

THE RAILWAYS ACT
[NO. 4 OF 2002]

REGULATIONS
Made under section 28

THE RAILWAY (LEVEL CROSSING) REGULATIONS, 2009

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PART I: PRELIMINARY PROVISIONS

Citation	1. These Regulations may be cited as the Railway (Level Crossing) Regulations 2009.
Commencement	2. The Regulations come into force on the date of their publication in the Gazette
Interpretation	<p>3. In these Regulations unless the context otherwise requires:</p> <p><i>Activation failure</i> means the failure of an active road-rail level crossing warning system to indicate the approach of a train at least 20 seconds prior to the train's arrival at the crossing, or to indicate the presence of a train occupying the crossing, unless the crossing is provided with an alternative means of active warning to road users of approaching trains;</p> <p><i>Closed Circuit Principle</i> is the principle of circuit design where a normally energized electric circuit will, on being interrupted or de-energized, cause the controlled function to assume its most restrictive condition;</p> <p><i>Fail safe</i> is a term used to designate a railway signalling design principle, the objective of which is to eliminate the hazardous effects of a failure of a component or system;</p> <p><i>Interlocking</i> is a general term applied to equipment that controls setting and releasing of signals and points to prevent an unsafe condition of the signalling system arising during the passage of trains;</p> <p><i>Level Crossing</i> means an intersection of road and railway at the same level, i.e. without an over or under bridge;</p> <p><i>Main Line</i> has the same meaning as Running Line;</p> <p><i>Private level crossing</i> means a level crossing whose road is a private road;</p> <p><i>Private road</i> means a road that is not a public road;</p> <p><i>Public level crossing</i> means a level crossing whose road is a public road;</p> <p><i>Public road</i> means a road that is opened or maintained for public use by a road authority and includes a pedestrian or bicycle path that is opened or maintained for public use by a road authority;</p> <p><i>Qualified person</i> means, in respect of a specified duty, a person who, because of his knowledge, training and experience, is qualified to perform that duty safely and properly;</p> <p><i>RAHCO</i> means Reli Assets Holding Company Limited,</p>

established under the Railways Act 2002;

Running line or *Main Line* means the railway line which is ordinarily used for the passage of trains and is not a siding;

Shunting means any movement of a train or rail vehicle other than movement of a train passing normally along a running line;

Siding means a line on which vehicles are marshalled, stabled, loaded, unloaded or serviced, clear of the running line and includes an industrial spur;

Sightlines means lines of sight drawn between a person on a level crossing or its road approaches and the level crossing, railway crossing signs, signals and trains, locomotive and other railway equipment approaching or occupying the level crossing;

SUMATRA means the Surface and Marine Transport Regulatory Authority, a body established under section 4 of the Surface and Marine Transport Regulatory Authority Act (No 9 of 2001);

The Authority means SUMATRA or the person who at the material time carries out the statutory function of Railway Safety Regulator; and

Train means a rail mounted power propelled unit with or without vehicles attached, working with a planned schedule.

Application

4. (1) These Regulations apply to:

(a) All new railway constructions in Tanzania mainland subject to the Railways Act 2002 and subsequent amendments;

(b) The railways already existing at the time of coming into force of the Regulations, provided that within six months after coming into force of these Regulations RAHCO and SUMATRA shall agree on a time line toward full compliance of these Regulations, such transition time being not more than five years.

PART II: LEVEL CROSSING REGULATIONS

Classification of Level Crossings

5. Level Crossings shall be classified in accordance with the First Schedule to these Regulations as amended from time to time by the Authority.

High Speed Line

6. Level crossings are not permitted to be constructed on railway lines designed for operation at train speeds of more than 120 kilometers per hour; all road-rail intersections on such lines shall be by over or under bridge.

Register of Level Crossings

7. (1) The Railway Operator shall maintain a Register of all level crossings and avail the same for inspection by RAHCO or the Authority when required to do so;

(2) The Register shall record the Kilometrage, Class, Type of level

crossing and the Party with whom an Agreement, if any, has been concluded;

(3) A level crossing which is no longer required shall be closed and struck off the Register.

Apportionment
of Costs

8. (1) Where a new railway crosses an existing road, public or private, or severs land in such manner that in order to pass from one severed part of the land to the other a level crossing (or bridge) is required, then the cost of providing the railway crossing and maintaining it shall be borne wholly by the Railway;

(2) If a level crossing is required across an existing railway the cost of construction is borne by the party or parties requiring the crossing and the cost of maintenance is apportioned as provided in the Agreement relating to the crossing.

Responsible
Authority

9. (1) With respect to public level crossings, the railway company is responsible for:

- (a) the part of the road surface of the level crossing that lies between the rails of each track, the part that lies outside the rails, up to the ends of the railway sleepers, and the elevation of the railway tracks in relation to the road;
- (b) sightlines along the railway right of way;
- (c) drainage along the railway right of way;
- (d) railway crossing signs; and
- (e) level crossing warning systems.

(2) With respect to public level crossings, the road authority is responsible for:

- (a) the road approaches and those parts of the surface of the road up to the ends of the railway sleepers, including the elevation of the road in relation to the railway track;
- (b) sightlines along the road right of way;
- (c) the notification of land owners with respect to sightlines over their land;
- (d) drainage along the road right of way;
- (e) traffic control devices on road approaches and stop signs at level crossings, including devices that interconnect with level crossing warning systems; and
- (f) lighting devices to illuminate trains, locos and other railway equipment occupying level crossings to ensure that they are clearly visible to pedestrians and drivers of vehicles.

(3) The responsibilities for a private railway crossing and a cattle crossing shall be prescribed in the Agreement concluded between the Railway Company and the private party.

Protection
System

10. Selection and implementation of the protection system for a level crossing shall take into consideration results of a safety assessment carried out under regulation 12, the general guidance

given in the Second Schedule to these regulations and availability of appropriate technology.

General Specifications

11. The standards of construction of a level crossing shall comply with the Third Schedule to these Regulations.

Safety Assessment

12. (1) A responsible authority that intends to undertake the construction of a level crossing shall conduct a detailed safety assessment before construction begins;

(2) A responsible authority shall conduct a detailed safety assessment and take measures to obviate identified safety threats before undertaking or authorizing any of the following changes :

(a) a significant change in the road or railway infrastructure, including a relocation of the level crossing, or in the traffic patterns at or in the vicinity of a level crossing;

(b) anything that is likely to cause a significant increase in the traffic volume on the road or line of railway at or in the vicinity of a level crossing;

(c) a significant increase in the speed of traffic on the road or line of railway at or in the vicinity of a level crossing;

(d) a significant change in the type of vehicles passing over the level crossing; or

(e) any other action that might cause a significant change in road or railway operations that could adversely affect the safety of the level crossing;

(3) a safety assessment shall also be undertaken when the responsible authority becomes aware of the occurrence of recurrent unsafe incidents on a level crossing;

(3) a Railway Operator shall undertake a comprehensive safety assessment of all level crossings under its responsibility periodically to coincide with the comprehensive review of its safety plan required under the Railways (Safety Plan) Regulations 2007 as amended;

(4) a responsible authority that conduct a detailed safety assessment shall provide a copy of it to the other responsible authority and every responsible authority shall keep the two most recent detailed safety assessments in respect of level crossings available for inspection at the request of the Authority.

Visibility

13. (1) The requirements and standards to be met in respect of sightlines for a level crossing are:

(a) to provide and maintain sightlines in accordance with the requirements set out in the Third Schedule to these regulations as amended from time to time by the Authority; and

(b) to remove any tree, brush or other thing that might, by

obscuring clear vision of the road, the line of railway or traffic control devices, constitute a threat to safe operations;

(c) to notify landowners when the safety plan for the level crossing provides for sightlines over their property, including informing them as to the area of the property the sightlines are over and the safety requirements.

Safety Measures for Activities	14. Any person intending to undertake or authorise an activity on land in the vicinity of a level crossing or on the road or line of railway of the level crossing that might obscure clear vision between the road and the line of railway or the traffic control devices, shall first consult with the road authority or, if there is none, the railway company.
Tracked Vehicles Using Level Crossing	15. Vehicles with caterpillar tracks shall not be permitted to cross the railway without special approval of a qualified person, when wood planks or steel plates shall be laid across the rails or the tractor shall be fitted with road plates on its caterpillar tracks.
Inspection, Testing and Maintenance	16. (1) A Railway Operator shall ensure that the components of its level crossing warning systems are tested and inspected in accordance with the Third Schedule to these Regulations; (2) A Railway Operator shall establish and implement instructions in respect of the maintenance, testing, and inspection of its level crossing warning systems to be followed by persons responsible for the maintenance, testing and inspection of the systems; (3) A road authority shall establish and implement instructions in respect of the maintenance, testing, and inspection of its “prepare to stop at railway crossing” signs, traffic signal preemption systems and traffic signals installed at level crossings in lieu of level crossing warning systems to be followed by persons responsible for the maintenance, testing and inspection of the signs, systems and signals.
Accidents Involving Level Crossing Signal Failure	17. A railway Operator shall report to the Authority every impact between on-track railroad equipment and any other moving vehicle involving activation failure within 24 hours and a complete accident report shall be filed thereafter.
Level Crossing Signal System Failure Reports	18. (1) (a) A Railroad Operator shall report to the Authority within one month of each activation failure of a level crossing warning system. (b) The Operator shall also file a report for each false activation of a level crossing warning system (2) Upon receipt of a credible report of a warning system malfunction, the Operator shall promptly investigate the report, determine the nature of the malfunction and adjust, repair, or replace any faulty component without undue delay. (3) Until the repair work is completed, the railway shall provide alternative means of warning road traffic and railway employees, as shall be provided in railway operating instructions.

PART III: OFFENCES AND PENALTIES

Offences and Penalties

19. Any person who fails to comply with any provision of these Regulations or otherwise obstructs or hinders the implementation of these Regulations commits an offence and is liable on conviction to a fine not exceeding five million shillings or to imprisonment for a term not exceeding eighteen months or to both such fine and imprisonment.

Power to compound Offences

20. (1) Notwithstanding the provisions of these regulations relating to penalty, where a person has committed an offence under these regulations the Authority may, at any time prior to commencement of the hearing by any court in relation thereto, compound such offence and order such person to pay such amount of money, not exceeding one half of the amount of fine which such person would otherwise have been liable if he had been convicted of such offence; provided that the Authority shall not exercise its power under this regulation unless the person concerned admits in writing that he has committed such offence and requests that it be compounded.

(2) Where the Authority compounds an offence under this regulation, the order referred to in sub-regulation (1):

(a) Shall be reduced to writing and there shall be attached to it the admission and request referred to in the proviso to the said sub-regulation and a copy of such order shall be given to the person who committed the offence if he so requests;

(b) Shall specify the offence committed, the sum of money ordered to be paid and the date or dates on which payment is to be settled;

(c) Shall be final and shall not be subject to any appeal to any court;

(d) May be enforced in the manner as a decree of a court for payment of the amount of money stated in the order.

Right of Appeal

21. Anybody who is aggrieved by a decision of the Authority made under these regulations may seek review or appeal in accordance with part IV of SUMATRA Act 2001.

Dar es Salaam
....., 2009

Dr. Shukuru Kawambwa (MP)
Minister for Infrastructure Development

THE RAILWAY (LEVEL CROSSING) REGULATIONS, 2009

FIRST SCHEDULE

CLASSIFICATION OF LEVEL CROSSINGS

For Purposes of fixing the characteristics and standard of construction, level crossings will be classified as follows and as amended when necessary:

Class	Description
A	Situated within municipalities and with through running of trains.
B	Situated within municipalities and with only shunting over the tracks.
C	Situated on trunk and regional roads outside municipalities.
D	Situated in rural roads, both public and private.
E	Pedestrian level crossing; situated on footpaths.
F	Cattle Crossing; solely for the passage of livestock across the railway.

Livestock Crossing Points are not level crossings. They may be provided, where necessary, in unfenced grazing country in order to avoid damage to the track and formation. Such sites shall be selected for visibility. Collaboration with local government authorities shall be sought to ensure that livestock is driven across the railway only at such sites.

Dar es Salaam
....., 2009

Dr. Shukuru Kawambwa (MP)
Minister for Infrastructure Development

THE RAILWAY (LEVEL CROSSING) REGULATIONS, 2009

SECOND SCHEDULE

A GUIDE TO THE SELECTION OF PROTECTION SYSTEMS FOR LEVEL CROSSINGS

1. Before deciding on the type of protective system for a level crossing, a safety assessment shall be undertaken which should take into consideration, among others, the following factors:

- Frequency and speed of road traffic for the next five years,
- Frequency and speed of rail traffic for the same period,
- Visibility.

2. The following table offers a general guidance to the selection of protective system for different classes of level crossing.

Class of Level Crossing	High Risk Location	Low Risk Location
A (Municipal, Running Line)	(a) Automatic Barrier (b) Flashing Lights with Audible Warning Device	(a) Interlocked Barrier operated by Station Master (train dispatcher) (b) Flashing Light with Audible Warning Device
B (Municipal, Shunting Line)	(a) Interlocked Barrier operated by Station Foreman (train dispatcher) (b) Flashing Light with Audible Warning Device	(a) Gate or Barrier operated by employee appointed for the purpose (b) Hand Signals (Flag or Light) by employee
C (Trunk/ Regional Road)	(a) Barrier operated by employee stationed at the crossing (b) Hand Signals (Flag or Light) by employee	Rumble strip and Warning Signs
D (Rural Road)	Warning Signs	Warning Signs
E (Pedestrian)	Pedestrian Light Signal	-
F (Livestock)	-	-

3. Further to section 2, warning signs shall be erected at all level crossings as per section 4 of the Third Schedule.

4. In Class A, B and C half barrier systems (two quadrant system), where required median pegs shall be erected for a distance of 20 meters before the crossing to prevent cars from overtaking stopped cars.

5. Four quadrant barrier systems shall be provided with obstacle detection systems to prevent the stranding of vehicles between the barriers.

Dar es Salaam
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Dr. Shukuru Kawambwa (MP)
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THE RAILWAY (LEVEL CROSSING) REGULATIONS, 2009

THIRD SCHEDULE

GENERAL SPECIFICATIONS OF LEVEL CROSSINGS

1. Visibility (Road to Railway)

(a) The minimum desirable area of clear visibility is contained within a rectangle whose diagonals form the sightlines along the centre lines of the railway and the road, the distance of the half diagonal being 100 meters at the minimum for a track speed of 80 km/hr and medium traffic density. (See diagram below)

(scan diags on annexure 7 of TRC Engineering Manual 1962 but dimension in metric units)

For higher track speeds or faster road traffic, the sighting distance should be increased over 100 meters.

(b) The road should normally cross the railway at right angles except under special circumstances.

(c) There shall be a clear vision between the eyes of a motorist and rail level. Land adjoining the track should not be above rail level and the land adjoining the road not more than one meter above road level and with the intervening land not rising above a plane defined by these two levels.

(d) Vegetation and cultivation of any description on these areas shall be allowed to grow to a height of no more than 25 cm.

2. Road Surface at the Crossing

The minimum standard for the surfacing of level crossing shall be waterbound macadam even where the approach road is of earth. Where the standard of the approach road is higher than this, that road standard shall be adopted.

3. Barriers

- (a) The lifting barriers shall be pivoted as close to the railway as practicable on both sides of the road on each approach to the crossing.
- (b) When lowered, the barrier shall be as nearly horizontal as possible and shall extend across the full width of the road lane and the footpaths.
- (c) When the barriers are fully lowered their uppermost surfaces shall be not less than 900 mm above the road surface at the centre of the road lane the underclearance between the barriers and the road shall not exceed 1 metre.
- (d) When in the fully raised position the barriers shall be inclined towards the road at an angle of between 5 and 10 degrees from the vertical. No part of any barrier or of any attachment thereto which is less than 5 metres above the level of the road shall be horizontally displaced from the nearer edge of the road by less than 450 mm, and no part of any barrier or of any attachment thereto which is less than 2 metres above the level of the footpath shall be horizontally displaced from that edge of the footpath further from the road by less than 150 mm.
- (e) The barriers shall be as light as possible but shall also be strong enough to prevent distortion or fracture likely to be caused by wind pressure.
- (f) The barriers shall display on both front and rear faces alternative red and white bands each approximately 600 mm long and to the full depth of the barriers. A band of red retro-reflecting material not less than 50 mm deep shall be provided along the full length of each red band.
- (g) Suitable screening shall be provided for each barrier machine to guard against danger to persons from the operating mechanism and moving parts of the machine.
- (h) All gates and barriers must be fitted with a red reflective disc of not less than 75 cm diameter for use by day and a red light for use by night or when visibility is restricted by fog, mist or other circumstance. The disc and light must show red in both directions.
- (i) Each automatic barrier must start its downward motion not less than three seconds after flashing lights begin to operate and assume the horizontal position in a minimum of five seconds before the arrival of any train at the crossing. At four-quadrant gate installations these time requirements apply only to the gates closest to oncoming traffic.

4. Warning Signs

- (a) A Whistle Board shall be placed on the right hand side of the railway on both sides of the crossing at a minimum distance of 200m. For classes C and D crossing, an additional whistle board may be placed in advance if a high risk level is perceived.
- (b) For classes A, B, C and D crossing, a Level Crossing Marking Board in the form of a crossbuck sign (or St. Andrew's Cross) shall be placed at maximum 20m on the left side of the road to warn approaching motorists. Where the crossing is over two or more railway tracks the level crossing board shall show the number of tracks to be crossed, on a banner

secured below the cross arms. The Level Crossing Marking Board shall be provided and maintained by the railway.

(c) The road authority shall erect and maintain an Advance Warning Sign at least 100 metres from the actual crossing on the left hand side of the road to give motorists warning that they are approaching a crossing over the railway. It shall be in the form of a black silhouette of a locomotive on a yellow rectangle 80 cm square surmounted by a red triangle on the same post. It is required for all crossings class A, B, C and D except on private road.

(d) Where there is a junction of two or more roads in the immediate vicinity of the level crossing and local circumstances require Level Crossing Marking Boards and Advance Warning Signs on each road, these shall be provided.

5. Flashing Signals and Audible Warning Devices

(a) Each flashing light unit must be positioned and aligned in accordance with installation plans. Each unit shall be maintained to prevent dust and moisture from entering the interior of the unit. All light units shall flash alternately and the number of flashes per minute for each light shall be a minimum of 35 and a maximum of 65.

(b) An audible warning device shall be provided on or adjacent to each left hand side flashing light signal post on each approach to the crossing.

(c) The flashing light and audible warning system must be automatically activated at least 20 seconds prior to the level crossing being occupied by rail traffic. The 20 second warning time requirement applies to normal through train operations rather than shunting movements or train operations that require stopping short of the level crossing.

6. Track Circuits and Other Protective Devices

(a) All control circuits that affect the safe operation of the level crossing warning system shall be designed on a fail-safe principle.

(b) Four quadrant barrier systems shall be fitted with obstacle detection system for purpose of preventing vehicles being caught up between the gates.

(c) A standby battery source of power and indicator or alarm shall be installed to ensure the warning system continues to function during any period of primary power interruption.

7. Inspections and Tests

7.1 Inspections and tests shall be made periodically to determine if the warning system is properly maintained. Any electronic device, relay, or other electromagnetic device that fails to meet the requirements shall be removed from service and a full inspection and tests of all required components must be successfully completed before operations resume.

7.2 The normal functioning of any system shall not be interfered with when testing or otherwise, without first taking measures to provide for the safety of highway traffic.

7.3 The following are minimum requirements for inspection and testing of level crossing activation, protection and warning devices. More stringent requirements not inconsistent with these regulations shall be applied if specified by the manufacturer or railway rules.

(a) Ground Tests: A test for grounds on each energy bus furnishing power to circuits that affect the safety of warning system operation shall be made when an energy bus is placed in service, and at least once a month thereafter.

(b) Battery Voltage: Standby power shall be tested at least once each month.

(c) Flashing light units and lamp voltage: Each flashing light unit must be tested when installed, and at least once every twelve months each flashing light unit is required to be

inspected for alignment and frequency of flashes in accordance with installation specifications. At least once a month each flashing unit will be required to be inspected for dust and damage to roundels to ensure visibility of the light unit.

(d) Gate arm and gate mechanism: Each gate arm and gate mechanism must be inspected, and gate arm movement be observed for proper operation, at least once each month. Test of hold-clear devices shall be required at least once every twelve months.

(e) Warning system operation: A road-rail level crossing warning system must be tested for proper operation when the warning system is placed in service. Thereafter whenever modified or disarranged it should be tested at least once each month.

(f) Warning Time: A level crossing warning system must be tested for prescribed warning time at least once every year, and when the warning system is modified because of change in train speeds.

(g) Obstacle Detectors: Road traffic signal preemption interconnectors, for which a railway has maintenance responsibility, shall be tested at least once each month.

(h) Relays: Each relay that affects the proper functioning of a crossing warning system shall be tested at least once every four years. Alternating current vane type relays, direct polar type relays, relays with soft iron magnetic structure shall be tested at least every 2 years. Alternating current centrifugal type relays shall be tested at least once every 12 months.

(i) Timing relays and timing devices: Each timing relay and timing devices must be tested at least once every twelve months. The timing would be required to be maintained at not less than 90% nor 110% of the predetermined time interval, which shall be shown on the plans or marked on the timing relay or timing device. Internal timing devices associated with motion detectors, motion sensors, and level crossing predictors are not subject to the requirements of this section.

(j) Insulation resistance tests, wires in trunking and cables: Insulation resistance test shall be made when wires or cables are installed and at least once every ten years thereafter.

(k) Cut-out circuits: Each cut-out circuit shall be tested at least once every three months to determine that the circuit functions as intended. This type of circuit includes both switch cut-out circuits and devices which enables personnel to manually override the operation of automatic warning systems.

(l) Insulated rail joints, bond wires, and track connections: Each insulated rail joint, bond wire, and track connection located within the limits of a level crossing train detection circuit must be inspected at least once every three months.

7.4 Results of tests and Inspections: Results of tests made in compliance with this part must be recorded on preprinted or computerized forms by the railway, or by electronic means. The records shall be kept at least one year from the date of the test.

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