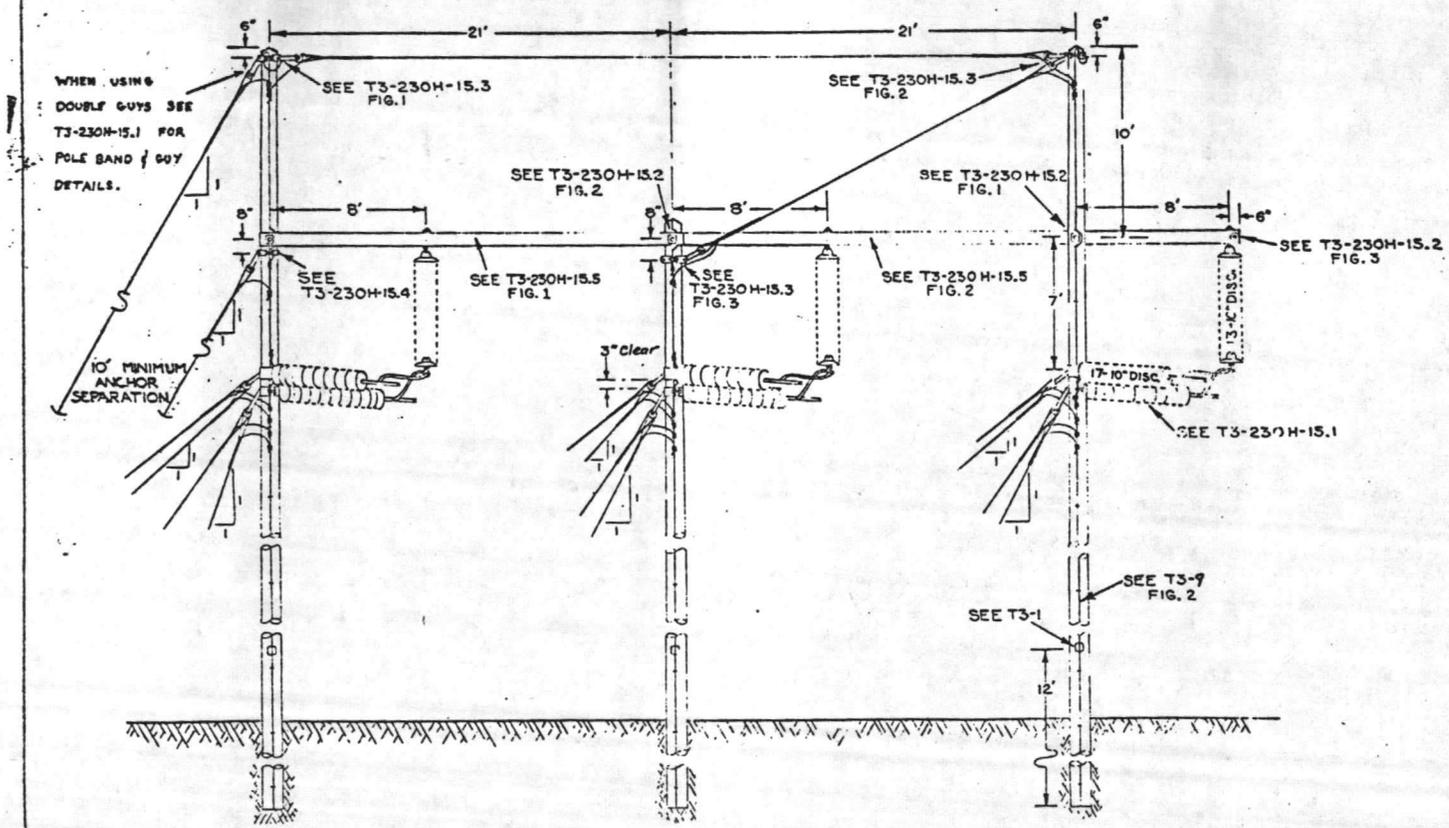




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CAROLINA POWER & LIGHT COMPANY
 RALEIGH N.C.
 230KV. TRANSMISSION LINES
 DEAD END STRUCTURE

DRAWN R.D.F.
 CHECKED

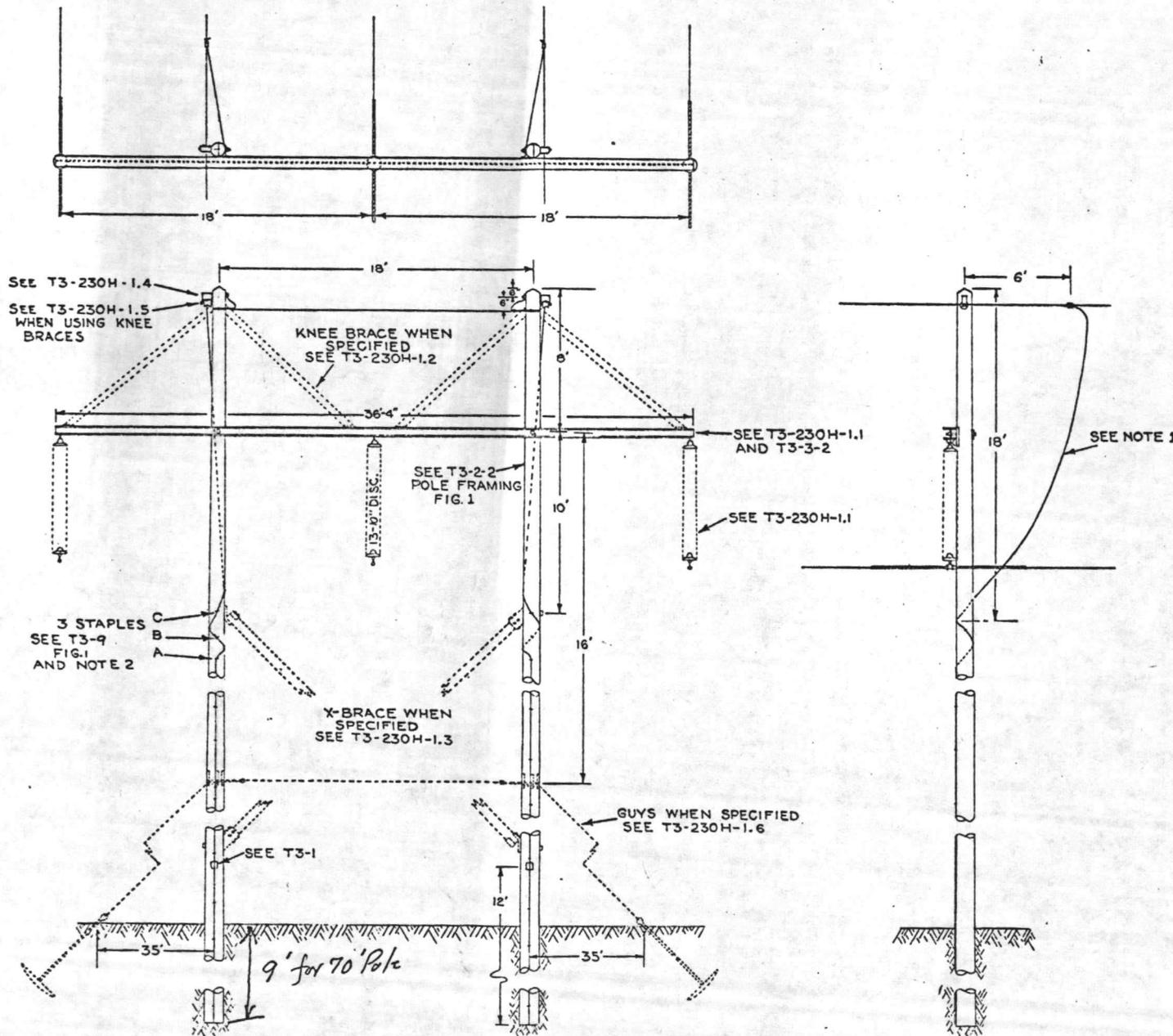
DATE 8-29-64
 APPR. FDJ

T3-230H-15



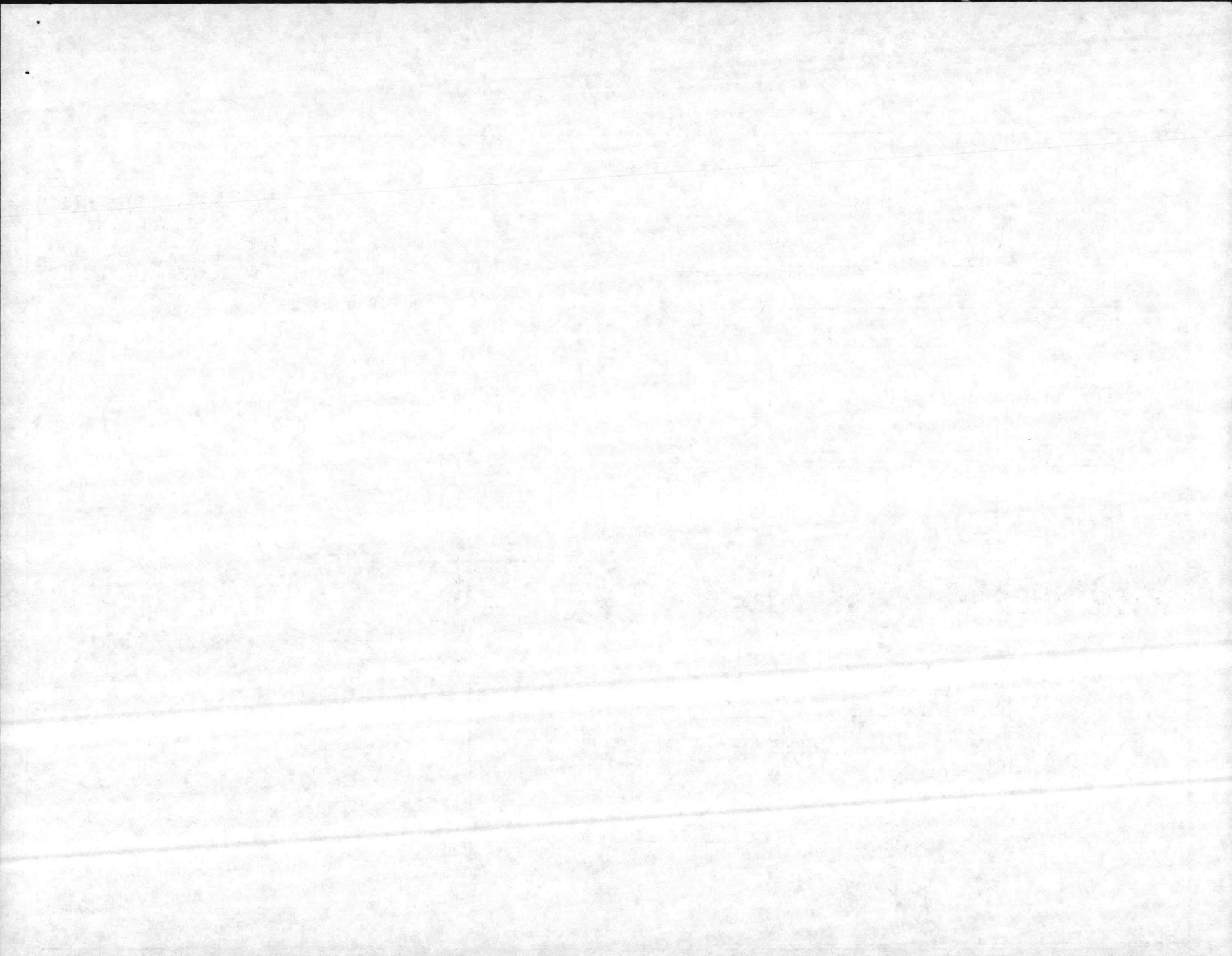
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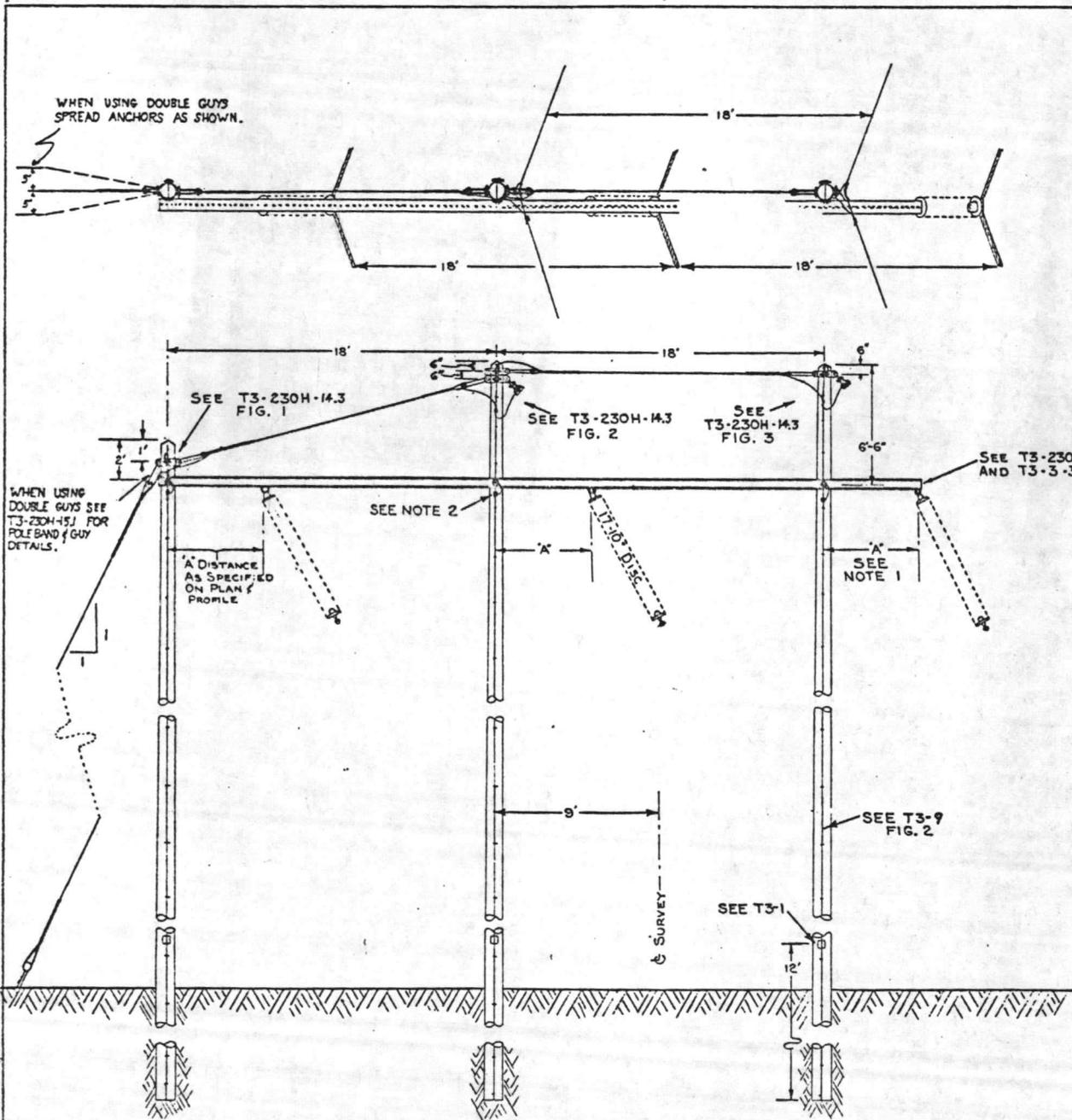
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CAROLINA POWER & LIGHT COMPANY
RALEIGH N.C.
230 KV TRANSMISSION LINES
SUSPENSION STRUCTURE

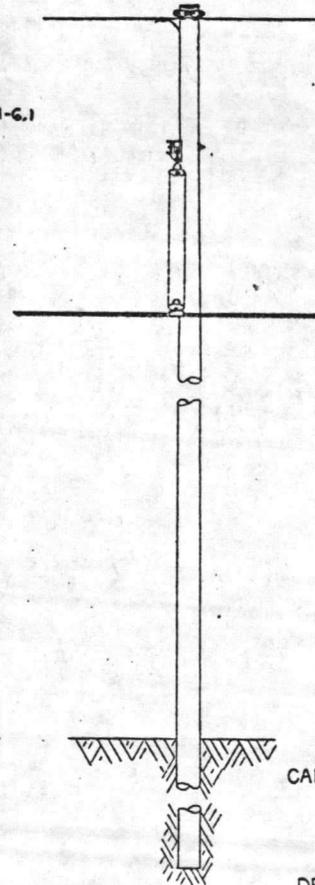
DRAWN R.D.F. DATE 8-6-64
CHECKED APPR. FDJ





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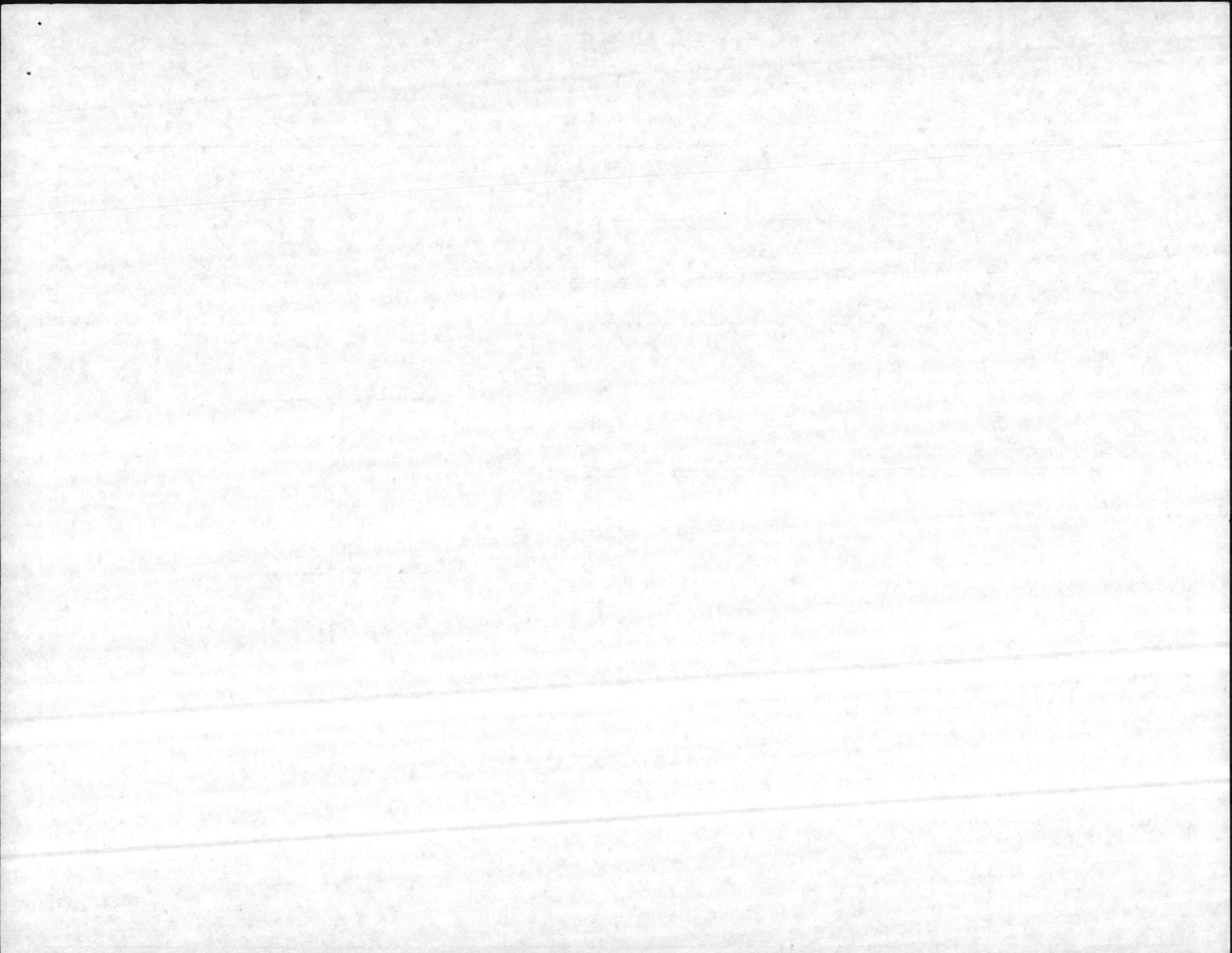
CAROLINA POWER & LIGHT COMPANY
 RALEIGH N.C.
 230 KV. TRANSMISSION LINES
 LIGHT ANGLE STRUCTURE

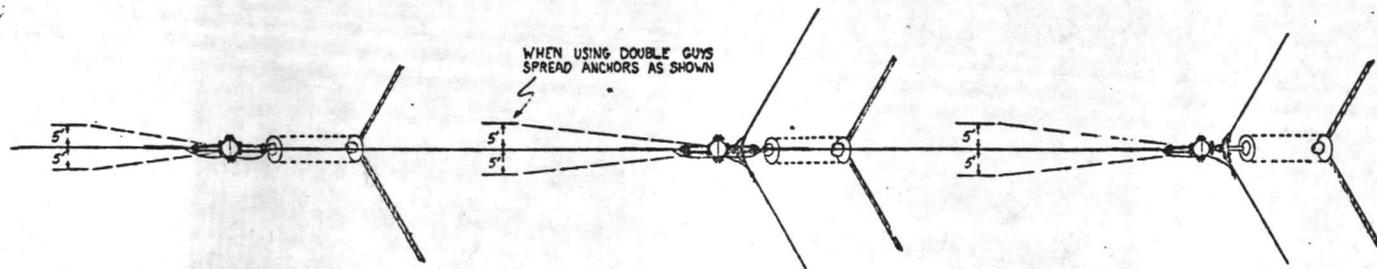
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DATE 7-7-66
 APPR. FDJ

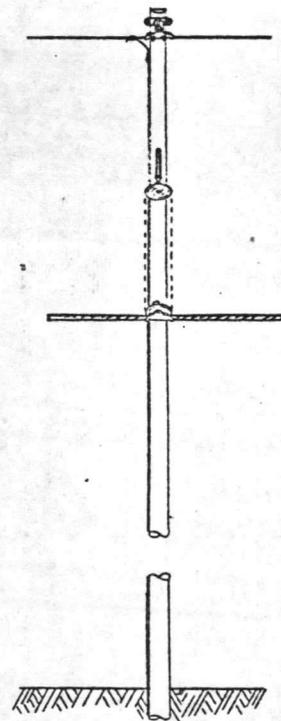
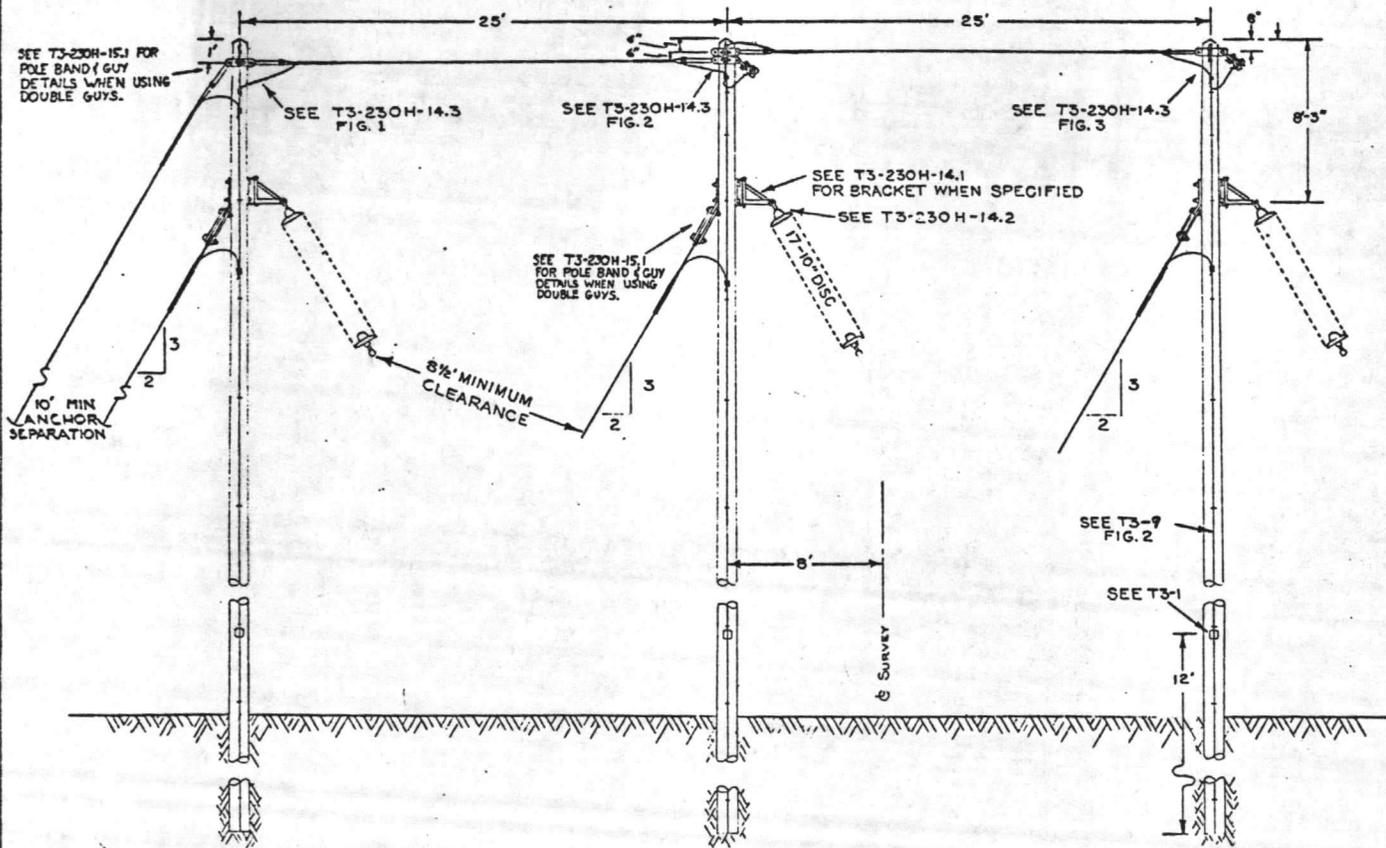
REVISED 9-1-67 PWC

T3-230H-6





- NOTES**
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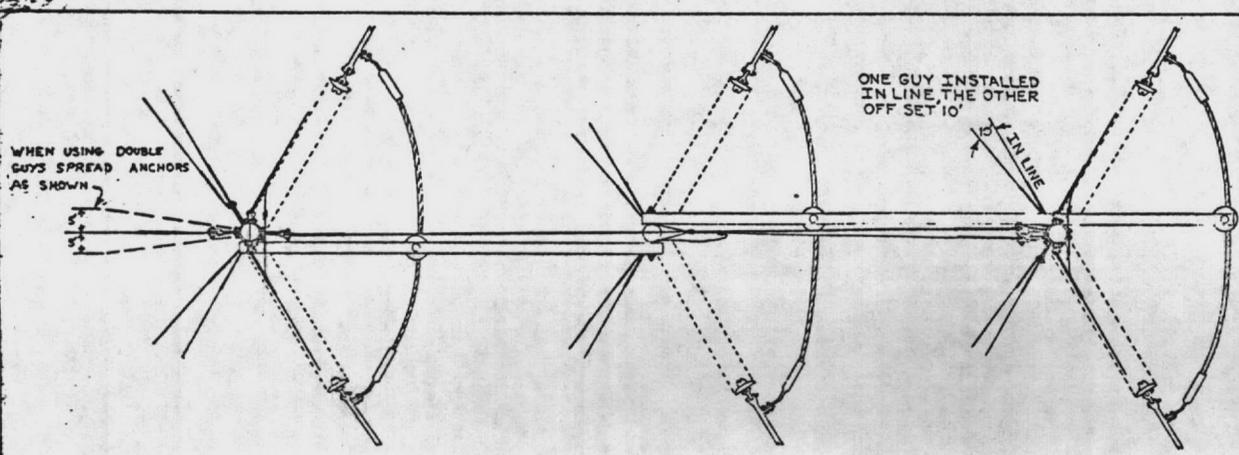


CAROLINA POWER & LIGHT COMPANY
RALEIGH N.C.
230 KV. TRANSMISSION LINES
MEDIUM ANGLE STRUCTURE

DRAWN M.W.S.
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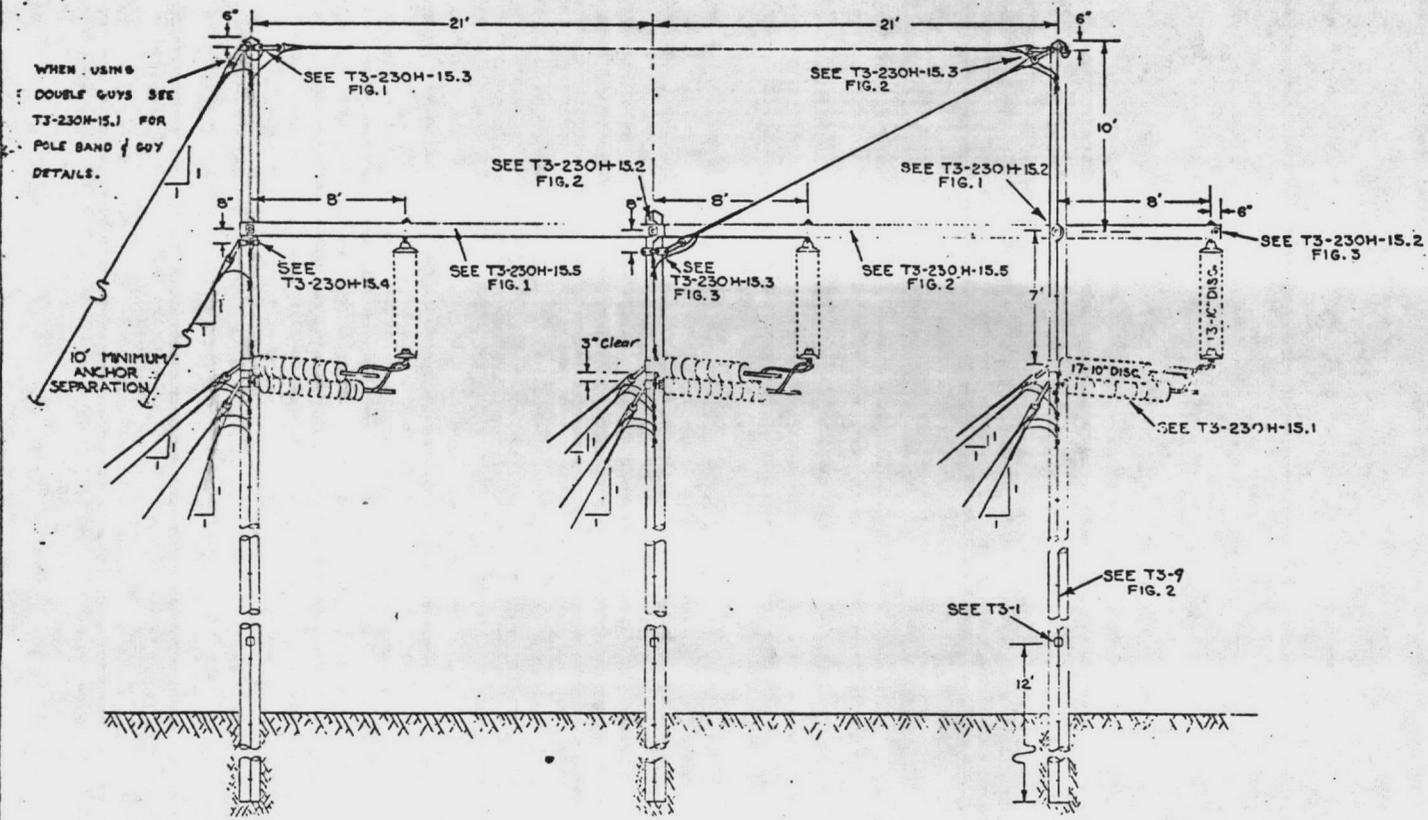




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CAROLINA POWER & LIGHT COMPANY
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 230KV. TRANSMISSION LINES
 DEAD END STRUCTURE

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