





*Northern Railway*

***Compendium of Instructions***  
***on***  
***Safety at Work Sites***

August, 2012

## **1.0**    *General Instructions*

- 1.1**    Provisions of Para 826 of IRPWM are reproduced in Annexure I.
- 1.2**    Assure that the contracts connected with the safety of running trains have adequate clauses to take stringent action against the defaulting contractors.
- 1.3**    In case of works involving joint work of open line and construction department, the duties and responsibilities should be clearly outlined in advance in a detailed written understanding to be signed by both the parties. It is preferable that the work is done by a single party in whose the major worksite falls. Wherever it is not feasible responsibilities and the duties of each agency should be clearly outlined in advance and detailed MOU should be prepared and signed by both the agencies.
- 1.4**    Caution order should be issued to all the trains passing by the work sites at least during working hours for the drivers to look out, with or without any speed restrictions, as per the site requirement.
- 1.5**    It should be ensured that, no new OFC or quad cable be laid close to the existing track. It shall be laid close to the railway boundary to the extent possible to avoid any interference with the future works (doubling etc.). Route plan of S&T cable and electrical cable should be prepared by the concerned S&T and electrical officers respectively and got approved before undertaking the work. The completion cable route plan should be finalized Block Section by Block section, as soon as the work is completed.

## **2 Measures to be ensured prior to start of the work**

- 2.1** Before permitting the execution of certain works like earthwork, supply of ballast for new or Existing rail line, gauge conversion or laying of concrete sleepers and rails etc. where it is necessary to use road vehicle/ machinery, Open lines Engineer- in-charge(ADEN/ DEN) of the section shall ensure that he receives the prior intimation/confirmation of the following aspects from Assistant Engineer/Assistant Officer in-charge of the work of the executing agency i.e. construction, electrification, S&T etc:
  - 2.1.1** Name & address of the contractor assigned to execute the work.
  - 2.1.2** Contractor's list of the number(s) of individual vehicle(s), names and license particulars of the driver(s) proposed to be used.
  - 2.1.3** Information regarding location, duration and timings during which the vehicles are planned to be plied.
  - 2.1.4** Survey of site by supervisor of contractor & Railway's Supervisor to assess the precautions to be taken at site for working of trains and materials required for protection.
  - 2.1.5** Draw and advise to Sectional ADEN/SE (P.Way) & SE (Works) about the detailed planning of work including protection of track and safety measures proposed to be adopted.
  - 2.1.6** Training to supervisor/staff of contractor. Competency certificate as given in Annexure-I to be issued by Assistant Engineer in charge of site. Assistant Engineer/Executive Engineer in-charge of work shall examine the supervisor of the contractor regarding safe working in proximity to track
- 2.2** Information as indicated in item 2.1.1 to 2.1.6 shall be obtained from contractor prior to the start of the work if the work is directly supervised by open line.
- 2.3** Sectional ADEN should know the names of supervisors of construction organization/other organizations who are going to be site in-charge/in-charges of work site.
- 2.4** Before the start of work, the land strip adjacent to running track where road vehicle/ machinery is to ply for the work shall be demarcated by line in advance at the appropriate distance from the centre of existing track in consultation with railway supervisor. Sketches showing the location of marking are given in Annexure II.
- 2.5** Barricading as per the design given in Annexure II shall be provided in full length of work area along the track at specified distances.
- 2.6** The worksite shall be suitably demarcated to keep public and passengers away from work area. Necessary signage boards such as 'Work in progress' etc shall be provided at appropriate locations to warn the public/passengers.
- 2.7** Check list given in Annexure III shall be used to ensure that all the requisite measures have been taken before start of the work.
- 2.8** Engineer in-charge of the work sites will submit a certificate in writing, along with request for issuing green notice, that all the prescribed methods and arrangements for protecting the running line have been put in place, without which commencement of the work should not be allowed by control.

### 3.0 Measures to be ensured during the execution of the work

- 3.1 Contractor has deputed trained supervisors at work sites duly certified by ADEN/In-charge of the work.
- 3.2 Drivers of vehicle have been briefed about the safety and precautions to be taken while moving/working close to traffic.
- 3.3 The contractor shall not allow any road vehicle belonging to him or his suppliers etc. to ply within 6 metres of centre of running line without presence of Railway Supervisor.
- 3.4 Contractor shall ply road vehicles **only between Sunset and Sunrise**. In case of emergency where it is necessary to work during night hours, sufficient lighting shall be ensured in the complete work area for the safety of public and passengers. Also additional staff shall be posted as necessary for night working.
- 3.5 Wherever provided the engineering indicator boards shall be lit during night hours as per the provisions of P.Way Manual.
- 3.6 Contractor shall ensure that road vehicle/ machinery ply in a way so that these do not infringe the line of demarcation.
- 3.7 **Look out man** shall be posted where necessary.
- 3.8 In **unusual circumstances, where operator apprehends infringement to track** while working truck/machinery near running track, following action shall be taken:
  - a) The contractor/supervisor/vehicle operator immediately advice the situation to railway official and assist him in protecting the track.
  - b) Protection shall be done as done for other emergencies.
- 3.9 Individual **vehicle/machinery shall not be left unattended at site of work**. If it is unavoidable and becomes necessary to stable the road vehicle/machinery at plant near the running track, these shall be properly secured against any possible roll-off and always be manned even during non-working hours.
- 3.10 All temporary arrangements required to be made during execution of work shall be made in such a manner that moving dimension do not infringe. Necessary checks shall be exercised by site in charge from time to time.
- 3.11 In case, work has been planned to be done within 6 m of centre of track but at more than 3.5 m, it shall be ensured that:
- 3.12 Necessary precautions for protection of track have been taken and caution order issued to trains.
- 3.13 Look out man has been posted along the track at a distance of 800 m from the location of work with red flag and whistle to warn the road vehicles regarding approaching trains.

- 3.14 In case, work is planned to be done within 3.5 m. of center line of running track, it shall be ensured that the work is done under block protection only and necessary safety precautions for protection to track as per para No. 806 and 807 of IRPWM are taken. (Annexure IV)
- 3.15 While digging in station area, if any cable is found, digging should be stopped and concerned signaling/electrical staff should be informed immediately.
- 3.16 Mobile phones or Walkie-Talkie sets where necessary should be provided at works sites.
- 3.17 While inspecting the worksite check list given in Annexure V shall be use to ensure that all the requisite measures have been taken during the execution of the work.

#### **4.0 Precautions required to be taken during execution of work requiring traffic blocks**

- 4.1 Any work, which infringes the moving dimensions, shall be started only after the traffic block has been imposed and track protected.
- 4.2 At locations **where night working is unavoidable, proper lighting arrangement should be made.**
- 4.3 **Before closing the work**, the track shall be left with the **proper track geometry** so that the trains run safely.
- 4.4 After completion of work, the released sleepers and fittings should be properly stacked away from the track to be kept clear of moving dimensions.
- 4.5 Block shall be removed only when all the temporary arrangement, machineries, tools, plant etc. have been kept clear of moving dimensions.

#### **5 Action by open line (Co-ordination & Inspection)**

- 5.1 Open line staff and Engineers shall keep a watch on the safety precautions being taken at the work site and may stop the work stopped, if any unsafe working is noticed.
- 5.2 Open line Engineers should play more proactive role, coordinate with construction. Engineers and keep a watch on safety precautions being taken at worksite.
- 5.3 Safety audit teams at the HQ/divisional level should inspect all ongoing works pertaining to construction and open line organization being executed in the proximity of the running track or on running track. The safety Audit teams should be monitored at HQ/Divisional level for their proper and effective functioning.

#### **6.0 Stacking of material along railway track**

- 6.1 The sites for material stacking shall be selected in advance ensuring that no part of the stacked material would infringe the Standard Moving Dimensions. A plan of proposed stacking locations be made and signed jointly by an authorized Rly's representative and contractor's representative.

- 6.2 The selected locations shall be marked by lime in advance.
- 6.3 **Presence of an authorized railway's representative while unloading and stacking shall be ensured.**
- 6.4 The material shall be stacked upto such a height, which will not cause infringement to SOD in case of accidental roll off.

## **7.0 Safety aspects to be observed while working in OHE area**

- 7.1 No electrical work close to running track shall be carried out without permission of railway representative.
- 7.2 **A minimum distance of 2m has to be maintained between live OHE wire and body part of worker or tools or metallic supports etc.**
- 7.3 No electric connection etc. can be tapped from OHE.
- 7.4 Authorized OHE staff should invariably be present when the relaying work or any major work is carried out.
- 7.5 Power block is correctly taken and **'permit to work'** is issued.
- 7.6 The structure bonds, track bonds, cross bonds, longitudinal rail bonds are not disturbed and if disconnected for the work, they are reconnected properly when the work is completed.
- 7.7
- 7.8 The track level is not raised beyond the permissible limit during the work.

**Note: For items of barricading, Sign Boards like "Work in Progress", walkie- talkie sets, mobile phones, look out man etc., suitable provision may be incorporated in the tender conditions as per site requirements.**

## **8.0 Joint procedure order for undertaking digging work in the vicinity of underground Signaling, Electrical and Telecommunication cables.**

**(No.2004/Sig/G/ JPO No.1/Sig/2004)**

A. A number of Engineering works in connection with gauge conversion/doubling/third line are in progress on various railways, which require extensive digging work near the running track, in close vicinity of the working S&T cables carrying vital safety circuits as well as electrical cables feeding the power supply to Cabins, ASM room, RRI Cabin, Intermediate Block Huts (IBH) etc. Similarly, S&T organization under open line or construction units under CAO/C are executing various signaling and telecommunication works requiring digging of earth for laying of cables or casting of foundations for the erection of signal posts etc. RailTel are also executing the work of laying of quad cable and OFC on various Railways as a part of sanctioned works for exclusive use of Railways for carrying voice and data i.e. administrative and control communication, PRS, FOIS etc. or shared by RailTel Corporation of India Ltd. On certain sections digging is also required for laying of electrical cable and casting of foundation for the erection of OHE masts by Electrical Deptt. Generally, these works are executed by contractors employed by these organizations.

B. However, while carrying out these works in the vicinity of working signaling, telecommunication

and electrical cables, at times, cable cuts take place due to JCB machines working along the track or during the digging work being done by Contractors carrying out the Civil Engineering works. Similarly, such cable cuts are also resulting due to works undertaken by S&T or Electrical deptts. Such cable faults results in the failure of vital signaling and telecommunication circuits.

C. Henceforth, the following joint procedure shall be followed by Engineering, Electrical and S&T (and RailTel organization, wherever such works are being done by them) officers of the respective divisions and by the construction Organization, while carrying out any digging work near to existing signaling & telecommunication and electrical cables, so that the instances of cable cut due to execution of works can be controlled and minimized.

1. S&T Department (and RailTel, where they have laid the cables) & Electrical Deptts. shall provide a detailed cable route plan showing exact location of cable at an interval of 200m or wherever there is change in alignment so that the same is located easily by the Engineering official/contractor. This cable may be by Sr.DSTE/DSTE or Sr.DEE/DEE of the divisions or Dy.CSTE/C or Dy.CEE/C within a reasonable time in duplicate. DSE/DEN or Dy.CE/C will send copies to their field unit i.e. AEN/SE/P.Way & works.

2. Before taking up any digging activity on a particular work by any agency, Sr.DSTE/DSTE or Sr.DEE/ DEE of the section shall be approached in writing by the concerned Engg. or S&T or Electrical officer for permitting to undertake the work. After ensuring that the concerned executing agencies including the contractor have fully understood the S&T and Electrical cable route plan shall permit the work in writing.

3. After getting the permission from S&T or Electrical Deptt. as the case may be, the relevant portion of the cable route plan shall be attached to the letter through which permission is issued to the contractor by concerned Engg. official for commencement of work and ensuring that the contractors have fully understood the cable route plan and precautions to be taken to prevent damage to the underground cables. The contractor shall be asked to study the cable plan and follow it meticulously to ensure that the safety of the cable is not endangered. Such a provision, including any penalty for default, should form part of agreement also. It is advisable that a suitable post of SE(Sig) or SE(Tele) or SE(Elect.) shall be created chargeable to the estimate of doubling/Gauge conversion, who can help Engg. agencies in the execution of the work. However basic responsibility will be of the Department executing the work and the Contractor.

4. The SE(P.Way) or SE (Works) shall pass on the information to the concerned SE(Sig) or Se (Tele) or Se (Elect.) about the works being taken up by the contractors in their sections at least 3 days in advance of the day of the work. In addition Engineering control shall also be informed by SE(P.Way) or SE (Works), which in turn shall pass on the information the Test Room/Network Operation Centre of Rail Tel/TPC/Electrical Control.

5. On receiving the above information, SE (sig.) or SE (Tele) or SE (Elect.) shall visit the site on or before the date of taking up the work and issue permission to the contractor to commence the work after checking that adequate precautions have been taken to avoid the damage to the cables. The



permission shall be granted within 3 days of submission of such requests

6. The name of the contractor, his contact telephone number, the nature of the work shall be notified in the Engineering Control as soon as the concerned Engg. official issue the letter authorizing commencement of work to the contractor. Test Room be given a copy and Test Room shall collect any further details from the Engineering Control and shall pass it on to S&T/Rail Tel & Elect. officials regularly.

7. In case of works being taken up by the State Government, National Highway Authority etc. the details of the permission given i.e. the nature of work, kilometer etc. be given to the Engineering Control including the contact person's number so that the work can be done in a planned manner. The permission letter shall indicate the contact numbers of Test Room/Network Operations Centre of RailTel/TPC/Elect.Control.

8. Where the nature of the work taken up by the Engineering Department is such that the OFC or other S&T cables or Electrical cables is to be shifted and relocated, notice of minimum one week shall be given so that the division/RailTel/Construction can plan the works properly for shifting. Such shifting works shall in addition for security and integrity of the cables be supervised by S&T supervisors/RailTel supervisors/Electrical supervisors.

9. The concerned SE(P.Way)/SE(Works)/SE(Tele)/SE(Elect.) or RailTel supervisors, supervising the work of the contractor shall ensure that the existing emergency sockets are not damaged in view of their importance in providing communication during accident/emergency.

10. In case of minor nature of works where shifting of cable is not required, in order to prevent damage to the cable, the Engineering Contractor shall take out the S&T or optical fibre cable or Electrical cable carefully from the trench and place it properly alongside at a safe location before starting the earthwork under the supervision of SE (Sig) or SE (Tele) or SE (Electrical). The cable shall be reburied soon after completion or excavation with proper care including placement of the brick over the cable by the concerned S&T supervisors or Electrical Supervisors. However, the work will be charged to the concerned Engineering works.

11. In all the sections where major project are to be taken up/going on RailTel/S&T Deptt. shall deploy their official to take preventive/corrective action at site of work.

12. No new OFC/Quad cable shall be laid close to existing track. It shall be laid close to Railway boundary as per extant instructions i.e. 1.0m from the Railway boundary to the extent possible to avoid any interference with future works (doubling etc.) It shall be ensured in the new works of cable laying that the cable route is properly identified with electronic or Concrete markers. Henceforth, wherever cable laying is planned and before undertaking the laying work, the cable route plan of the same shall be got approved from the concerned Sr.DEN or Dy.CE/Const to avoid possible damages in future. Such approvals shall be granted within 7 days of submission of the requests.

13. The works of excavating the trench and laying of the cable should proceed in quick succession, leaving a minimum time between the two activities.
14. Any damage caused to OFC/Quad cable or Electrical cable during execution of the work, necessary debit shall be raised on Engineering Department who shall bear the cost of the corrective action.
15. All types of bonds i.e. rail bond, cross bond and structure bond shall be restored by the Contractor with a view to keep the rail voltage low to ensure safety of personnel.
16. Above joint circular shall be applicable for construction as well as open line organization of Engineering, S&T & Electrical.
17. The S&T cable and Electrical cable route plan should be got approved from the concerned Sr.DSTE/DSTE & Sr.DEE/DEE respectively, before undertaking the work and completion cable route plan should be finalised Block section by block section as soon as the work is completed.

Sd-	Sd-	Sd-	Sd-
(R.S.Grover)	(N.K.Goel)	(R.C.Sharma)	(R.Sundararajan)
AM(Elect)	Adv (Sig)	AM (Tele)	AM (Works)

**PARA 826 of IRPWM**

826 Safe working of contractors – A large number of men and machinery are deployed by the contractors for track renewals, gauge conversions, doublings, bridge rebuilding etc. It is therefore essential that adequate safety measures are taken for safety of the trains as well as the work force. The following measures should invariably be adopted:

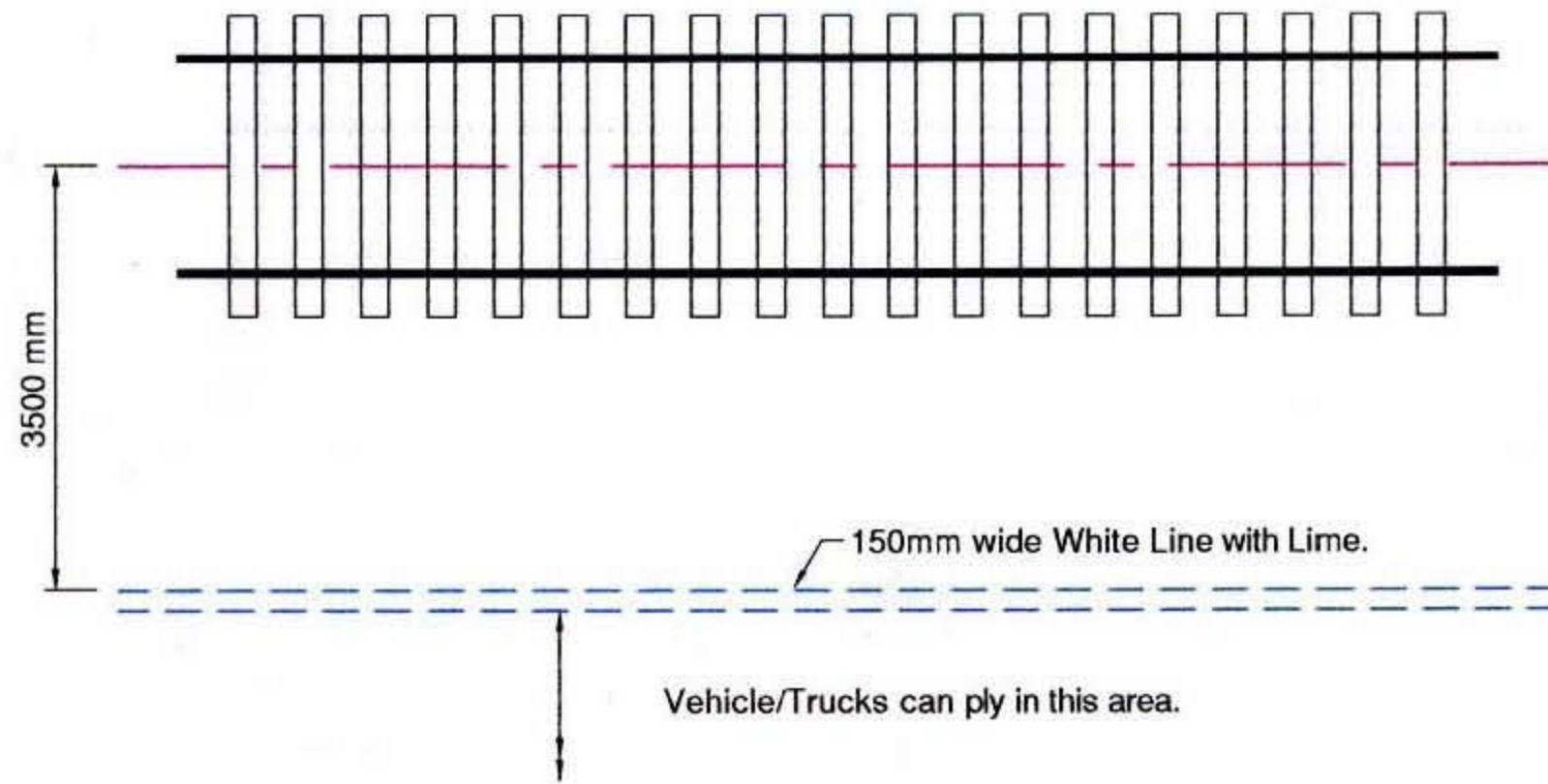
- (i) The contractor shall not start any work without the presence of railway supervisor or his representative and contractors supervisor at site.
- (ii) Wherever the road vehicles and/or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the Railway's schedule of dimensions. For this purpose, the area where road vehicles and/or machinery are required to ply, shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning/reversal of road vehicles/machinery without infringing the running track. Barricading shall be provided wherever justified and feasible as per site conditions.
- (iii) The look out and whistle caution orders shall be issued to the trains and speed restrictions imposed where considered necessary. Suitable flagmen/detonators shall be provided where necessary for protection of trains.
- (iv) The supervisor/workmen should be counseled about safety measures. A competency certificate to the contractor's supervisor as per proforma annexed shall be issued by AEN, which will be valid only for the work for which it has been issued.
- (v) The unloaded ballast/rails/sleepers/other P-way materials after unloading along track should be kept clear off moving dimensions and stacked as per the specified heights and distance from the running track.
- (vi) Supplementary site specific instructions, wherever considered necessary shall be issued by the Engineer in Charge.
- (vii) The Engineer in- charge shall approve the methodology proposed to be adopted by the contractor, with a view to ensure safety of trains, passengers and workers and he shall also ensure that the methods and arrangements are actually available at site before start of the work and the contractor's supervisors and the workers have clearly understood the safety aspects and requirements to be adopted/followed while executing the work. There shall be an assurance register kept at each site, which will have to be signed by both, i.e. Railway supervisor or his representative as well as the contractor's supervisor as a token of their having understood the safety precautions to be observed at sites.

**COMPETENCY CERTIFICATE:**

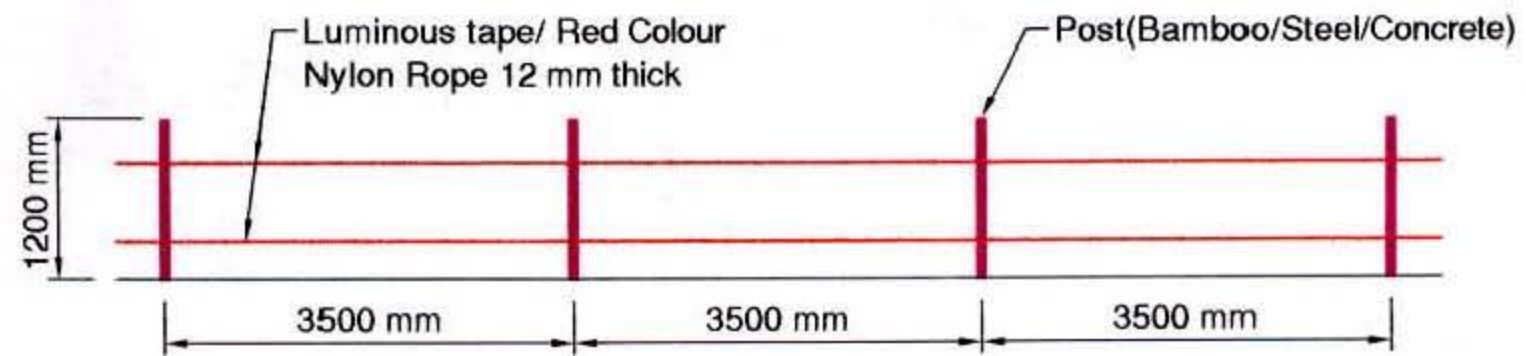
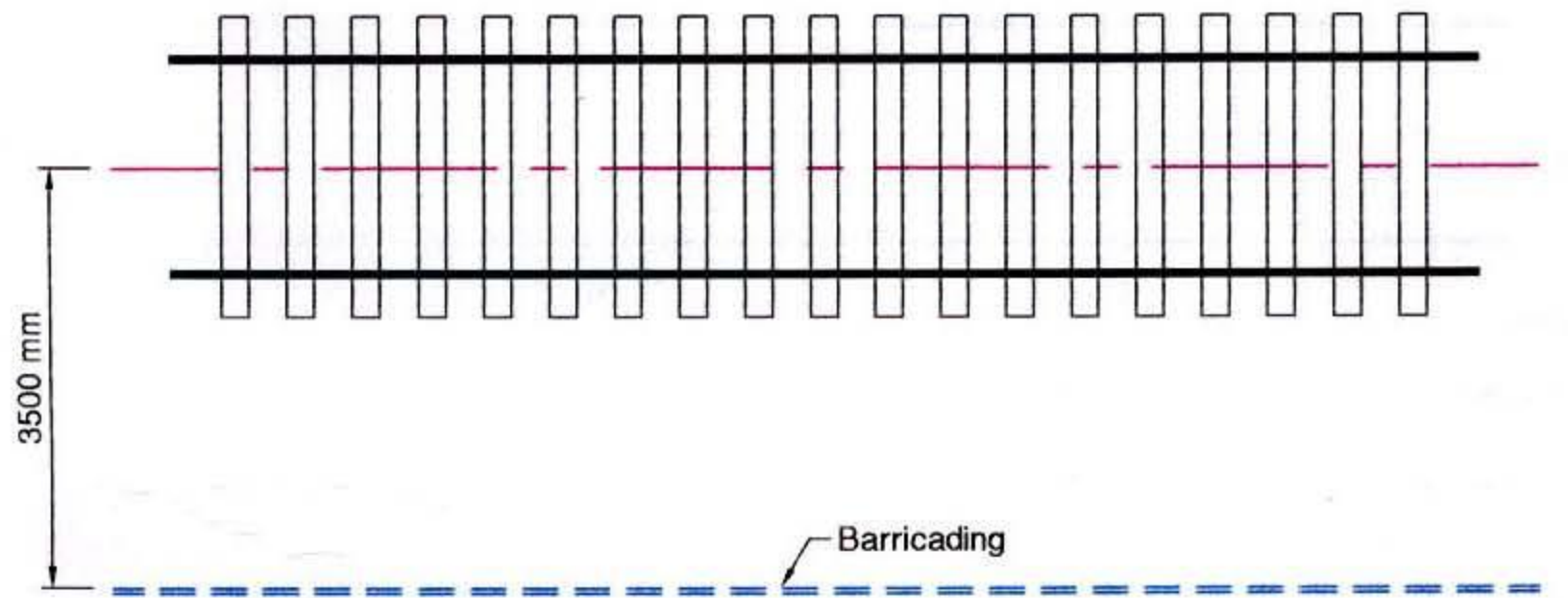
**Certified that Shri \_\_\_\_\_ P.way supervisor of M/s \_\_\_\_\_ has been examined regarding P.way working on \_\_\_\_\_ work. His knowledge has been found satisfactory and he is capable of supervising the work safely.**

**Assistant Engineer**

### A) Marking of White Line with Lime.



### B) Provision of Barricading.



Elevation of Barricading

**CHECK LIST**  
**(Before starting the work)**

Name of Work : \_\_\_\_\_ Location : \_\_\_\_\_

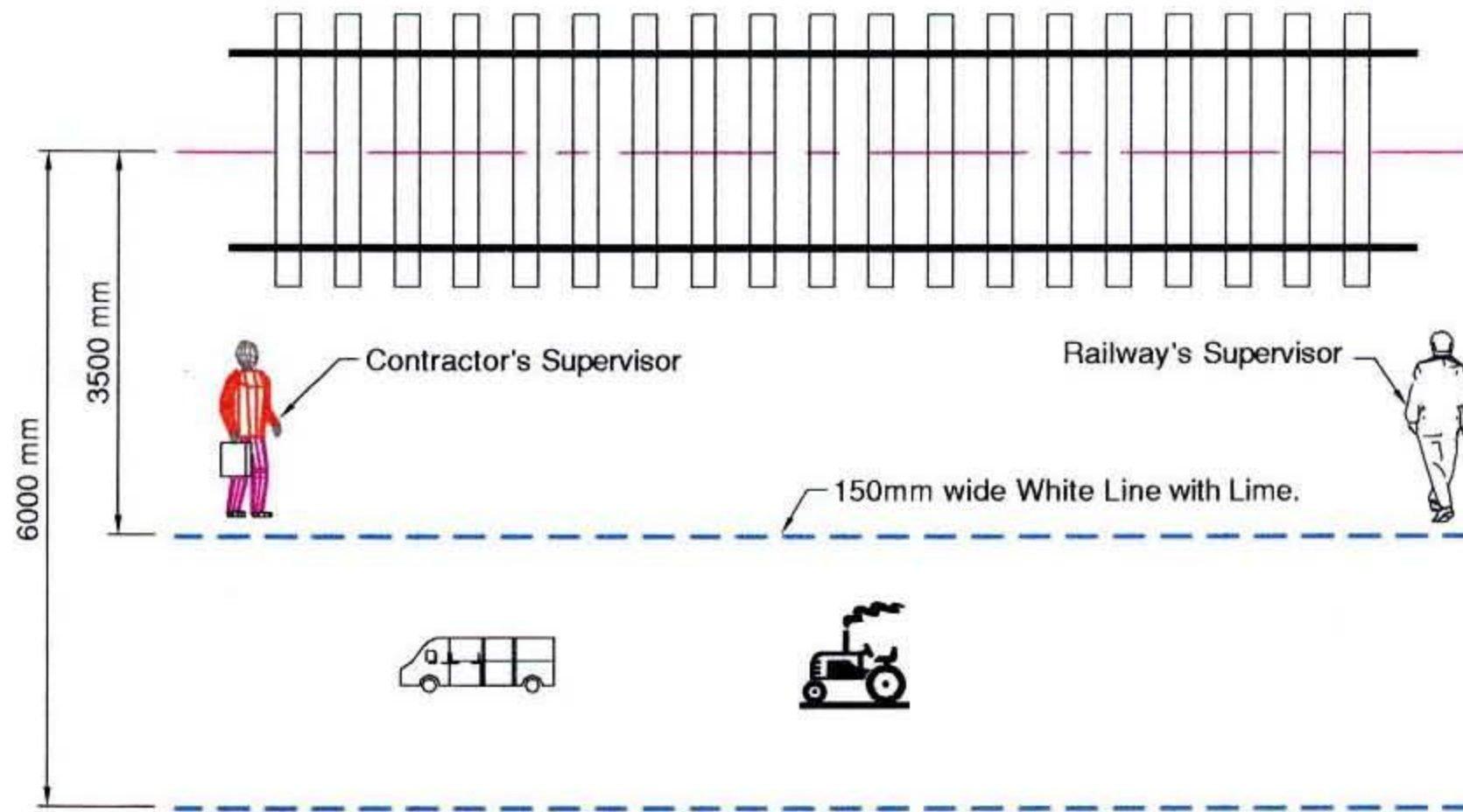
Duration of work : From \_\_\_\_\_ To \_\_\_\_\_

S.No.		Yes	No.
1.	Contractor's supervisor identified/selected. Who is going to be site incharge?		
2.	Training imparted to contractor's supervisor & Certificate issued.		
3.	Work site inspected by Construction's Supervisor/ other department's supervisors along with contractor's supervisor.		
4.	Precautions to be taken at site of work have been identified and listed.		
5.	Plan of work drawn out by contractor's supervisor in consultation with Railway's Supervisor		
6.	Plan of work, brought to the knowledge of Engineers/Supervisors/Incharge of section AEN/ IOW & PWI.		
7.	Before start of work, proper line marking/Barricading done at site of work.		
8.	Men deputed for protection of track along with safety equipments.		
9.	Caution order issued for the train drivers in case work is being done within 6 mts. of centre of running track.		
10.	Drivers of vehicles/machinery being used have been identified.		
11.	Driver of vehicles/machinery briefed about the safe working.		
12.	Sufficient lighting provided at site of work for night working.		
13.	Infringements checked.		
14.	Sectional (open line) Engineers & Superpvisors have satisfied themselves regarding safety arrangements.		
15.	Availability of Walkie-Talkie sets for communications.		
16.	Whether approved cable route plan is available		

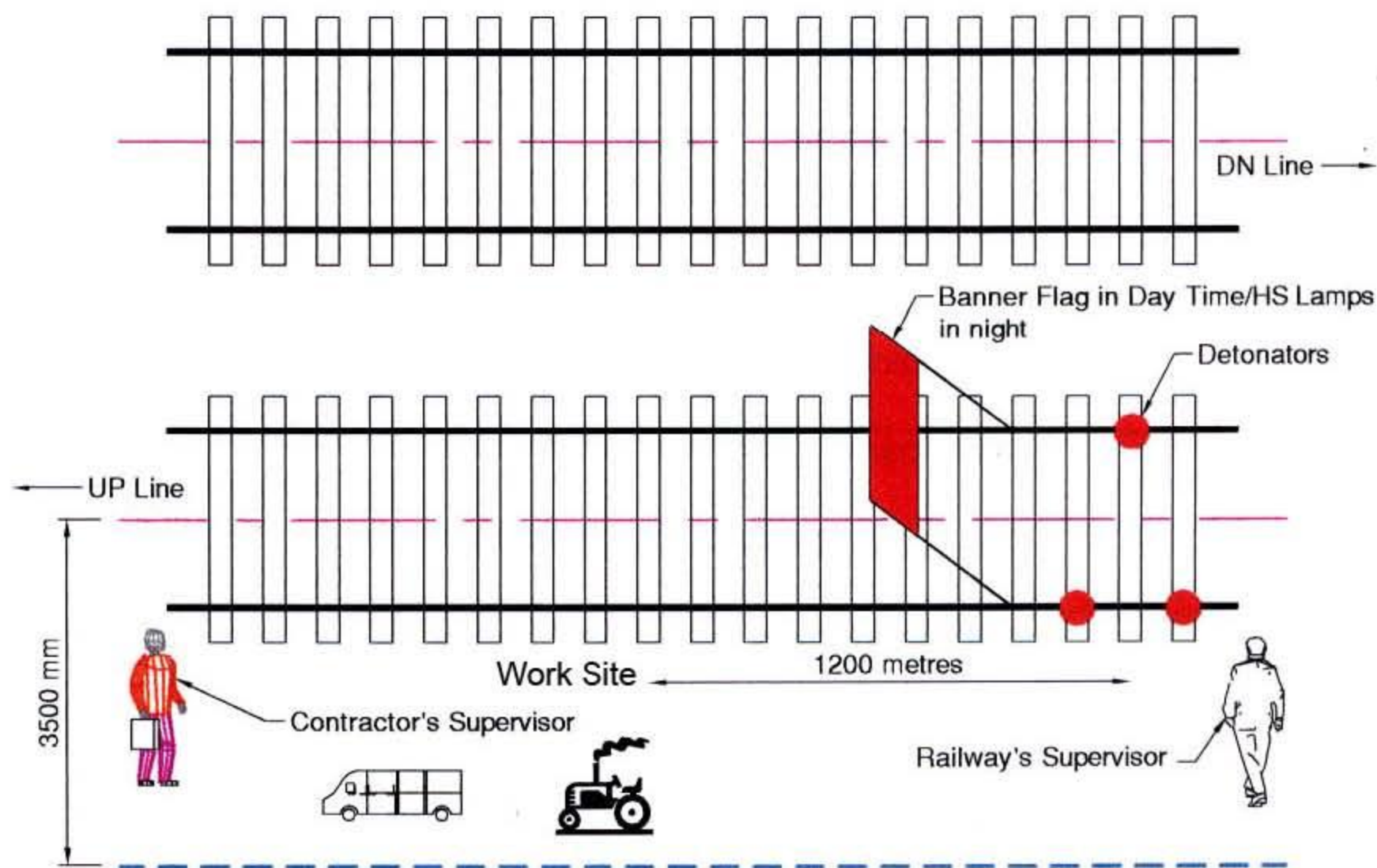
Signature of Construction's/  
Other department's Supervisor

Signature of Open Line's  
Supervisor Date:.....

C) Plying of Vehicles/Machinery between 3.5 Mts. to 6.0 Mts. from centre of track.



B) Plying of Vehicles/Machinery within 3.5 Mts. from centre of track.



Work to be done as per para 806 and para 807 of IRPWM.

**CHECK LIST  
(While work is in progress)**

**Name of Work :** \_\_\_\_\_

**Location :** \_\_\_\_\_

**Duration of work :** From \_\_\_\_\_ To \_\_\_\_\_

**Date of Inspection :** \_\_\_\_\_

S.No.		Yes	No
1.	Does the Railway's & contractor's supervisor have the certificate?		
2.	Does the knowledge of contractor's supervisor on safety of track & work site is upto the mark.		
3.	Is Railway's supervisor of Const. Organisation/ Other department's available at site?		
4.	Is knowledge of Railway's supervisor O.K.		
5.	Is lime marking/Barricading done?		
6.	Is adequate safety precautions taken at site of work.		
7.	is communication facility (Walkie – Talkie sets) available at site.		
8.	Are only identified drivers driving the vehicles/machinery?		
9.	Is whole work site safe for working of men/vehicles & trains?		
10.	Are adequate lighting arrangements done at site?		
11.	Are adequate protection equipment available at site.		
12.	Is caution order to trains being issued?		
13.	Are train drivers following the enforced temporary speed restriction?		
14.	Has work permit been taken for working in Electrified territory/station yards (Points & Crossing areas)		
15.	Whetger, work is being done as per approved cable route plan.		

**Signature of Inspecting Officer**

**13      Designation \_\_\_\_\_**

## REFERENCES

S.N.	Railway Board/CAO(C)'s letter Nos.
1.	Correction Slip No. 69 of IRPWM dated 23.5.2001
2.	EDCE(P) Rly. Board's Letter No. 2000/CE-II/PRA/12 dt. 21.11.03
3.	Executive Director (Works), Railway Board's Letter No.2001/CE-II/PRA/10(CRS) dated 21.5.2002
4.	Executive Director Civil Engg.(P), Railway Board's Letter No. 2000/CE-II/PRA/12 dated 16.5.2002
5.	Executive Director Civil Engg.(P), Railway Board's Letter No. 99/CE-II/PRA/32(CRS) dated 24.7.2000
6.	Additional Member (Works), Railway Board's D.O. letter No. 99/CE-II/PRA/32(CRS) dated 5.7.2000
7.	CAO/Const. Kashmere Gate Letter No. 62-W/O/4/ 3/W.Spl./Genl dated 22.5.2000
8.	Director Civil Engg.(P), Railway Board's Letter No 99/CE-II/PRA/32 dated 20.4.2000
9.	Director (Works), Railway Board's Letter No. 99/WI/S /Accident-Mangla Exp dated 23.8.99
10.	Executive Director Civil Engg.(G), Railway Board's Letter No. 98/CE-I/CT/15 dated 13.8.98.
11.	Para-34 of General Condition of Contract 1999
12.	Director (Signal)/Railway Board letter No. 2004/Sig/G/7 dt 13.12.2005.
13.	Director works-II/Railway Board letter no. 2000-W1/Genl/Safety/Pt.I dt. 27.01.2008.
14.	Director works-II/Railway Board letter no. 2000-W1/Genl/Safety/Pt.I dt. 27.01.2008.
15.	Member Engg./Railway Board letter no. 2003/CE-II/Safety Misc/3 dt. 18.02.2010.
16.	Member Engg./Railway Board letter no. 2003/CE-II/Safety Misc/3 dt. 04.11.2010.



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