GOVERNMENT OF ZAMBIA

STATUTORY INSTRUMENT NO. 2 OF 2026

The Electricity Act
(Laws, Volume 29, Cap. 436)

The Electricity (Wayleave and Clearances) Regulations, 2026

IN EXERCISE of the powers contained in section 52 of the Electricity Act, the following Regulations are made:

Title

1. These Regulations may be cited as the Electricity (Wayleave and Clearances) Regulations, 2026.

Interpretation

2. In these Regulations, unless the context otherwise requires—

"clearance" means an unobstructed space of air between an overhead line or a normally live equipment, structure or component associated with an overhead line, and another object measured surface to surface;

"competent person" means a person who, by way of training or experience, has knowledge of the applicable safety standards and is capable of identifying predictable hazards of an overhead line or underground cable, or associated equipment, and is authorised by a licensee to correct the hazards and perform specific work on that licensee's overhead line or underground cable, or associated equipment;

Copies of this Statutory Instrument can be obtained from the Government Printer, P.O. Box 30136, 10101 Lusaka. Price K88.00 each.

"developer" means a person who is intending, proposing or planning development within a radius of 1km to an existing or non-existing, but already planned, overhead line or underground asset or wayleave, except—

(a) a licensee owning an existing wayleave in a location under consideration; and

(b) the Defence Force;

"distribution" has the meaning assigned to the word in the Act;

"emergency installation" means a distribution overhead line of less than 1kV, or an associated equipment, installed by a licensee to immediately restore electricity supply to a customer who provides a service that is essential to health, safety, security or welfare of the Republic or served community;

"Energy Regulation Board" has the meaning assigned to the words in the Energy Regulation Act; Cap. 436

"lateral clearance" means the horizontal clearance between the vertical plane of the closest conductor of an overhead line or normally live part of its associated equipment, and the vertical plane on the near-most part of an object or infrastructure to which the clearance is being checked;

"licensee" has the meaning assigned to the word in the Act;

"overhead line" means an electricity line suspended above ground, carrying or intended to carry electrical energy;

"overhead service line" means an overhead line through which a customer's building or structure is serviced with electricity, with a maximum voltage of overhead service line of 0.4kV or the single-phase equivalent;

"planning authority" has the meaning assigned to the words in the Urban and Regional Planning Act; Cap. 283

"project supervisor of works" means a person supervising the actual implementation of development on behalf of a developer;

"safe approach distance" means the minimum clearance from a live overhead line that must be maintained by a person who has no extra layer of safety protection and authorisation, or an equipment or object held by that person;

"truck" means a vehicle exceeding 2.5m in height;

"utility" means a company which supplies electricity, water, telephony or sewerage, or any other service to its customers;

"voltage" means the electrical pressure or potential difference from an electrical source that pushes electric current through a conductor; and

"wayleave" means a parcel of land with a predetermined uniform width over its length, where a specific person has the right of way or access to install and subsequently operate, or maintain, or manage that person's overhead line and associated equipment, and includes a —

(a) wayleave acquired through an easement or wayleave agreement with a landowner or property owner;

(b) statutory wayleave acquired in accordance with sections 22 and 23 of the Act; and

(c) wayleave from state leased land or customary tenured land, acquired in accordance with the Lands Act for the purpose of placing electricity infrastructure for transmitting, or distributing electricity. Cap. 184

Application

3. (1) These Regulations shall apply to —

(a) a natural and man-made physical structure which may be designed, constructed, planted, erected or operated in a manner that the clearance to the structure from the overhead line or underground cable, or associated structures or installations stipulated in these Regulations, shall be checked and established;

(b) an overhead line of voltage of 0.4kV to 400kV and the single phase equivalent;

(c) a developer who intends to construct or install a structure or equipment in a wayleave; and

(d) an installation, structure, extension, application or requirement existing on or after the commencement of these Regulations, except when waived in accordance with the Schedule.

(2) These Regulations shall cover the entire Zambian electricity supply industry in situations where wayleaves are required, and clearances to electricity overhead lines or underground cables need to be established.

(3) These Regulations shall not apply to wiring of premises, or to a construction or method of installation carried out for the purpose of scientific study or experimentation.

(4) Despite subregulation (3), wiring of premises shall comply with the applicable safety standards, and a construction or method of installation carried out for the purpose of a scientific study or experimentation shall —

(a) be supervised by a qualified person;

(b) meet the equivalent safety standards; and

(c) in the case of a joint use of facilities, have all the parties agree to the type of construction or method of installation.

Construction, operation and maintenance of installation

4. A licensee or developer shall, for the purpose of ensuring the protection of the public and property from dangers arising from the supply of electricity construct, operate and maintain an overhead line and underground electricity cable in accordance with the requirements set out in the Schedule.

Minimum wayleave for overhead line

5. (1) A person, planning authority or licensee intending to place infrastructure for transmitting or distributing electricity shall, for the purposes of ensuring the protection of the public and property from dangers arising from the supply of electricity, comply with the minimum requirements for a wayleave for an overhead line set out in the Schedule.

(2) Despite subregulation (1), where different parties have to share the same wayleave for the purpose of placing infrastructure for transmitting or distributing electricity in a location where land availability is restrictive, the parties shall, with the prior written approval of the Energy Regulation Board, agree on the applicable wayleave which may be less than the wayleave specified in the Schedule.

Existing installation

6. (1) An existing installation or design approved by a local authority that complies with the standards set out by the Energy Regulation Board prior to the commencement of these Regulations shall not be required to be modified to comply with these Regulations except where the modification is required for safety reasons by a planning authority in accordance with the Urban and Regional Planning Act or by a licensee.

Cap. 283

(2) An addition, alteration or replacement to an existing installation referred to under subregulation (1) shall comply with the requirements set out in the Schedule.

Emergency installation

7. (1) A licensee or developer who puts up an emergency installation shall as soon as practicable remove, replace, or relocate the emergency installation.

(2) Where an overhead line voltage is less than 1kV, in emergency situations, the clearances set out in paragraph 3.9.2 of the Schedule may be reduced to 4.8m in areas where trucks are expected to pass through or to 2.8m where trucks are not expected to pass through.

(3) In this regulation, areas where trucks are not expected to pass through are areas where trucks are not normally encountered or reasonably anticipated to be encountered.

Temporal overhead installation

8. Where an overhead installation is temporal, or a facility is temporarily relocated to facilitate other works, the overhead installation shall meet the requirements for permanent installation set out in the Schedule.

SCHEDULE

(*Regulations* 3, 4, 5, 6, 7 and 8)

ABBREVIATIONS AND ACRONYMS USED IN THIS SCHEDULE

ERB	Energy Regulation Board
ESI	Electricity Supply Industry
KV	kilo-Volt. (A unit of measure of electric Voltage, representing one thousand Volts.)
K M	Kilometre
KM^2	square kilometre
M	Meter
OHSL	Overhead Service Line
PV	Photovoltaic
ZS 402:2006	Zambia Standard 402 of 2006 - Zambia Standard Code of Practice: The classification of hazardous locations and the selection of apparatus for use in such locations

1. Introduction

1.1 Responsibilities of licensee, developer and other entity

1.1.1 A licensee, or a person establishing electricity infrastructure with the intention of becoming a licensee, or of transmitting or distributing electricity, shall, prior to placement of any overhead line or associated installation or equipment for the purpose of transmitting or distributing electricity anywhere in the Republic, acquire and possess appropriate wayleave.

1.1.2 A developer shall, during the project initiation stage, contact and obtain prior written identification and specification of any wayleave that may be present within the vicinity of the intended development and the required clearances, from the relevant licensee or person owning an overhead line or underground cable or associated infrastructure used for transmitting or distributing electricity.

1.1.3 When contacted by a developer, a licensee or person owning an overhead line or underground cable or associated infrastructure used for the purpose of transmitting or distributing electricity, shall be responsible for evaluating the specific location, identifying and specifying the licensee's or person's wayleave and the required minimum clearance from the licensee's or person's existing or planned overhead line or underground cable or any of the licensee's or person's electrical facilities in the vicinity, and advising the developer, in writing, within 45 days.

1.2. Units of measure used in the Schedule

1.2.1. Numerical values of wayleaves and clearances in this Schedule are stated in the metric system and marked "m", an abbreviation for meter.

1.2.2. Unless specifically stated otherwise, the dimensions of physical items referenced in the Schedule are nominal values.

1.3. Method of calculation and measurement

Where calculations are required or measurements need to be evaluated, the resultant value shall be rounded off to the nearest significant digit represented in the applicable paragraph in the Schedule.

2. MINIMUM WAYLEAVE FOR OVER HEAD LINE (11KV TO 400KV)

2.1 Minimum Wayleave in urban and rural areas

2.1.1 Wayleave width

Table 2.1 provides specifications for the minimum wayleave for a one by three phase overhead line and distances between two parallel overhead lines.

Table 2.1: Minimum wayleave width specifications

One by three phase overhead line (voltage level)	Distances between parallel two overhead lines measured from their centres	Wayleave width (for one overhead line)
11kV	5.0 m	10.0 m (Urban) 15.0 m (Rural)
22kV	12.0 m	22.0 m
33kV	14.0 m	18.0 m (Urban) 22.0 m (Rural)
33kV (H-Pole)	14.0 m	30.0 m
66kV	15.0 m	30.0 m
88kV	15.0 m	30.0 m
132kV	25.0 m	32.0 m
220kV	32.0 m	44.0 m
275kV	32.0 m	44.0 m
330kV	35.0 m	48.0 m
400kV	35.0 m	50.0 m

2.1.1 Minimum and maximum distance between outer conductor and the edge of Wayleave width

The minimum and maximum distances between the outer conductor of an overhead line and the edge of its wayleave shall be as specified in Table 2.2.

Table 2.2: Minimum and maximum distances to the edge of the wayleave from the outer overhead line conductor

Voltage level	Minimum distance between outer conductor and end of Wayleave width	Maximum distance between outer conductor and end of Wayleave width
11kV	3.5 m	4 m
33kV	4 m	5 m
66kV	8 m	10 m
88kV	10 m	10 m
132kV	11 m	12 m
220kV	12 m	15 m
330kV	15 m	20 m
400kV	15 m	20 m

2.1.3 Minimum Clearance from overhead line conductors to tower structure

The minimum clearances between overhead line conductors and the tower structure and the minimum maintenance clearances for various levels are given in Table 2.3. The maintenance clearance shall be at least 1.5 times the minimum conductor Clearance.

Table 2.3: Minimum clearances between conductors and tower structures of overhead line

Over head line Voltage Level	Minimum conductor Clearance[1]	Minimum maintenance Clearance[2], (measured from the edge of wayleave)
11kV	2.0 m	3.5 m
33kV	2.5 m	4.0 m
66kV	2.5 m	5.0 m
88kV	2.5 m	5.5 m
132kV	2.75 m	5.5 m
220kV	4.5 m	7.5 m
330kV	5.2 m	7.8 m
400kV	6.0 m	8.5 m

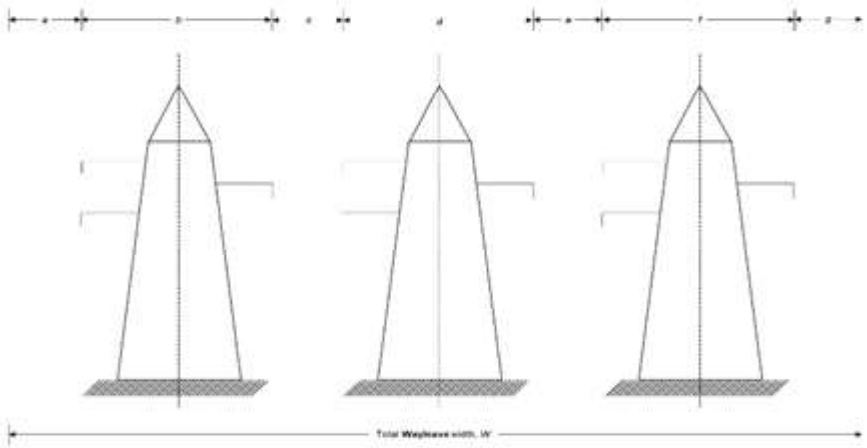
2.1.4 Calculation of wayleave width for wayleaves containing more than one overhead line

For wayleaves containing more than one overhead line of the same nominal Voltage level or mixed Voltage levels, sample calculations are provided in this paragraph using the simplified formulae provided herein.

2.1.41 Sample calculation of wayleave for parallel overhead line of the same Voltage level (for 11kV to 132kV overhead line)

The 66kV to 132kV overhead line model in Figure 2.1 shall be referred to for calculation of Wayleave widths in this paragraph.

Figure 2.1: 66kV to 132kV Over head line model



The parameters involved for calculation of wayleave width for parallel overhead line of same voltage level are:

(a) *'W',* which is the minimum total wayleave width;

(b) *'a',* which is the maximum distance between the outer conductor and the edge of the wayleave, and can be obtained from the last column in Table 2.2;

(For overhead line configurations as depicted in Figure 2.1, clearances and dimensions for *a* and *g* are the same).

(c) *'b',* which is the minimum maintenance clearance. Maintenance clearance and conductor clearance for various voltage levels are provided in Table 2.3. Conductor clearance is clearance between the nearest conductor of an overhead line and the tower structure;

(For overhead line configurations as depicted in Figure 2.1, clearances and dimensions for *b, d* and *f* are the same).

(d) *'c',* which is conductor clearance plus maintenance Clearance.

(For overhead line configurations as depicted in Figure 2.1, clearances and dimensions for *c* and *e* are the same).

From Figure 2.1 and the minimum clearance between conductors of parallel lines as given in Table 2.1 and Table 2.3, the width for wayleave for three parallel overhead line can be determined from the following equation:

$$W = a + b + c + d + e + f + g \qquad (1)$$

But for parallel lines of the same Voltage level, $a = g$, $b = d = f$ and $c = e$. Therefore, Equation 1 simplifies to:

$$W = 2a + 3b + 2c \qquad (2)$$

For respective Voltage levels, the minimum values of *'a'* are given in Table 2.2, the values of *'b'* are given in Table 2.3 and the values of *'c'* (conductor clearance plus maintenance clearance) are determined from Table 2.3.

(a) Calculating wayleave width for 3 x 132kV parallel overhead line

For 132kV overhead line, $a = 12$m; $b = 5.5$m; and $c = 8.25$m (i.e. 2.75m + 5.5m).

Hence, using equation 2, the minimum required wayleave width for three parallel 132 kV overhead line would be:

$$W = (2*12) + (3*5.5) + (2*8.25) + 57.0 \textit{ meters}$$

(b) Calculating wayleave width for 3 x 88kV parallel overhead line

For 88kV overhead line, $a = 10$m; $b = 5.5$m; and $c = 8.0$m (i.e., 2.5m + 5.5m).

Hence, using equation 2, the minimum required wayleave width for three parallel 88kV overhead line would be:

$$W = (2*10) + (3*5.5) + (2*8.0) + 57.5 \textit{ meters}$$

(c) Calculating wayleave width for 3 x 66kV parallel overhead line

For 66kV overhead line, a = 10 m; b = 5 m; and c = 7.5 m (i.e., 2.5m + 5m).

Hence, using equation 2, the minimum required wayleave width for three parallel 66kV overhead line would be:

$$W = (2*10) + (3*5) + (2*7.5) + 50.0 \textit{ meters}$$

(d) Calculating wayleave width for 3 x 33kV parallel overhead line (Horizontal arrangement)

For 33kV overhead line, a = 5 m; b = 4 m; and c = 6.5 m (i.e., 2.5 m + 4 m).

Hence, using equation 2, the minimum required wayleave width for three parallel 33kV overhead line would be:

$$W = (2*5) + (3*4) + (2*6.5) + 35.0 \textit{ meters}$$

(e) Calculating wayleave width for 3 x 11kV parallel overhead line

For 11kV overhead line, a = 4m; b = 3.5m; and c = 5.5m (i.e., 2m + 3.5m).

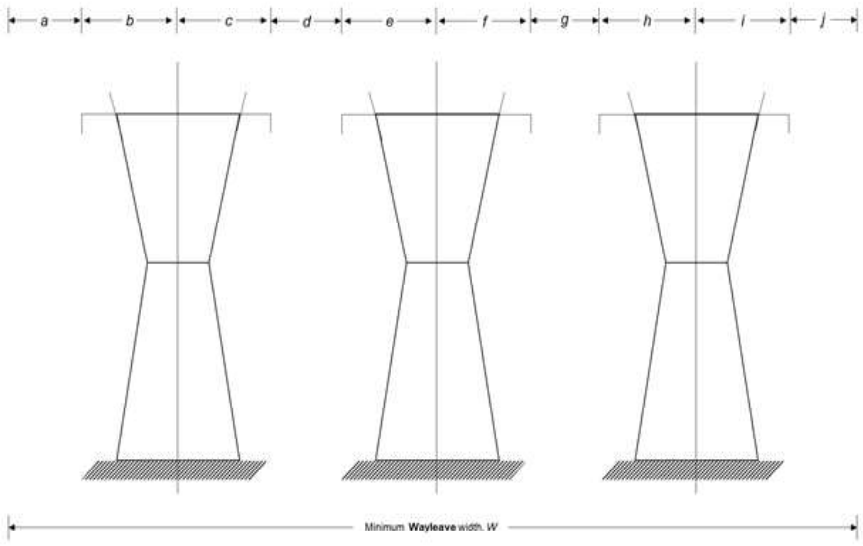
Hence, using equation 2, the minimum required wayleave width for three parallel 11kV overhead line would be:

$$W = (2*4) + (3*3.5) + (2*5.5) + 29.5 \textit{ meters}$$

2.1.4.2 Sample calculation of wayleave for parallel overhead line of the same voltage level (for overhead line above 132kV)

The 220kV to 330kV overhead line model in Figure 2.2 shall be referred to for calculation of wayleave widths in this paragraph.

Figure 2.2: 220kV to 330kV overhead line model



The parameters involved for calculation of wayleave width for parallel overhead line of same voltage level (above 132kV) are:

- *'W'* which is the minimum wayleave width;
- *'a'* which is the maximum distance between the outer conductor and the edge of the wayleave, and can be obtained from the last column in Table 2.1

(For overhead line configurations as depicted in Figure 2.2, clearances and dimensions for *a* and *j* are the same).

- '*b*' which is the minimum maintenance clearance. Maintenance clearance and conductor clearance for various voltage levels are provided in Table 2.3. Conductor clearance is clearance between the nearest conductor of an overhead line and the tower structure or ground.

(For overhead line configurations as depicted in Figure 2.2, clearances and dimensions for *b, d, e, f, h* and *i* are the same).

- *'d'* which is conductor clearance plus maintenance clearance.

(For overhead line configurations depicted in Figure 2.2, clearances and dimensions for *c* and *g* are the same).

From Figure 2.2 and the minimum clearance between conductors of parallel lines as given in tables Table 2.2 and Table 2.3, the width for wayleave for three parallel overhead line above 132 kV can be determined from the following equation:

$$W = a + b + c + d + e + f + g + h + i + j \qquad (3)$$

But for parallel lines of the same voltage level, $a = j$, $b = c = e = f = h = i$ and $d = g$. Therefore, equation 1 simplifies to:

$$W = 2a + 6b + 2d \qquad (4)$$

For respective Voltage levels, the minimum values of *'a'* are given in Table 2.2, the values of *'b'* are given in Table 2.3 and the values of *'d'* (conductor clearance plus maintenance clearance) can be determined from Table 2.3.

(a) Calculating wayleave width for 3 x 330kV parallel overhead line

For 330kV overhead line, $a = 15$m; $b = 7.8$m; and $d = 13$m (i.e., 5.2m + 7.8m).

Hence, using equation 4, the minimum required wayleave width for three parallel 330kV overhead line would be:

$$W = (2*15) + (6*7.8) + (2*13) + 102.8 \text{ meters}$$

(b) Calculating wayleave width for 3 x 220kV parallel overhead line

For 220kV overhead line, $a = 15$ m; $b = 7.45$ m; and $d = 12$ m (i.e., 4.5 m + 7.5 m).

Hence, using equation 4, the minimum required wayleave width for three parallel 220kV overhead line would be:

$$W = (2*15) + (6*7.45) + (2*12) + 98.7 \text{ meters}$$

2.1.4.3 Sample calculation of wayleave for parallel overhead line of mixed voltage level

one 220kV overhead line and one 66kV overhead line.

For 66kV overhead line, a = 8 m, b = 2.5 m.

For 220kV overhead line, c = 4.5 m, d = 15 m (maximum distance '*d*' from Table 2.2 is given to highest voltage level of the two).

Between two lines, the center distance is 32 m (value of the highest of the two Voltage levels; refer to Table 2.1).

Therefore, $W = (a + b)$ *[for 66kV]* +32+ $(c + d)$ *[for 220kV]*

$$W = (8 + 2.5)+32+(4.5 + 15) = 62.0 \text{ meters}.$$

2.2 Minimum Wayleave in recognized Forestry Areas

Where an overhead line is routed or planned to be constructed in accordance with section 23 of the Electricity Act, 2019 through a recognised Forestry area, the minimum clearance for an overhead line in a recognised Forestry area shall be as provided in Table 2.5.

Table 2.4: Wayleaves for overhead line in recognised Forestry areas

Over head line Voltage level	Tree restriction distance on each side of the overhead line center line, in meters	Total wayleave width, in meters
11kV	25 m	50 m
33kV	25 m	50 m
66kV	33 m	66 m
88kV	33 m	66 m
132kV	36 m	72 m
220kV	38 m	76 m
330kV	39 m	78 m
400kV	40 m	80 m

3 Minimum Clearance from Over Head Lines near structures

3.1 Reference notes of Paragraph 3

3.1.1 Neutral conductors for 0-33kV overhead line that are effectively earthed to ground throughout their length may have the same clearances as anchor guys (see subparagraph 3.29). Otherwise, the neutral conductors shall have the same clearances as the phase conductors of the circuit which they are associated with.

3.1.2 The clearances from overhead line specified in this paragraph shall apply to external live parts of associated equipment of an overhead line such as overhead line fuses, to exposed or insulated conducting parts or protection parts of a ground- or pole-mounted transformer or an auto-recloser.

3.2 Vertical Clearance above ground

3.2.1 The minimum vertical clearance above the ground shall be-

(a) 5.1 m to the lowest phase conduct, for 0 to 11kV overhead line, bare type (in open-country);

(b) 5.0 m to the lowest phase conduct, for 0 to 11kV overhead line, insulated type (in open-country);

(c) 5.3 m to the lowest phase conductor, for 33kV overhead line, bare or insulated type (in open-country);

(d) 5.5 m to the lowest phase conductor, for 0 to 33kV overhead line, bare type or insulated type (in other areas);

(e) 5.9 m to the lowest phase conductor, for 66kV overhead line;

(f) 6.3 m to the lowest phase conductor, for 88kV overhead line;

(g) 6.7 m to the lowest phase conductor, for 132kV to 220kV overhead line;

(h) 7.2 m to the lowest phase conductor, for 330kV overhead line; and

(i) 7.8 m to the lowest phase conductor, for 400kV overhead line**.**

3.3 Vertical Clearance above buildings, and structures classified as buildings

3.3.1 The minimum vertical clearance above building structure classified as building, or accessible elevated part of building (and illustrated by letters **A** and **B** in figure 3.1), shall be-

(a) 3.7 m to the closest phase conductor, for 0 to 11kV overhead line, bare or insulated type;

(b) 5.0 m to the closest phase conductor, for 33kV overhead line, bare or insulated type;

(c) 5.3 m to the closest phase conductor, for 66kV overhead line;

(d) 5.6 m to the closest phase conductor, for 88kV overhead line;

(e) 6.0 m to the closest phase conductor, for 132kV overhead line;

(f) 6.9 m to the closest phase conductor, for 220kV overhead line;

(g) 8.0 m to the closest phase conductor, for 330kV overhead line; and

(h) 9.4 m to the closest phase conductor, for 400kV overhead line.

NOTE on paragraph 3.3 —

(1) This paragraph excludes buildings for explosives magazine. Clearances for such buildings are specified in subparagraph 3.24.

3.4 Lateral Clearance near buildings, and structures classified as buildings

The minimum lateral clearance to walls, projections or inaccessible areas, of buildings or infrastructure classified as buildings (and illustrated by letter **C** in figure 3.1), shall be:

(a) 1.7 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 1.5 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 2.3 m to the closest phase conductor, for overhead line above 1kV, up to and including 33kV, bare or insulated type;

(d) 2.6 m to the closest phase conductor, for 66kV overhead line;

(e) 2.9 m to the closest phase conductor, for 88kV overhead line;

(f) 3.3 m to the closest phase conductor, for 132kV overhead line;

(g) 4.2 m to the closest phase conductor, for 220kV overhead line;

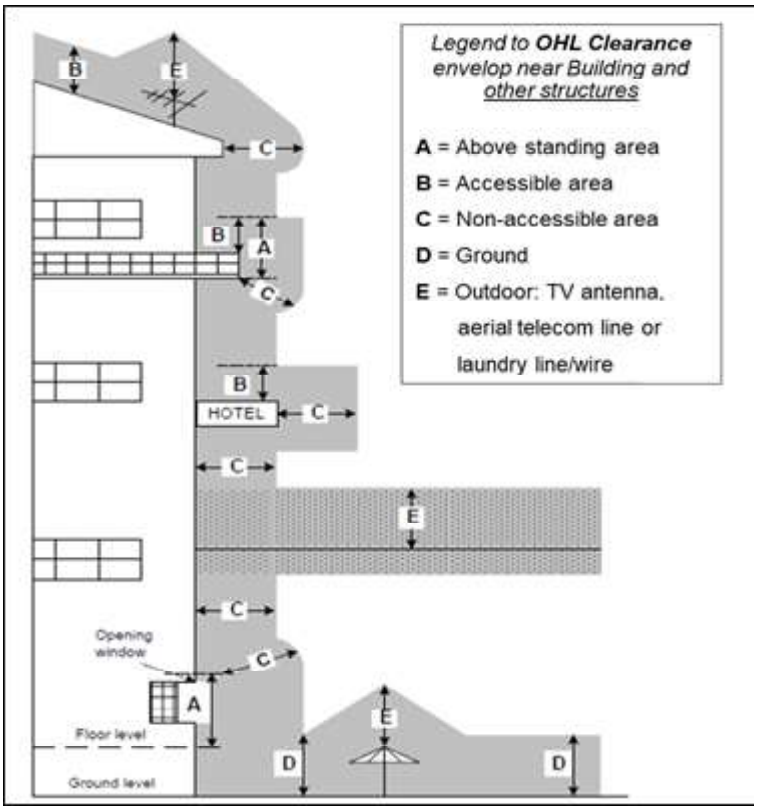
(h) 5.3 m to the closest phase conductor, for 330kV overhead line; and

(i) 6.6 m to the closest phase conductor, for 400kV overhead line.

NOTE on paragraph 3.4 —

(1) This paragraph excludes buildings for explosives magazine. Clearances for these are specified in subparagraph 3.24.

Figure 3.1: Minimum safety clearance envelop near structures



3.5 Vertical Clearance above structures not classified as buildings.

3.5.1 The minimum safety clearance above infrastructure and installations not classified as a building or bridge, such as sign posts, billboards, chimneys, laundry wire, television and radio antenna, tanks for non-flammable substances, fence, gate or gate-traversing path, and on which personnel may walk on top during maintenance of or other operations on such infrastructure or installation, shall be —

(a) 3.5 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 3.4 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 4.1 m to the closest phase conductor, for overhead line above 1kV, up to and including 33kV, bare or insulated type;

(d) 4.4 m to the closest phase conductor, for 66kV overhead line;

(e) 4.7 m to the closest phase conductor, for 88kV overhead line;

(f) 5.1 m to the closest phase conductor, for 132kV overhead line;

(g) 6.0 m to the closest phase conductor, for 220kV overhead line;

(h) 7.1 m to the closest phase conductor, for 330kV overhead line; and

(i) 8.4 m to the closest phase conductor, for 400kV overhead line.

3.5.2 The minimum safety clearance above infrastructure or installation not classified as building or bridge, such as sign posts, billboards, chimneys, laundry wire, television and radio antenna and tanks for non-flammable substances, fence, gate or gate-traversing path, and on which personnel shall not walk on top during maintenance of or other operations on such infrastructure or installation, shall be —

(a) 1.8 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 1.1 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 2.5 m to the closest phase conductor, for overhead line above 1kV, up to and including 33kV, bare or insulated type;

(d) 2.8 m to the closest phase conductor, for 66kVoverhead line;

(e) 3.0 m to the closest phase conductor, for 88kV overhead line;

(f) 3.4 m to the closest phase conductor, for 132kV overhead line;

(g) 4.3 m to the closest phase conductor, for 220kV overhead line;

(h) 5.4 m to the closest phase conductor, for 330kV overhead line; and

(i) 6.5 m to the closest phase conductor, for 400kV overhead line.

3.6 Lateral Clearance near structures not classified as buildings

3.6.1 The minimum lateral clearance near infrastructure or installation not classified as building or bridge, such as sign posts, billboards, chimneys, laundry wire, television and radio antenna, tanks for non-flammable substances, fence or gate, regardless of whether the portion under consideration is readily accessible to persons or not readily accessible, shall be —

(a) 1.7 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 1.5 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 2.0 m to the closest phase conductor, for overhead line above 1kV, up to and including 33kV, bare or insulated type;

(d) 2.3 m to the closest phase conductor, for 66kV overhead line;

(e) 2.6 m to the closest phase conductor, for 88kV overhead line;

(f) 3.0 m to the closest phase conductor, for 132kV overhead line;

(g) 3.9 m to the closest phase conductor, for 220kV overhead line;

(h) 5.0 m to the closest phase conductor, for 330kV overhead line; and

(i) 6.2 m to the closest phase conductor, for 400kV overhead line.

3.7 Vertical Clearance above bridges

3.7.1 The minimum permanent safety clearance above a bridge shall be-

(a) 4.7 m from the lowest conductor, for bare type overhead line below 11kV;

(b) 4.7 m from the lowest conductor, for 0 to 1kV overhead line, insulated type;

(c) 4.8 m from the lowest conductor, for 11kV overhead line, bare or insulated type;

(d) 5.0 m from the lowest conductor, for 33kV overhead line, bare or insulated type;

(e) 5.3 m from the lowest conductor, for 66kV overhead line;

(f) 5.6 m from the lowest conductor, for 88kV overhead line;

(g) 6.0 m from the lowest conductor, for 132kV overhead line;

(h) 6.6 m from the lowest conductor, for 220kV overhead line;

(i) 7.7 m from the lowest conductor, for 330kV overhead line; and

(j) 9.5 m from the lowest conductor, for 400kV overhead line.

3.8 Lateral Clearance near bridges and overpasses

3.8.1 The minimum lateral clearance beside, under or within readily accessible portions of a bridge or an overpass, including wings, walls and attachments shall be —

(a) 1.7 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 2.3 m to the closest phase conductor, for overhead line voltage above 1kV up to and including 33kV, bare or insulated type;

(c) 2.6 m to the closest phase conductor, for 66kV overhead line;

(d) 2.9 m to the closest phase conductor, for 88kV overhead line;

(e) 3.1 m to the closest phase conductor, for 132kV overhead line;

(f) 4.0 m to the closest phase conductor, for 220kV overhead line;

(g) 5.1 m to the closest phase conductor, for 330kV overhead line; and

(h) 6.2 m to the closest phase conductor, for 400kV overhead line.

3.8.2 The minimum lateral clearance beside, under or within ordinarily inaccessible portions of a bridge or an overpass, including wings, walls and attachments shall be —

(a) 1.4 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 2.0 m to the closest phase conductor, for overhead line Voltage above 1kV up to and including 33kV, bare or insulated type;

(c) 2.3 m to the closest phase conductor, for 66kV overhead line;

(d) 2.6 m to the closest phase conductor, for 88kV overhead line;

(e) 3.0 m to the closest phase conductor, for 132kV overhead line;

(f) 3.9 m to the closest phase conductor, for 220kV overhead line;

(g) 5.0 m to the closest phase conductor, for 330kV overhead line; and

(h) 6.5 m to the closest phase conductor, for 400kV overhead line.

3.9 Vertical Clearance of overhead line crossing above roads, alleys and parking lots

3.9.1 The minimum permanent safety clearance above the center-line of national highways, freeways and routes designated for abnormal loads, and the associated overpasses and bridges, shall be —

(a) 6.5 m from the lowest conductor, for 0 to 33kV overhead line, bare type (for national highway);

(b) 5.5 m from the lowest conductor for 0 to 33kV overhead line, insulated type (for national highway);

(c) 7.5 m from the lowest conductor, for 0 to 33kV overhead line, bare or insulated type (for freeways and routes designated for abnormal loads);

(d) 7.5 m from the lowest conductor for 66kV to 132kV overhead line;

(e) 8.4 m from the lowest conductor for 220kV overhead line;

(f) 9.5 m from the lowest conductor for 330kV overhead line; and

(g) 11.0 m from the lowest conductor, for 400kV overhead line.

3.9.2 The minimum permanent safety clearance above center line of township roads, proclaimed roads and alleys, and parking lots, including above-storey park lots shall be —

(a) 6.2 m from the lowest conductor, for bare type overhead line below 11kV;

(b) 6.3 m from the lowest conductor, for 11kV overhead line, bare type;

(c) 6.5 m from the lowest conductor, for 33kV overhead line, bare type;

(d) 5.5 m from the lowest conductor, for 0 to 33kV overhead line, insulated type;

(e) 6.9 m from the lowest conductor, for 66kV overhead line;

(f) 7.1 m from the lowest conductor, for 88kV overhead line;

(g) 7.5 m from the lowest conductor, for 132kV overhead line;

(h) 7.9 m from the lowest conductor, for 220kV overhead line;

(i) 8.8 m from the lowest conductor, for 330kV overhead line; and

(j) 10.0 m from the lowest conductor, for 400kV overhead line.

3.9.3 The minimum permanent safety clearance specified in sub-subparagraph 3.9.2 shall also be applicable to land such as commercial yard used by trucks, and other private land traversed by trucks, such as cultivated, grazing, forest or orchard land.

3.9.4 The minimum permanent safety above center line of private property driveway not trafficable by trucks or not trafficable by high volume of public vehicles shall be —

(a) 4.0 m from the lowest conductor, for 0 to 33kV overhead line, bare type;

(b) 3.0 m from the lowest conductor, for 0 to 33kV overhead line, insulated type;

(c) 5.9 m from the lowest conductor, for 66kV overhead line;

(d) 6.3 m from the lowest conductor, for 88kV overhead line;

(e) 6.7 m from the lowest conductor, for 132kV to 220kV overhead line;

(f) 7.2 m from the lowest conductor, for 330kV overhead line; and

(g) 8.0 m from the lowest conductor, for 400kV overhead line.

3.9.5 The minimum permanent safety clearance above spaces subject to pedestrians and cyclists only, such as footpath and footbridge, shall be —

(a) 3.6 m to the closest phase conductor, for 0 to 1kV overhead line, bare or insulated type;

(b) 4.4 m to the closest phase conductor, for overhead line Voltage above 1kV up to and including 33kV, bare or insulated type;

(c) 4.7 m to the closest phase conductor, for 66kV overhead line;

(d) 5.0 m to the closest phase conductor, for 88kV overhead line;

(e) 5.4 m to the closest phase conductor, for 132kV overhead line;

(f) 6.3 m to the closest phase conductor, for 220kV overhead line;

(g) 7.4 m to the closest phase conductor, for 330kV overhead line; and

(h) 8.3 m to the closest phase conductor, for 400kV overhead line.

NOTE on subparagraph 3.9 —

(1) All overhead line crossing of a road or an alley shall be made at an angle of between 90 degrees (maximum) and 45 degrees (minimum);

(2) Apart from where an overhead line is crossing a road or alley, no portion of the overhead line shall overhang along the actual road or alley; and

(3) Where overhead line conductors run along and within the limits of road wayleave but do not overhang the roadway, the clearances of such overhead line conductors shall be the same as the respective clearances specified in the respective subparagraphs, sub-subparagraphs or paragraphs.

3.10 Vertical Clearance above rail track or railway

3.10.1 The minimum permanent vertical safety clearance above a broad gauge railway track within the railway station shall be —

(a) 8.1 m from the lowest conductor, for 0 to 33kV overhead line, bare type;

(b) 7.5 m from the lowest conductor, for 0 to 33kV overhead line, insulated type;

(c) 10.3 m from the lowest conductor, for 66 to 88kV overhead line;

(d) 10.9 m from the lowest conductor, for 132kV overhead line;

(e) 11.2 m from the lowest conductor, for 220kV overhead line;

(f) 12.5 m from the lowest conductor, for 330kV overhead line; and

(g) 14.3 m from the lowest conductor, for 400kV overhead line.

3.10.2 The minimum permanent vertical safety clearance above a broad gauge railway track outside the railway station shall be —

(a) 7.5 m from the lowest conductor, for 0 to 33kV overhead line, bare type;

(b) 7.0 m from the lowest conductor, for 0 to 33kV overhead line, insulated type;

(c) 7.9 m from the lowest conductor, for 66 to 88kV overhead line;

(d) 8.5 m from the lowest conductor, for 132kV overhead line;

(e) 8.8 m from the lowest conductor, for 220kV overhead line;

(f) 10.5 m from the lowest conductor, for 330kV overhead line; and

(g) 13.0 m from the lowest conductor, for 400kV overhead line.

3.10.3 Inside rail stations, the minimum permanent vertical safety clearance above narrow gauge railway track shall be —

(a) 7.2 m from the lowest conductor, for 0 to 33kV overhead line, bare type;

(b) 6.7 m from the lowest conductor, for 0 to 33kV overhead line, insulated type;

(c) 9.1 m from the lowest conductor, for 66 to 88kV overhead line;

(d) 9.8 m from the lowest conductor, for 132kV overhead line;

(e) 10.0 m from the lowest conductor, for 220kV overhead line;

(f) 12.0 m from the lowest conductor, for 330kV overhead line; and

(g) 14.1 m from the lowest conductor, for 400kV overhead line.

3.10.4 Outside rail stations, the minimum permanent vertical safety clearance above narrow gauge railway track shall be —

(a) 6.7 m from the lowest conductor, for 0 to 33kV overhead line, bare type;

(b) 6.5 m from the lowest conductor, for 0 to 33kV overhead line, insulated type;

(c) 6.7 m from the lowest conductor, for 66 to 88kV overhead line;

(d) 7.3 m from the lowest conductor, for 132kV overhead line;

(e) 7.6 m from the lowest conductor, for 220kV overhead line;

(f) 9.0 m from the lowest conductor, for 330kV overhead line; and

(g) 10.9 m from the lowest conductor, for 400kV overhead line.

NOTE on subparagraghs 3.10 and 3.11—

(1) Where overhead line conductors overhang along railway or run along and within the limits of railway track wayleave, the clearances of such overhead line conductors shall be the same as the respective clearances specified in the paragraphs; and

(2) The minimum clearances provided in these subparagraphs do not apply to electrified railways using overhead trolley conductors.

3.11 Lateral Clearances near rail track or railway

3.11.1 For railways that handle standard rail cars (rail cars of width around 3.2 meters to 3.3 meters), the lateral clearance of overhead line to the nearest respective rail shall be equal to the respective required vertical clearances specified in subparagraph 3.10 minus 4.6 meters.

3.11.2 For railways that only handle cars smaller than the standard cars, the lateral clearance of overhead line to the nearest rail may be reduced by one-half the difference between the width of a standard rail car and the width of the narrower car.

3.12 Vertical and Lateral Clearances near aerial telecommunication line

3.12.1 The minimum permanent safety clearance above, or lateral clearance near, aerial telecommunication line on structures which are not jointly shared with electricity overhead line shall be —

(a) 2.0 m to the closest phase conductor, for 0 to 11kV overhead line, bare or insulated type;

(b) 2.5 m to the closest phase conductor, for 33kV overhead line, bare or insulated type;

(c) 3.5 m to the closest phase conductor, for 66kV to 88kV overhead line;

(d) 4.0 m to the closest phase conductor, for 132kV overhead line;

(e) 4.5 m to the closest phase conductor, for 220kV overhead line;

(f) 6.0 m to the closest phase conductor, for 330kV overhead line; and

(g) 5.7 m to the closest phase conductor, for 400kV overhead line.

3.12.2 The minimum permanent safety clearance above, or lateral clearance near, aerial telecommunication line on structures which are jointly shared with electricity overhead line shall be —

(a) 1.1 m to the closest phase conductor, for 0 to 11kV overhead line, bare or insulated type;

(b) 1.3 m to the closest phase conductor, for 33kV overhead line, bare or insulated type;

(c) 1.9 m to the closest phase conductor, for 66kV to 88kV overhead line;

(d) 2.3 m to the closest phase conductor, for 132kV overhead line;

(e) 3.1 m to the closest phase conductor, for 220kV overhead line;

(f) 4.2 m to the closest phase conductor, for 330kV overhead line; and

(g) 5.7 m to the closest phase conductor, for 400kV overhead line.

NOTE on subparagraph 3.12 —

(1) The clearances specified in this subparagraph apply to bare telecommunication lines. The clearance for insulated telecommunication line shall be determined by subtracting 0.4 meters from the applicable specified overhead line.

(2) Overhead line, of any voltage level, shall always be routed above aerial telecommunication line.

(3) The neutral conductor shall be considered as having the same voltage classification as the circuit which it is associated.

3.13 Vertical clearance above water level in swimming pool or above walk way around swimming pool, diving platform, tower and water slide or other fixed, pool-related structures

No overhead line of any voltage level shall be placed above swimming pool, or walk way around swimming pool, diving platform, tower and water slide or other fixed, pool-related structures, except where such swimming pool and pool-related structures are fully enclosed by a solid or screened permanent structure, in which case the relevant clearance specified in subparagraphs 3.3 and 3.5 shall apply.

3.14 Lateral clearance of overhead line near edge of swimming pool, walk way around swimming pool, diving platform, tower or water slide or other fixed, pool-related structures.

3.14.1 The minimum lateral clearance to the edge of swimming pool, or walk way around swimming pool, diving platform, tower and water slide or other fixed, pool-related structures, shall be:

(a) 7.0 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 6.9 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 7.6 m to the closest phase conductor, for overhead line of voltage above 1kV, up to and including 33kV, bare type;

(d) 7.9 m to the closest phase conductor, for 66kV overhead line;

(e) 8.2 m to the closest phase conductor, for 88kV overhead line;

(f) 8.6 m to the closest phase conductor, for 132kV overhead line;

(g) 9.5 m to the closest phase conductor, for 220kV overhead line;

(h) 10.6 m to the closest phase conductor, for 330kV overhead line; and

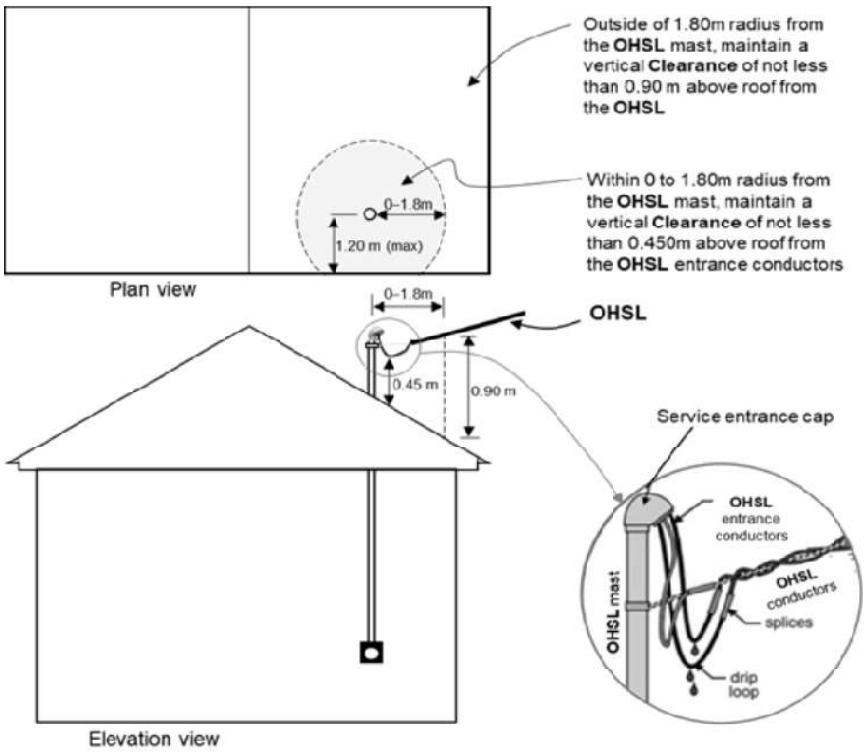
(i) 12.1 m to the closest phase conductor, for 400kV overhead line.

3.15 Height and method for attaching overhead service line to a building or structure

3.15.1 Overhead service line shall have a minimum clearance of 1.0 m in any direction from, and the edge of the traversing path of, a door or a window that is designed to open, and from a porch, a fire escape, or similar locations.

3.15.2 Where overhead service line connection method is opted to service a building or structure, the connection and termination of the overhead service line at such building or structure shall be through an overhead service line support mast as illustrated in Figure 3.2. The connection and termination shall contain all the components shown in the red circle in Figure 3.2, i.e., mast, service entrance cap, drip-looped overhead service line entrance conductors and splicing between overhead service line conductors and overhead service line entrance conductors.

Figure 3.2: Clearance of OHSL terminating on support mast of a building.



3.15.3 No other item shall be attached to or supported by the mast except overhead service line and its accessories.

3.15.4 Mast used for the support of overhead service line shall be installed in compliance with the following requirements:

(a) The mast shall be of adequate strength or be supported by braces or anchor guys to safely withstand the strain imposed by the overhead service line conductors. Hubs intended for use with a conduit that serves as a overhead service line mast shall be identified for use with overhead service line-entrance equipment.

(b) Overhead service line conductors shall not be attached to an overhead service line mast between a service entrance cap or the end of the conduit and a coupling, where the coupling is located above the last point of securement to the building or other structure or is located above the building or other structure.

NOTE on subparagraph 3.15 —

Attaching overhead service line for supply is not permitted for the following cases:

(a) Attaching overhead service line to serve building or structure without a support mast; and

(b) Attaching bare overhead service line, unless such overhead service line is guarded.

Within the meaning of the **Schedule**, overhead service line is considered guarded if its conductor(s) and any associated neutral are supported on or cabled together with an effectively earthed bare messenger or neutral, or with multiple concentric neutral conductors, where any associated neutral conductor have the same clearance as the phase conductor of the circuit with which the neutral is associated, and where cables have an effectively earthed continuous metal sheath or shield. In that case, the clearance for insulated overhead service line shall apply.

3.16 Vertical Clearance above an above-ground or underground infrastructure used for storage or handing of flammable substances

An overhead line shall not be placed over an above ground or underground infrastructure, or part thereof, used for storage or handling of flammable substances defined as class 0, class I or class III in the Zambian Standard ZS 402:2006, except where such a structure is fully enclosed by a solid permanent structure, in which case the clearances of subparagraph 3.3 shall apply to the enclosing structure.

NOTE on subparagraph 3.16 —

The word infrastructure or installation in 3.16 may refer to forecourt, underground or above ground tank or corresponding tank farm, dispenser, loading or off-loading gantry at a fuel depot, vent or oil interceptor.

3.17 Lateral Clearance near underground and above-ground infrastructure used for storage or handling of flammable substances

3.17.1 The minimum permanent lateral clearance near infrastructure or installation used for storage or handling of flammable substances defined as class I, class II or class III in the Zambian Standard ZS 402:2006, shall be-

(a) 15 m to the closest phase conductor, for 0 to 33kV overhead line, bare or insulated type;

(b) 30 m to the closest phase conductor, for voltages over 33kV, up to and including 132kV overhead line; and

(c) 60 m to the closest phase conductor, for voltages over 132kV, up to and including 400kV overhead line.

NOTE on subparagraph 3.17.1 —

The word infrastructure or installation in subparagraph 3.17.1 includes forecourt, underground or above ground tank or corresponding tank farm, dispenser, loading or off-loading gantry at a fuel depot, vent or oil interceptor.

3.17.2 The minimum permanent lateral clearance near infrastructure or installation used for storage or handling of flammable substances defined as class 0 in the Zambian Standard ZS 402:2006, shall be —

(a) for installation whose single or aggregated holding capacity is up to 2,273 liters —

(i) 3 m to the closest phase conductor for overhead line below 11kV, bare or insulated type;

(ii) 6 m to the closest phase conductor for 11kV to 33kV overhead line, bare or insulated type;

(iii) 15 m to the closest phase conductor for overhead line over 33kV, up to and including 330kV; and

(iv) 25 m to the closest phase conductor, for overhead line over 330kV;

(b) for installation whose single or aggregated holding capacity is more than 2,273 liters, up to and including 9,094 liters —

(i) 7.6 m to the closest phase conductor for overhead line up to 33kV, bare or insulated type;

(ii) 15 m to the closest phase conductor for overhead line over 33kV, up to and including 330kV; and

(iii) 25 m to the closest phase conductor, for overhead line over 330kV; and

(c) for installation whose single or aggregated holding capacity is more than 9,094 liters:

(i) 15 m to the closest phase conductor for overhead line up to 33kV, bare or insulated type;

(ii) 30 m to the closest phase conductor for overhead line over 33kV, up to and including 132kV overhead line; and

(iii) 60 m to the closest phase conductor, for overhead line over 132kV, up to and including 400kV.

NOTE on subparagraph 3.17.2:

The words infrastructure and installation in sub-subparagraph 3.17.2 may refer to depot, tank or cylinder, singularly or as a collection.

3.18 Vertical Clearance above navigable and non-navigable water bodies

3.18.1 The minimum permanent vertical clearance above water areas not suitable for sail-boating or where sail-boating is prohibited, including water areas such as dams, ponds, reservoirs, tidal waters, rivers, streams and canals, shall be —

(a) 4.6 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 4.4 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 5.2 m to the closest phase conductor, for over 1kV to 11kV overhead line, bare or insulated type;

(d) 5.4 m to the closets phase conductor, for 33kV overhead line;

(e) 5.8 m to the closest phase conductor, for 66kV overhead line;

(f) 6.0 m to the closest phase conductor, for 88kV overhead line;

(g) 6.4 m to the closest phase conductor, for 132kV overhead line;

(h) 7.3 m to the closest phase conductor, for 220kV overhead line;

(i) 8.4 m to the closest phase conductor, for 330kV overhead line; and

(j) 9.7 m to the closest phase conductor, for 400kV overhead line.

3.18.2 The minimum permanent vertical clearance above water area suitable for sail-boating, or where sail-boating is not prohibited, including water area such as a dam, pond, reservoir, tidal water, river, stream and canal, whereby the unobstructed surface area of such a water area is less than 0.08 km^2, shall be —

(a) 5.6 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 5.5 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 6.2 m to the closest phase conductor, for over 1kV to 11kV overhead line, bare or insulated type;

(d) 6.4 m to the closets phase conductor, for 33kV overhead line;

(e) 6.8 m to the closest phase conductor, for 66kV overhead line;

(f) 6.8 m to the closest phase conductor, for 88kV overhead line;

(g) 7.4 m to the closest phase conductor, for 132kV overhead line;

(h) 8.3 m to the closest phase conductor, for 220kV overhead line;

(i) 9.4 m to the closest phase conductor, for 330kV overhead line; and

(j) 10.7 m to the closest phase conductor, for 400kV overhead line.

3.18.3 The minimum permanent vertical clearance above water area suitable for sail-boating, or where sail-boating is not prohibited, including water area such as dam, pond, reservoir, tidal water, river, stream and canal, whereby the unobstructed surface area of such a water area is more than 0.08 km^2 but less than or equal to 0.8 km^2, shall be —

(a) 8.1 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 7.9 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 8.7 m to the closest phase conductor, for over 1kV to 11kV overhead line, bare or insulated type;

(d) 8.9 m to the closets phase conductor, for 33kV overhead line;

(e) 9.3 m to the closest phase conductor, for 66kV overhead line;

(f) 9.5 m to the closest phase conductor, for 88kV overhead line;

(g) 9.9 m to the closest phase conductor, for 132kV overhead line;

(h) 10.8 m to the closest phase conductor, for 220kV overhead line;

(i) 11.9 m to the closest phase conductor, for 330kV overhead line; and

(j) 13.1 m to the closest phase conductor, for 400kV overhead line.

3.18.4 The minimum permanent vertical clearance above water area suitable for sail-boating, or where sail-boating is not prohibited, including water area such as dam, pond, reservoir, tidal water, river, stream and canal, whereby the unobstructed surface area of such a water area is more than 0.8 km^2 but less than or equal to 8 km^2, shall be —

(a) 9.9 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 9.8 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 10.5 m to the closest phase conductor, for over 1kV to 11kV overhead line, bare or insulated type;

(d) 10.7 m to the closets phase conductor, for 33kV overhead line;

(e) 11.1 m to the closest phase conductor, for 66kV overhead line;

(f) 11.3 m to the closest phase conductor, for 88kV overhead line;

(g) 11.7 m to the closest phase conductor, for 132kV overhead line;

(h) 12.6 m to the closest phase conductor, for 220kV overhead line;

(i) 13.7 m to the closest phase conductor, for 330kV overhead line; and

(j) 14.5 m to the closest phase conductor, for 400kV overhead line.

3.18.5 The minimum permanent vertical clearance above water area suitable for sail-boating, or where sail-boating is not prohibited, including water area such as dam, pond, reservoir, tidal water, river, stream and canal, whereby the unobstructed surface area of such a water area is more than 8 km^2, shall be —

(a) 11.7 m to the closest phase conductor, for 0 to 1kV overhead line, bare type;

(b) 11.6 m to the closest phase conductor, for 0 to 1kV overhead line, insulated type;

(c) 12.3 m to the closest phase conductor, for over 1kV to 11kV overhead line, bare or insulated type;

(d) 2.5 m to the closets phase conductor, for 33kV overhead line;

(e) 12.9 m to the closest phase conductor, for 66kV overhead line;

(f) 13.1 m to the closest phase conductor, for 88kV overhead line;

(g) 13.5 m to the closest phase conductor, for 132kV overhead line;

(h) 4.0 m to the closest phase conductor, for 220kV overhead line;

(i) 15.1 m to the closest phase conductor, for 330kV overhead line; and

(j) 16.3 m to the closest phase conductor, for 400kV overhead line.

3.18.6 The minimum permanent vertical clearance above water level at site for established boat ramp or associated rigging area, or an area posted with signage for rigging or launching sail boats, shall have a clearance of 1.5 metres greater than clearance specified in subparagraphs 3.18.2 to 3.18.6, for the type of water area served by the launching site.

NOTE on subparagraph 3.18 —

(1) For natural water areas such as lakes, rivers, canals and streams, the specified clearances are with reference to the normal rain-season water level of the water area. For the dam, the specified clearance is with respect to the spillway level.

(2) Care shall be taken when placing support structures of overhead line in the 50 to 100-year flood plains to ensure that the minimum Clearances set out in the Schedule are maintained in such flood scenarios.

(3) The clearance over a river, stream or canal shall be based on the largest surface area of any 1.6 km-long segment that includes the crossing.

(4) The clearance over a river, stream or canal normally used to provide access for sailboats to a larger body of water shall be the same as that required for the larger body of water.

(5) Where the Zambia Army Corps of Engineers or surrogate thereof, or the State, has issued a crossing permit, clearances of the permit shall govern.

3.19 Clearance between conductors of overhead line circuits of different or same voltage levels on the same support structure.

3.19.1 The following minimum permanent clearance shall be maintained between closest conductors of different overhead line circuit on the same support:

(a) 1.0 m, if one circuit is less than 33kV and the other circuit is less than or equal to 1kV;

(b) 1.2 m, if one circuit is less than 33kV and the other circuit is greater than 1kV but less than 33kV;

(c) 1.5 m, if one circuit is greater than or equal to 33kV, but not exceeding 132kV, and the other circuit is less than or equal to 1kV;

(d) 2.0 m, if one circuit is greater than or equal to 33kV, but not exceeding 132kV, and the other circuit is greater than 1kV but not exceeding 132kV; and

(e) 2.5 m, if one circuit is greater than 132kV and the other circuit is less than or equal to 132kV.

NOTE on subparagraph 3.19 —

Conductors of higher voltage overhead line shall always be installed above conductors of lower voltage overhead line.

3.20 Lateral clearance between conductors of different overhead line circuit on different support structures.

The arrangement of lateral clearances specified in this section is illustrated in Figure 3.3.

3.20.1 The following minimum lateral clearance shall be maintained between closest conductors of different overhead line circuit on different supports:

(a) 0.6 m, if the higher voltage of either circuit is less than 1kV, and if either of the circuits has insulated type overhead line

(b) 1.0 m, if the higher voltage of either circuit is less than 1kV, and if both of the circuits have bare overhead line conductors

(c) 1.2 m, if the higher voltage of either circuit is greater than or equal to 1kV, but not exceeding 33kV

(d) 1.8 m, if the higher voltage of either circuit is greater than 33kV, but not exceeding 66kV

(e) 2.4 m, if the higher voltage of either circuit is greater than 66kV, but not exceeding 132kV

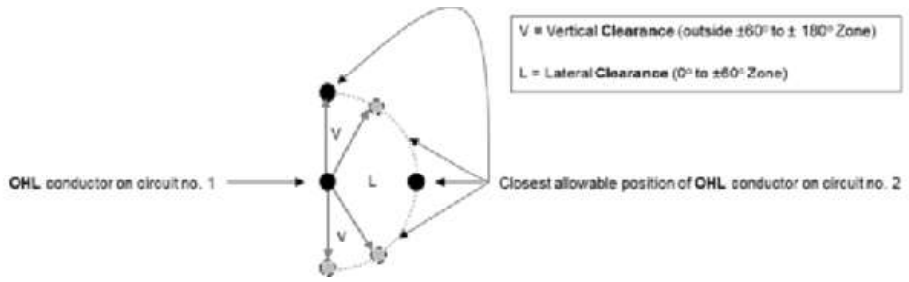
(f) 2.8 m, if the higher voltage of either circuit is greater than 132kV, but not exceeding 220kV

(g) 4.0 m, if the higher voltage of either circuit is greater than 220kV, but not exceeding 400kV.

3.21 Vertical clearance between conductors of different overhead line circuit on different support structure

The arrangement of vertical clearances specified in this paragraph is illustrated in Figure 3.3.

Figure 3.3: Clearance envelop for overhead line conductors on different circuits



3.21.1 The minimum vertical clearance for effectively earthed guy-wire, span-wire, messenger, neutral conductor effectively earthed throughout its length, or overhead shield or surge-protection wires for overhead line shall be -

(a) 0.6 m from the lowest conductor, for 0 to 33kV overhead line;

(b) 1.0 m from the lowest conductor, for 66kV overhead line;

(c) 1.2 m from the lowest conductor, for 88kV overhead line;

(d) 1.6 m from the lowest conductor, for 132kV overhead line;

(e) 2.5 m from the lowest conductor, for 220kV overhead line;

(f) 3.6 m from the lowest conductor, for 330kV overhead line; and

(g) 4.5 m from the lowest conductor, for 400kV overhead line.

3.21.2 The minimum vertical clearance for highest conductor of 0 to 33kV overhead line shall be —

(a) 0.6 m from the lowest conductor of the other overhead line circuit of voltage 0 to 33kV;

(b) 1.0 m from the lowest conductor of the other overhead line circuit of voltage 66kV;

(c) 1.2 m from the lowest conductor of the other overhead line circuit of voltage 88kV;

(d) 1.6 m from the lowest conductor of the other overhead line circuit of voltage 132kV;

(e) 2.5 m from the lowest conductor of the other overhead line circuit of voltage 220kV;

(f) 3.6 m from the lowest conductor of the other overhead line circuit of voltage 330kV; and

(g) 4.5 m from the lowest conductor of the other overhead line circuit of voltage 400kV.

3.21.3 The minimum vertical clearance for highest conductor of 66kV overhead line shall be —

(a) 1.3 m from the lowest conductor of the other overhead line circuit of voltage 66kV;

(b) 1.5 m from the lowest conductor of the other overhead line circuit of voltage 88kV;

(c) 2.0 m from the lowest conductor of the other overhead line circuit of voltage 132kV;

(d) 2.9 m from the lowest conductor of the other overhead line circuit of voltage 220kV;

(e) 4.0 m from the lowest conductor of the other overhead line circuit of voltage 330kV; and

(f) 5.0 m from the lowest conductor of the other overhead line circuit of voltage 400kV.

3.21.4 The minimum vertical clearance for highest conductor of 88kV overhead line shall be —

(a) 1.7 m from the lowest conductor of the other overhead line circuit of voltage 88kV;

(b) 2.2 m from the lowest conductor of the other overhead line circuit of voltage 132kV;

(c) 3.1 m from the lowest conductor of the other overhead line circuit of voltage 220kV;

(d) 4.1 m from the lowest conductor of the other overhead line circuit of voltage 330kV; and

(e) 5.1 m from the lowest conductor of the other overhead line circuit of voltage 330kV.

3.21.5 The minimum vertical clearance for highest conductor of 132kV overhead line shall be —

(a) 2.6 m from the lowest conductor of the other overhead line circuit of voltage 132kV;

(b) 3.5 m from the lowest conductor of the other overhead line circuit of voltage 220kV;

(c) 4.6 m from the lowest conductor of the other overhead line circuit of voltage 330kV; and

(d) 5.7 m from the lowest conductor of the other overhead line circuit of voltage 400kV.

3.21.6 The minimum vertical clearance for highest conductor of 220kV overhead line shall be —

(a) 4.4 m from the lowest conductor of the other overhead line circuit of voltage 220kV;

(b) 5.5 m from the lowest conductor of the other overhead line circuit of voltage 330kV; and

(c) 7.6 m from the lowest conductor of the other overhead line circuit of voltage 400kV.

3.21.7 The minimum vertical clearance for highest conductor of 330kV overhead line shall be —

(a) 6.6 m from the lowest conductor of the other overhead line circuit of voltage 330kV; and

(b) 8.7 m from the lowest conductor of the other overhead line circuit of voltage 400kV.

3.21.8 The minimum vertical clearance for highest conductor of 400kV overhead line shall be 9.8 m from the lowest conductor of the other overhead line circuit of voltage 400kV.

NOTE on subparagraph 3.21 —

(1) Conductors of higher voltage overhead line shall always be routed above conductors of lower voltage overhead line.

(2) For interpretation of this subparagraph, neutral and earth wires are considered as phase conductors for the circuit which they are associated.

3.22 Clearances to overhead line in the vicinity of solar PV plant

The following shall be observed, in order to achieve the barest minimum safety clearances with respect to the development of solar PV farms:

3.22.1 For solar PV panels directly underneath overhead line conductors, the highest point on the solar panels shall comply with minimum vertical safety clearances specified in subparagraph 3.5.

3.22.2 For lateral clearance at the solar PV farm or installation, clearances specified in subparagraph 3.6 shall be observed.

3.23 Clearances to overhead line in the vicinity of wind farms

3.23.1 The following two main criteria shall be applied to siting of wind farms with respect to overhead line whose voltage is equal or over 66kV:

(a) the turbine shall be placed at a minimum horizontal distance from the overhead line which is equal to the tip height of the turbine plus the safety clearance that applies to the overhead line; and

(b) the turbine shall not be placed at a horizontal distance from the center of the overhead line which is less than three times the rotor diameter.

3.24 Clearance to overhead line in the vicinity of explosive magazine and quarry blasting

3.24.1 An overhead line of any voltage shall not be placed above an explosive magazine or quarry site.

3.24.2 The lateral clearance from overhead line to an explosive magazine shall be -

(a) 15 m to the closest conductor of overhead line voltage below 0.4kV;

(b) 20 m to the closest conductor of overhead line voltage from 0.4kV to 33kV; and

(c) 30 m to the closest conductor of overhead line voltage above 33kV.

3.24.3 The lateral clearance from the closest conductor of an overhead line to quarry blasting site shall be 150 m for 0 to 33kV overhead line, and 200 m for overhead line voltage greater than 33kV.

3.25 Clearance to overhead line in the vicinity of fire hydrants located outside buildings

3.25.1 An overhead line of any voltage shall not be placed above a fire hydrant.

3.25.2 The minimum lateral clearance from the 0 to 330kV overhead line or the overhead line support structure, whichever shall be closest, to a fire hydrant located outside a building shall be 30 m, but this clearance may be reduced to 20 m for 0 to 0.4kV overhead line supply or overhead service line.

3.26 Clearance to overhead line in the vicinity of trees and hedges

3.26.1 For trees underneath overhead line conductors, the highest point on the trees shall be controlled so as to maintain compliance with the minimum vertical clearances specified in subparagraph 3.5.

3.26.2 The lateral clearance from overhead line to tree or hedge unable to support a ladder or being climbed, shall be —

(a) 0.8 m to the closest conductor or bare live metal work of overhead line voltage below 33kV;

(b) 1.1 m to the closest conductor or bare live metal work of 33kV to 66kV overhead line;

(c) 1.4 m to the closest conductor or bare live metal work of 88kV overhead line;

(d) 1.8 m to the closest conductor or bare live metal work of 132kV overhead line;

(e) 2.7 m to the closest conductor or bare live metal work of 220kV overhead line;

(f) 3.8 m to the closest conductor or bare live metal work of 330kV overhead line; and

(g) 4.6 m to the closest conductor or bare live metal work of 400kV overhead line.

3.6.3 The lateral clearance from overhead line to tree or hedge capable of supporting a ladder or being climbed, or an orchard, shall be —

(a) 3.0 m to the closest conductor or bare live metal work of overhead line voltage below 33kV;

(b) 3.2 m to the closest conductor or bare live metal work of 33kV to 66kV overhead line;

(c) 3.4 m to the closest conductor or bare live metal work of 88kV overhead line;

(d) 3.9 m to the closest conductor or bare live metal work of 132kV overhead line;

(e) 4.8 m to the closest conductor or bare live metal work of 220kV overhead line;

(f) 5.9 m to the closest conductor or bare live metal work of 330kV overhead line; and

(g) 6.7 m to the closest conductor or bare live metal work of 400kV overhead line.

3.27 Clearance to overhead line in the vicinity of street lighting

3.27.1 The clearance from closest conductor of overhead line of voltage 0 to 0.4kV to a lantern on the same pole shall be 1.0 m.

3.27.2 The clearance from lowest insulated conductor of 0 to 0.4kV overhead line to a lantern on a different pole shall be 1.0 m.

3.27.3 The clearance from lowest insulated conductor of 0 to 0.4kV overhead line to a column of street lighting on a different pole shall be 0.3 m.

3.27.4 The clearance from lowest bare conductor of 0 to 0.4kV overhead line to a lantern or column of street lighting on a different pole shall be 1.5 m.

3.27.5 The lateral clearance from closest conductor or part of support structure of overhead line to a lantern or column of street lighting, with column in normal upright position or column bending in the direction of the overhead line, shall be —

(a) 1.5 m for 0 to 0.4kV overhead line;

(b) 1.7 m for 11 to 33kV overhead line;

(c) 2.0 m for 66kV overhead line;

(d) 2.3 m for 88kV overhead line;

(e) 2.7 m for 132kV overhead line;

(f) 3.6 m for 220kV overhead line;

(g) 4.7 m for 330kV overhead line; and

(h) 5.6 m for 400kV overhead line.

3.28 Clearance from overhead line to other objects and spaces (general)

3.28.1 The minimum lateral clearance from the closest conductor of an overhead line to a playing field shall be 8.5 m for any voltage level up to 330kV.

3.28.2 The minimum lateral clearance from the closest conductor of an overhead line to caravan site shall be 9.0 m for any voltage level up to 330kV.

3.28.3 An overhead line shall not be placed above a water well or a water borehole.

3.28.4 The minimum lateral clearance from the closest conductor of an overhead line to a water well or a water borehole site shall be 15.0 m for any voltage level up to 330kV.

3.8.5 The safe approach distance to overhead line or its exposed live parts shall be —

(a) 0.5 m for overhead line less than 1kV;

(b) 1.5 m for 1kV to 11kV overhead line;

(c) 2.5 m for 33kV overhead line;

(d) 3.0 m for 66kV overhead line;

(e) 3.2 m for 88kV overhead line;

(f) 4.2 m for 132kV overhead line; and

(g) 6.0 m for overhead line over 132kV.

3.29 Clearance from overhead line support structure to other objects

Supporting structures, support arms, anchor guys, and equipment attached thereto, and braces shall have the clearances from other objects as specified in this subparagraph.

3.29.1 The clearance shall be measured between the nearest parts of the objects concerned.

3.29.2 The minimum clearance from fire hydrants shall be 1.2 metres. This clearance may be reduced by prior written agreement between the owner of the associated overhead line and the fire authority.

3.29.3 Where railway tracks are parallel to or crossed by overhead line, all portions of supporting structures, support arms, anchor guys, and equipment attached thereto less than 6.7 m above the nearest track rail, the minimum clearance shall be 3.6 m from the nearest track rail.

3.29.4 Where it is necessary to provide safe operating conditions that require an uninterruptible view of signals and signs along tracks, the person proposing or owning the overhead line, and the railway track owner shall agree on where to locate the overhead line support structures in order to achieve the necessary clearance or reduce the clearance.

4 MINIMUM CLEARANCES WHEN WORKING NEAR OVERHEAD LINE

4.1 General Notes to Paragraph 4

4.1.1 The project supervisor of works shall establish a care and maintenance system which shall ensure that any barrier, bunting, warning sign, goalpost and lighting referred in this section is in place and effective throughout the works. This system shall include:

(a) daily visual checks of protective measures, the behavior of site personnel and the operation of plant and machinery that is close to overhead line;

(b) weekly recorded checks of protective measures; and

(c) a follow-up process for all protective measures and works to make sure defects are notified to the responsible person and corrected without delay.

4.1.2 The specifications in this paragraph shall not apply to —

(a) clearances required for general agricultural, general forestry, vegetation management or hedge-cutting activities; and

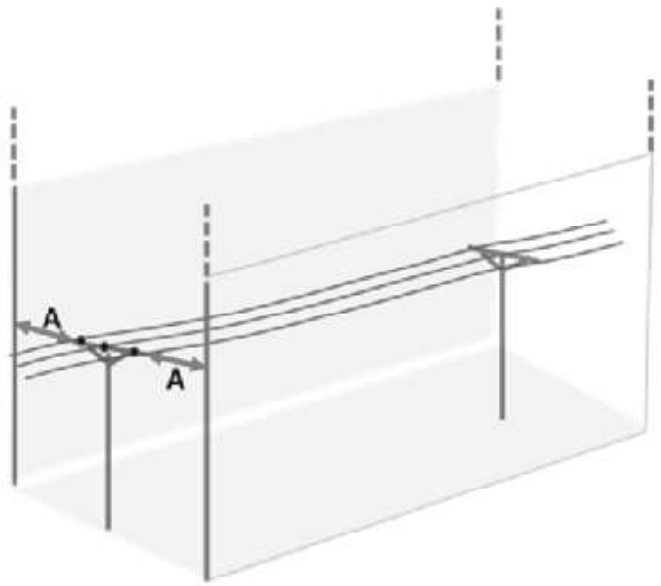
(b) clearances required to be observed by a competent person permitted by a licensee to work on or near the licensee's overhead line.

4.2 Definitions related to Paragraph 4

4.2.1 Hazard Zone

This is a lateral area near an overhead line which must normally be isolated from the work site by physical barriers. See Figure 4.1 for illustration.

Figure 4.1: llustration of Hazard Zone.



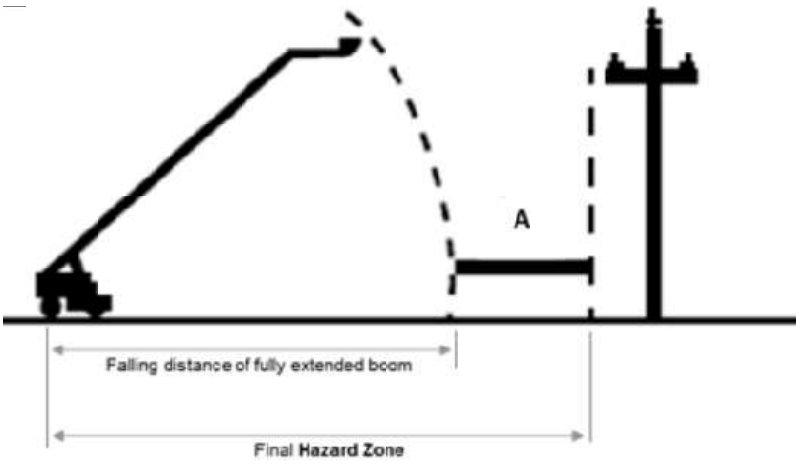
The minimum horizontal distance of the hazard zone (**A**) shall be:

(a) 6.0 m for 0 to 33kV overhead line; and

(b) 10.0 m for overhead line over 33kV.

For plant and machinery, the actual hazard zone shall be the hazard zone values in 4.2.1*(a)* and (*b)* plus the distance measured from the horizontal falling distance of a fully extended boom of plant or machinery. See Figure 4.2 for illustration.

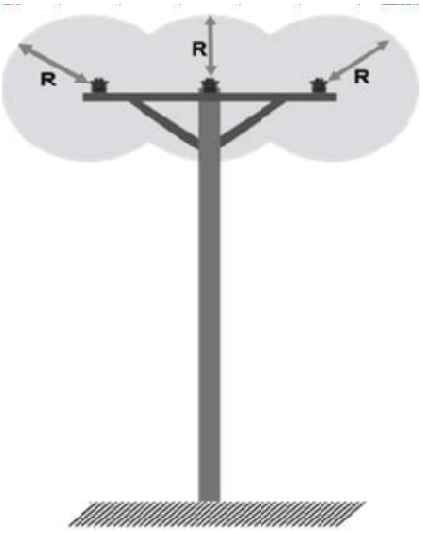
Figure 4.2: Illustration of Hazard Zone for plant and machinery



4.2.2 Exclusion Zone

This is a region around a live overhead line which must never be breached, in order to avoid electrical arcing or flashover. Figure 4.3 is an illustration of the exclusion zone **(R)** around three conductors of an overhead line on a single pole.

Figure 4.3: Illustration of Exclusion Zone.



The minimum exclusion zone shall be —

(a) 0.5 m for 0 to 1kV overhead line, insulated type;

(b) 1.5 m for 0 to 1kV overhead line, bare type;

(c) 1.5 m for overhead line greater than 1kV, but not exceeding 11kV;

(d) 2.5 m for overhead line greater than 11kV, but not exceeding 33kV;

(e) 3.0 m for overhead line greater than 33kV, but not exceeding 66kV;

(f) 3.2 m for overhead line greater than 66kV, but not exceeding 88kV;

(g 4.2 m for overhead line greater than 88kV, but not exceeding 132kV; and

(h) 6.0 m for overhead line greater than 132kV.

For insulated overhead line, project supervisor of works shall verify insulation integrity with the licensee owning the overhead line, before any work starts.

4.2.3 No-tip Zone

This is a space that no part of a tipped truck or other raised equipment must enter. A no-tip zone applies to road strengthening and resurfacing works such as tarring and chipping existing roads.

4.2.4 Crossing Point

A crossing point is a defined, protected corridor that crosses under an overhead line. crossing points shall be created by installing —

(a) goalpost-style height-restricting barriers; and

(b) warning signs for overhead lines at entrances and exits of the crossing point.

There shall be created crossing points for the purposes of —

(i) limiting the location and the height of plant and machinery that can cross under an overhead line; and

(ii) alerting drivers and plant operators to the hazard of the overhead line before they cross under it.

Figure 4.5 in subparagraph 4.4 illustrates the acceptable crossing point.

4.3 Safety distances to maintain on sites where there will be no work or plant passing in or under the hazard zone.

No plant or machinery shall enter the hazard zone. Therefore:

4.3.1 Barriers shall always be erected on the work side (outside the edge of the hazard zone) at the correct distance from the line, as illustrated in Figure 4.4.

4.3.2 The barrier materials (bunting, uprights and goalposts) shall be of strong and sturdy, non-conducting and clearly visible materials as illustrated in Figure 4.4.

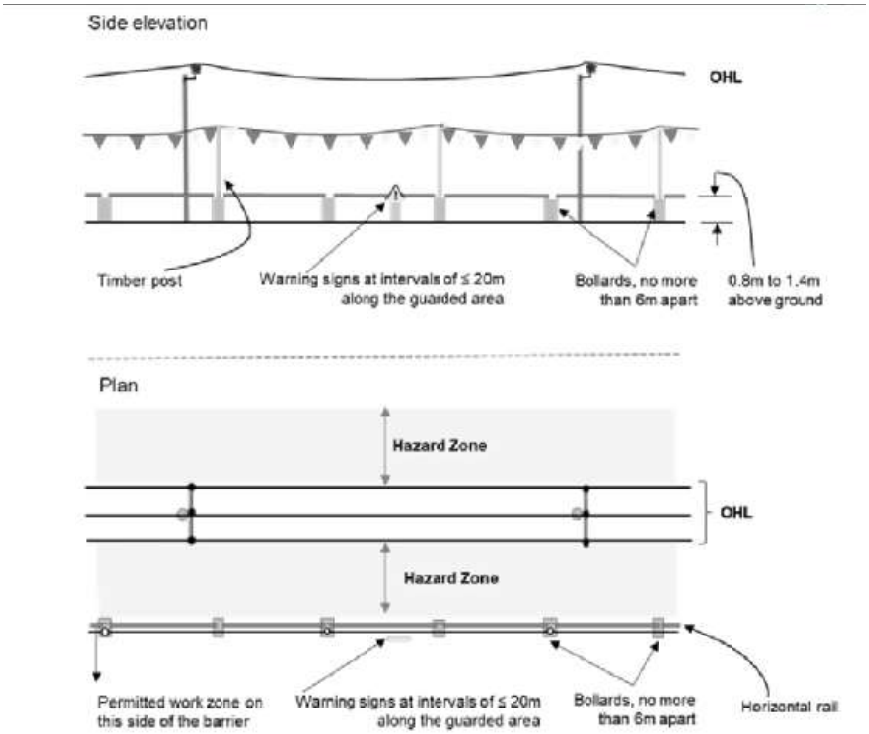
4.3.3 As further illustrated in Figure 4.4, standard electricity hazard warning signs shall be put along the route at intervals of 20 meters or less.

4.4 Safety distances to maintain on sites.

4.5 Where plant and machinery will pass under a live overhead line.

4.5.1 When there is need to move plant and machinery under a live overhead line, there shall be created crossing points which shall be erected from height-restricting goalposts. The goalposts shall be made from rigid, non-conducting, clearly visible material at the entrance to the crossing point on each side of the line. Figure 4.5 illustrates the correct design of a crossing point.

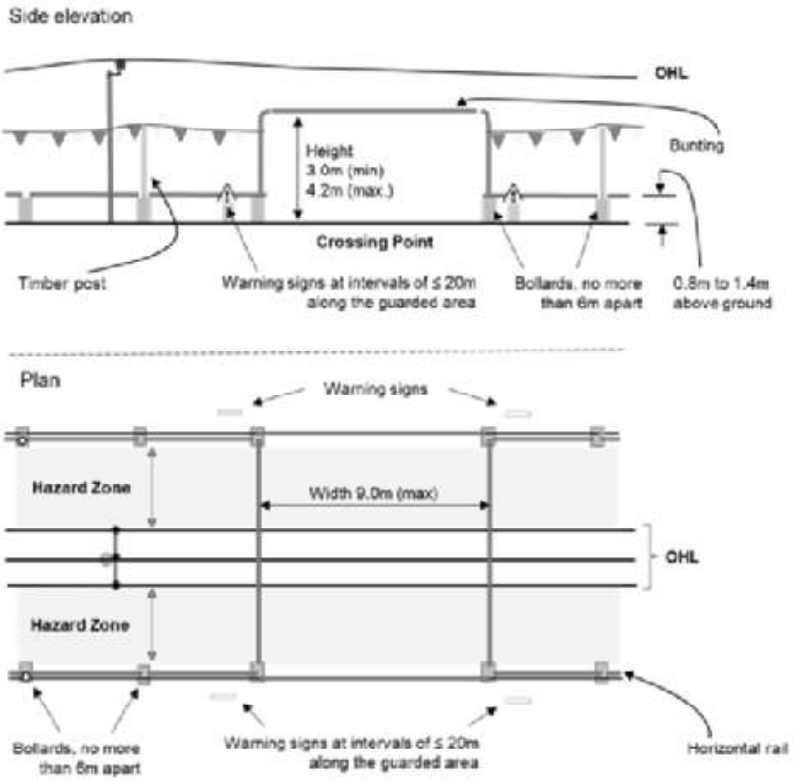
Figure 4.4: Illustration – Elevation and plan for a site where plant and machinery must not pass under overhead line.



4.5.2 The maximum height of the **crossing point** outside the **hazard zone** and in line with the protection barriers shall be 4.2 m, measured relative to ground level of the original site

4.5.3 The maximum width of the **crossing point** outside the **hazard zone** and in line with the protection barriers shall be 9.0 m, measured relative to ground level of the original site.

Figure 4.4: Illustration – Elevation and plan for a site where plant and machinery need to pass under overhead line.



4.5 Safety distances to maintain on sites where work will be carried out in the hazard zone

4.5.1 Where work in the hazard zone of a live overhead line is permitted by the network operator or owner, but the responsibility for safety remains with the project supervisor of works.

4.5.2 Before work begins, the project supervisor of works shall fulfill the following:

(a) verification of the line voltage with the operator of the overhead line;

(b) determination of the hazard Zone;

(c) determination of the exclusion zone**;** and

(d) determination, preparation and implementation of a site and job-specific risk assessment and work method statement which shall cover the following:

(i) the vertical clearance of the closest conductor of the overhead line, taking into account any possible sag;

(ii) the maximum potential height that the equipment can reach, ignoring any mechanical, electronic or electromechanical height limiters that are or may be fitted to the equipment;

(iii) the possible effect on the vertical clearance of overhead line as a result of changing or varying ground levels within the hazard zone due to the intended work; and

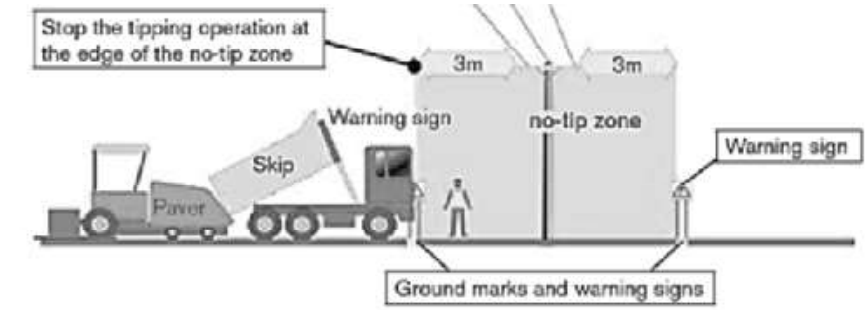
(iv) the possible effect on the overhead line support structures as a result of the intended work.

4.6 Safety clearances to maintain when performing road strengthening and resurfacing works near overhead line.

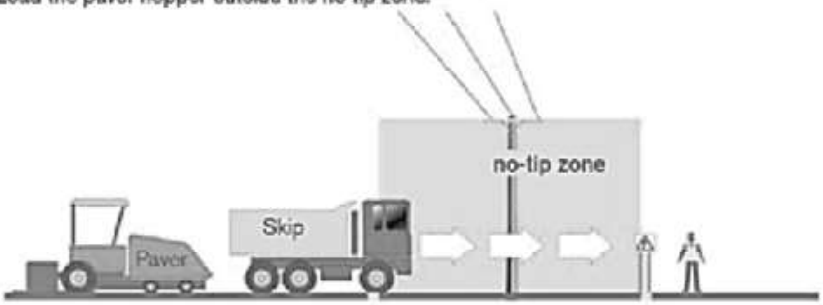
4.6.1 The project supervisor of works shall establish and maintain a no-tip zone with a minimum lateral clearance of 3.0 meters from the closest conductor of overhead line. Warning signs shall be placed at the entrance and exits of the no-tip zone.

4.6.2 Figures 4.6 to 4.8, illustrate how to place warning signs and how to determine the correct no-tip zone when a road crosses an overhead line at 90 degrees, at more than 45 degrees and at less than 45 degrees respectively.

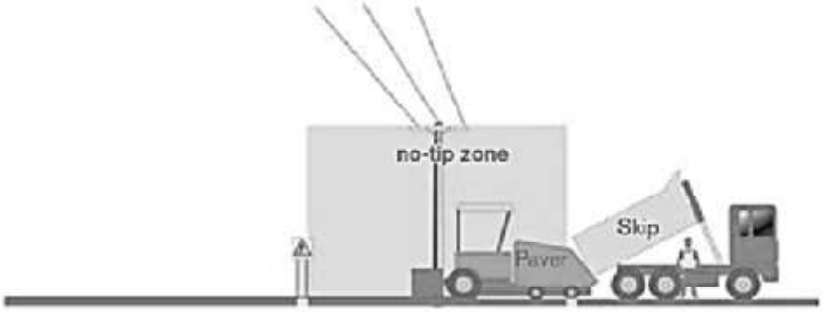
Figure 4.5: Illustration – Determining the No-tip Zone and safe system of work when overhead line crosses the road at 90 degrees



1. Load the paver hopper outside the no-tip zone.



2. Fully lower the skip on the tipper truck, and any other elevated plant, such as a planer, before passing through the no-tip zone.



3. Continue normal operation when the tipper truck or other elevated plant is completely clear of the no-tip zone.

Figure 4.6: Illustration – Determining the no-tip zone and safe system of work when overhead line crosses the road at an angle equal to or greater than 45 degrees.

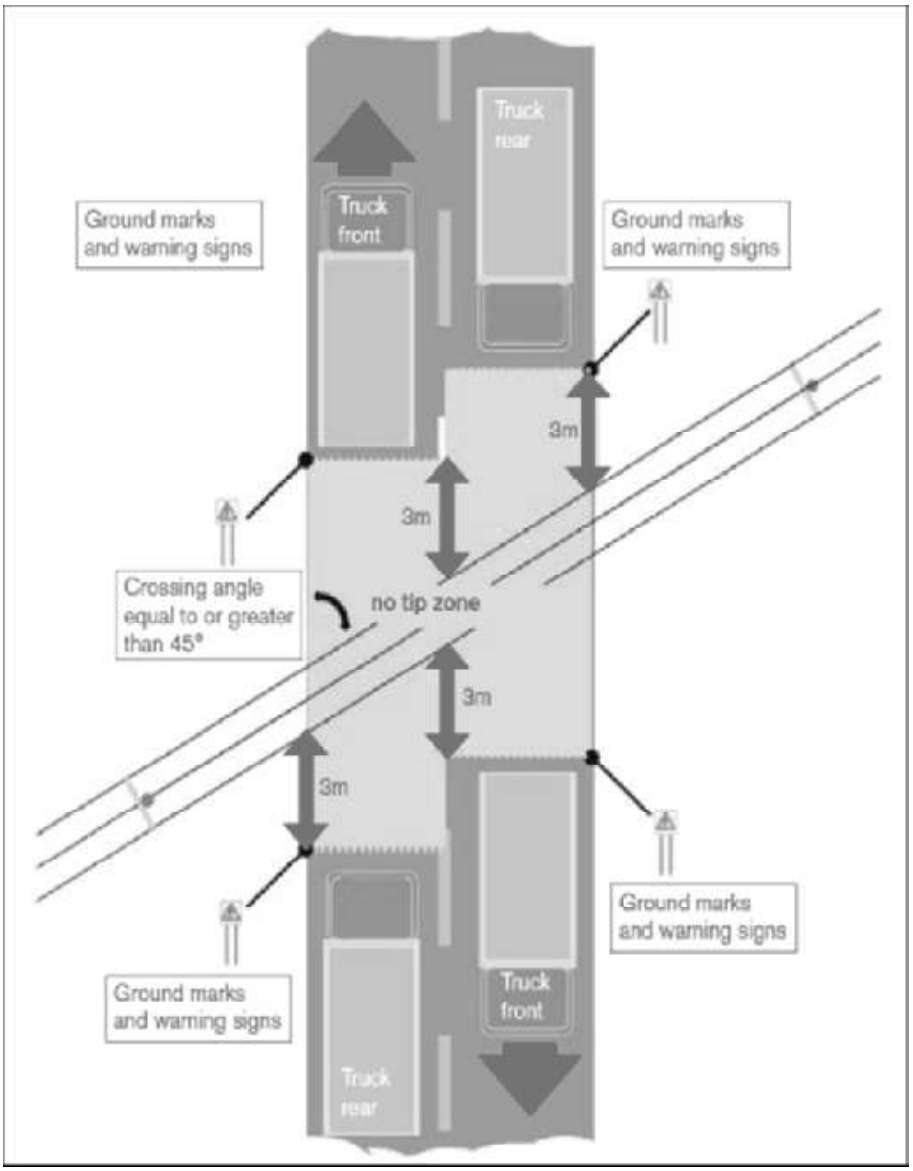
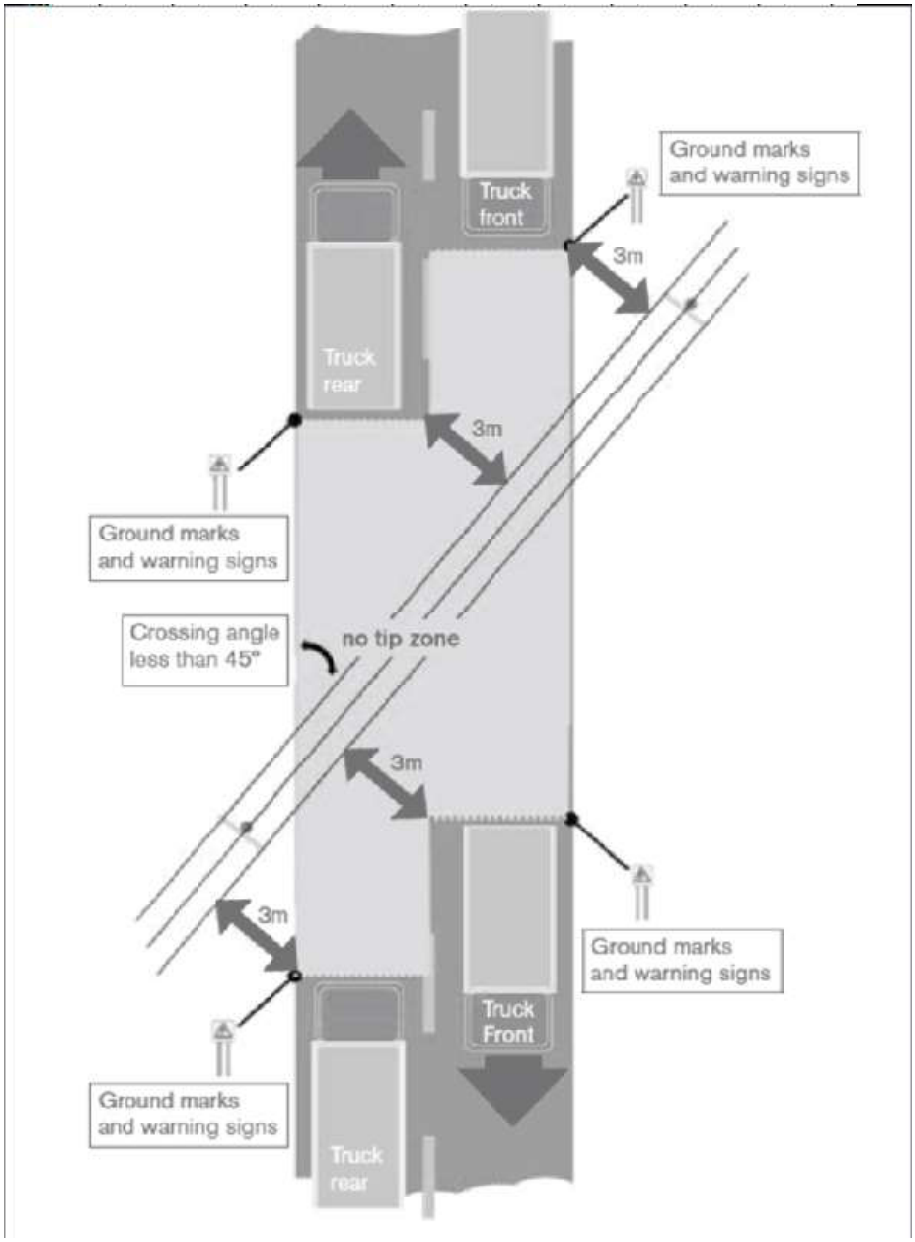


Figure 4.7: Illustration – Determining the no-tip zone and safe system of work when overhead line crosses the road at an angle equal to or less than 45 degrees.



3 MINIMUM CLEARANCES FROM UNDERGROUND ELECTRICITY CABLES UP TO 33kV

5.1 Depth of cover for underground electric cables

5.1.1 For open trench construction, the depth of cover shall not be less than:

(a) 0.75 m below the surface of a roadway, for any cable installed under a roadway;

(b) 0.60 m below the finished ground surface, for cables installed in other locations; and

(c) Where it is not possible to achieve these depths set out in (a) and (b) due to physical obstructions, such as other utility services, additional mechanical protection shall be provided by means of a minimum cover of 100mm of 20m concrete or equivalent. The additional mechanical protection shall be marked by embossing the words 'ELECTRIC CABLE' or similar, along its length.

5.1.2 For direct buried cable installation construction, the depth of cover shall not be less than 0.90 m below the finished ground surface. However, this requirement does not apply to that part of an underground cable entering or leaving the ground vertically or fixed above the ground to a secure structure.

5.2 Minimum vertical clearances to electricity underground cables

5.2.1 General

When determining the minimum separation from other underground utility services with the same route, the clearance from the centre of most adjacent direct buried underground cable installations, or if available, the most adjacent surface of electric cable trenching, to other utility service assets shall not be less than the minimum clearances set out in this Schedule.

5.2.2 Vertical clearances to other non-electricity utilities

The vertical minimum clearances specified in Table 5.1 shall be maintained where other utility service assets are required to be installed vertically parallel, crossing over or under the electricity utility underground assets. The physical arrangements are illustrated in figure 5.1.

Table 5.1: Minimum vertical clearances from underground electricity cables to other utility services

Service type			Minimum vertical clearance to undergrou service of voltage, V:	
			V ≤ 400 volts	400 < V ≤ 33kV
Telecommunication services (piped)			0.100 m	0.300 m
Telecommunication services (pit)			0.100 m	0.100 m
Sewer Mains – Public/private (e.g., sanitary drainage pipe system)		Pipe dia. (DN≤300)	0.225 m	0.225 m
		Pipe dia. (DN>300)	0.300 m	0.300 m
Water Service Line – Public/Private	Parallel mechanically protected (see Note 1)	Pipe dia. (DN≤65)	0.100 m	0.100 m
		Pipe dia. (DN>65)	0.300 m	0.300 m
	Parallel (unprotected)		0.600 m	0.600 m
	LV earthing		0.500 m	EUA (see Note 4
Storm Water – Public/Private	Parallel (protected) (see Notes 1 & 3)		0.100 m	0.100 m
	Parallel (unprotected) (see Note 3)		0.600 m	0.600 m
	Crossing (see Note 2)		0.100 m	0.100 m
Public Lighting Wiring-from customer ckt or metered supply point			0.100 m	0.300 m
Customer underground LV mains			0.100 m	0.300 m

NOTES to Table 5.1:

(1) Mechanical protection (e.g., by the concrete slabs, continuous pour, bricks designed for protecting etc) for the electrical supply cables;

(2) The minimum vertical separation between any underground storm water drain crossing an underground electric distribution service cable shall —

(a) cross at angle 90° if practicable, but not less than 45°;

(b) have a vertical separation of not less than 100mm; and

(c) be marked along its length for 1,000mm either side of the center line of the service, with marker tape, laid 150mm above the installed service;

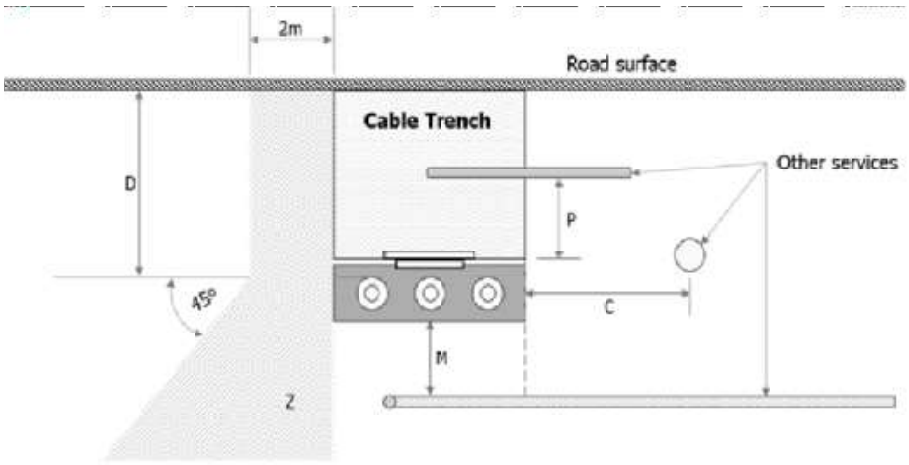
(3) The minimum horizontal separation between any underground storm water drain and an electrical distribution service cable shall be at least-

(a) 100mm provided the electrical cable is indicated along its length with orange marker tape specified in the respective Zambian standard, and is mechanically protected; or

(b) 600mm, where the electrical supply cable is not mechanically protected; and

(4) EUA refers to requirement that approval of the actually-required clearance must be obtained from the licensee owning the underground cable.

Figure 5.1: Clearances from underground electricity cables and trenching to other Utility services.



LEGEND
C = Parallel clearance distance to other services
D = Depth of cover from the top of cables to surface level
M = Transverse clearance under the cable trench to other services
P = Transverse clearance above the cable trench to other services
Z = Zone of influence

5.3 Minimum horizontal clearances to other non-electricity utility service lines

5.3.1 The horizontal minimum clearances specified in Table 5.2 shall be maintained where other utility service assets are required to be installed vertically parallel, crossing over or under the electricity utility underground cables. These minimum clearances shall be observed and maintained by a **Utility** whenever its service lines are routed underground.

Table 5.2 Minimum horizontal clearances from underground electricity cables to other utility services

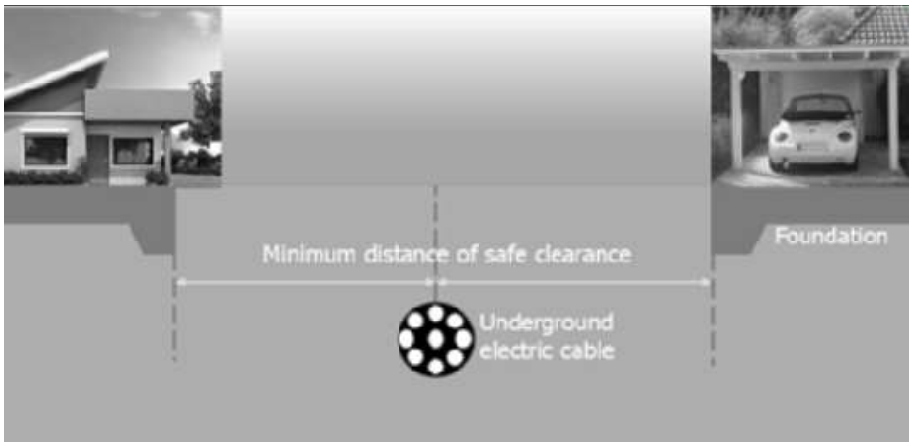
Service type			Minimum horizontal clearance to underground cable of Voltage, V:	
			V ≤ 400 volts	400 < V ≤ 33kV
Telecommunication services (piped)			0.100 m	0.300 m
Telecommunication services (pit)			0.100 m	0.100 m
Sewer Mains – Public/private (e.g., sanitary drainage pipe system)		Pipe dia. (DN≤300)	0.500 m	0.500 m
		Pipe dia. (DN>300)	1.000 m	1.000 m
Water Service Line – Public/Private	Parallel mechanically protected (see Note 1)	Pipe dia. (DN≤65)	0.100 m	0.100 m
		Pipe dia. (DN>65)	0.300 m	0.300 m
	Parallel (unprotected)		0.600 m	0.600 m
	LV earthing		0.500 m	EUA (see Note 4)
Storm Water – Public/Private	Parallel (protected) (see Notes 1 & 3)		0.100 m	0.100 m
	Parallel (unprotected) (see Note 3)		0.600 m	0.600 m
	Crossing (see Note 2)		0.100 m	0.100 m
Water Mains – Public/Private	For water pipe dia. ≤ 200		0.500 m	0.500 m
	Other water mains		1.000 m	1.000 m
Public Lighting Wiring - from customer circuit or metered supply point			0.100 m	0.300 m
Customer underground LV mains			0.100 m	0.300 m
Road side kerb			0.800 m	0.800 m

NOTES to Table 5.2: (same as Notes to Table 5.1).

5.4 Minimum clearance from underground electricity cables to buildings

5.4.1 The minimum clearances to be maintained between the foundation of a building or a structure and the underground utility electric cables (measured from the centre of the most adjacent cable, or if available, the most adjacent surface of the cable trench) shall be 2.0 m. This requirement is illustrated in figure 5.2.

Figure 5 2 Minimum safety clearance of underground cables from building structures



5.5 Clearance from underground electricity cable to fire hydrants external to buildings

5.5.1 The minimum lateral clearance to be maintained between foundation a fire hydrant system which is located external to a building and an underground electricity cable shall be 10.0 m.

5.6 Clearance from underground utility electricity cable to tank or tank farm used for storage of flammable substances

5.6.1 The minimum Lateral clearance from an underground Utility electricity cable (measured from the centre of the most adjacent cable) to the closest edge of concrete bedding or foundation of a tank or tank farm used for storage of flammable substances defined as Class 0, Class I, Class II or Class III in ZS 402:2006, shall be —

(a) 4.0 m for a tank or tank farm whose capacity is 2,000 liters or less;

(b) 5.0 m for a tank or tank farm whose capacity is over 2,000 liters, but less than or equal to 4,000 liters;

(c) 6.0 m for a tank or tank farm whose capacity is over 4,000 liters, but less than or equal to 7,000 liters;

(d) 7.0 m for a tank or tank farm whose capacity is over 7,000 liters, but less than or equal to 10,000 liters;

(e) 8.0 m for a tank or tank farm whose capacity is over 10,000 liters, but less than or equal to 25,000 liters;

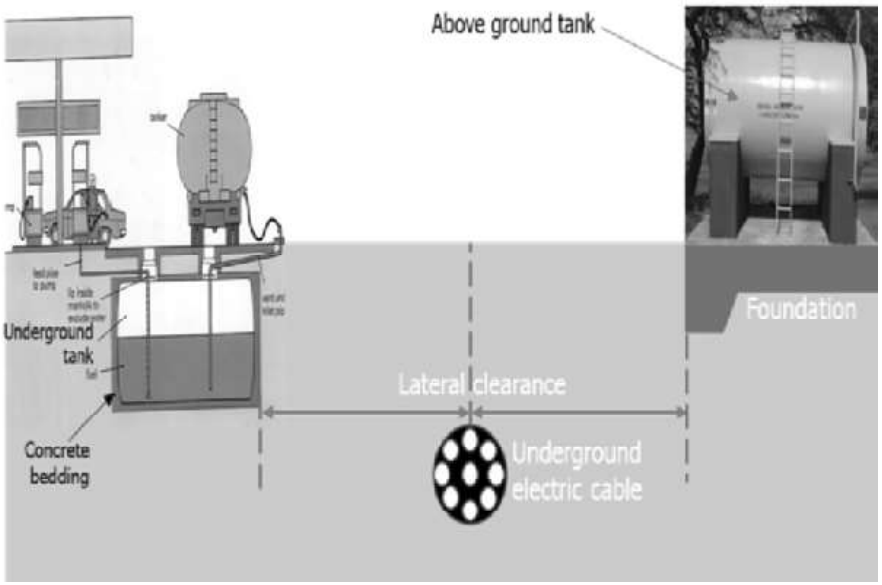
(f) 9.0 m for a tank or tank farm whose capacity is over 25,000 liters, but less than or equal 50,000 liters;

(g) 12.0 m for a tank or tank farm whose capacity is more than 50,000 liters, but less or equal to 200,000 liters; and

(h) 15.0 m for a tank or tank farm whose capacity is over 200,000 liters.

Refer to figure 5.3 for illustration.

Figure 5.3: Illustration of minimum safety clearance distance of underground electricity cables from bulk flammable liquid storage tanks

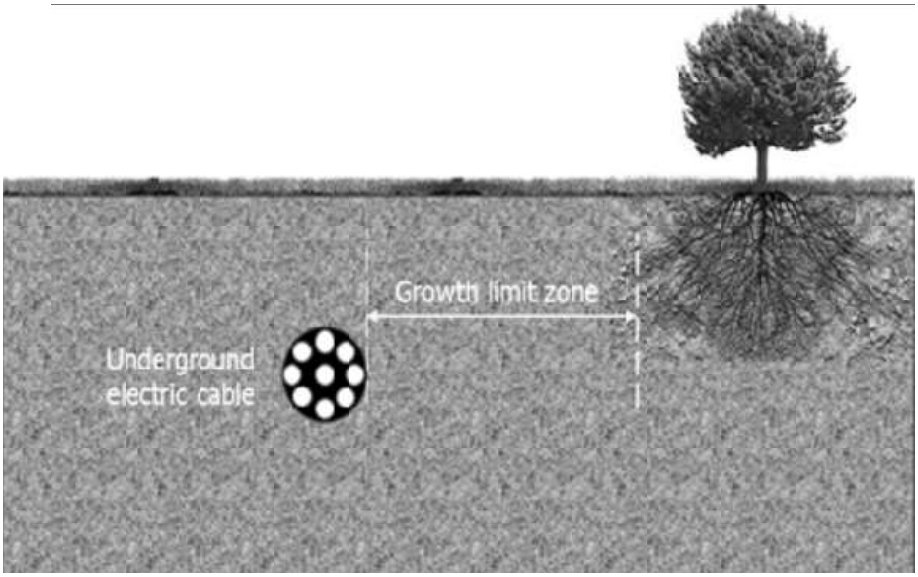


5.1 Growth limit zone of tree roots near underground electricity cables

5.1.1 A Person wishing to dig the ground for the purposes of planting a tree or trees shall ensure they know exactly where all underground cables are, and shall not dig holes within 4 metres of the most adjacent existing underground cable(s).

5.1.2 The owner of an underground cable shall maintain a growth limit zone. As illustrated in figure 5.4, the growth limit zone, that is, the minimum distance which the roots of a tree must be kept away from an underground electricity cable, shall be 0.50 m.

Figure 5.4: Illustration of Growth Limit Zone near underground electric cable.



M. CHIKOTE,
Minister of Energy

LUSAKA
23rd December, 2025
(MOE/DPI.64/9/2)