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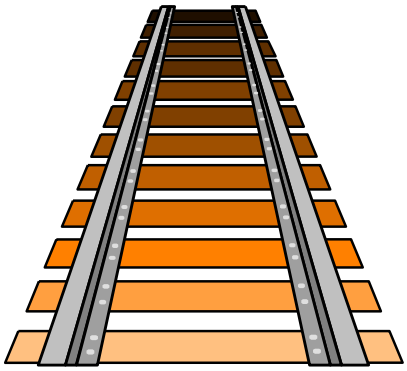

WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE/P.WAY/VILLUPURAM TIRUCHCHIRAPPALLI DIVISION

SOUTHERN RAILWAY

PLANNING BRANCH

G.275/WSSR- 732021/2020-21

WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE/P.WAY/VILLUPURAM

TIRUCHCHIRAPPALLI DIVISION

STUDIED BY

WORK STUDY TEAM
OF
PLANNING BRANCH

March 2021

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I N D E X

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ACKNOWLEDGEMENT

The work study team sincerely acknowledges the valuable guidance and co-operation extended by ADEN/VM & SSE/P.WAY/VM and staff in completing the study.

(ii)

AUTHORITY

Annual study programme approved by SDGM for the year 2020-21.

(iii)

TERMS OF REFERENCE

Work study to review the staff strength at SSE/P.Way/Villupuram Section of VM Division.

(iv)

METHODOLOGY

The work study team has applied the following techniques in conducting the work study.

(1) Collection and compilation of Data.

(2) Observation of present system of working.

(3) Interaction with ADEN/VM & SSE/P.Way/VM

(4) Analyzing the data collected and assessed the manpower requirement based on the TRMS formula of MCNTM and on need basis.

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SUMMARY OF RECOMMENDATIONS & SUGGESTIONS

SUMMARY OF RECOMMENDATIONS:

The following posts are identified as surplus, recommended for surrender and credited to the vacancy bank.

- Four posts of SSE in GP Rs 4600 (**4 posts)**
- Sixteen posts of T.M-IV in GP Rs 1800 **(16 posts)**

(Total 20 Posts)

CHAPTER - I

INTRODUCTION

The SSE/P.Way/VM is a field unit of Civil Engineering department of Southern Railway to look after the maintenance of track and other auxiliary works.

Permanent Way is the major activity of the Engineering branch which is entrusted with the periodical maintenance of tracks, bridges, LC gates and other assets. A well maintained track is very essential for speedy, safety and efficient operation of trains. Continuous monitoring and Inspection is warranted daily in ensuring a reliable permanent way.

The modern technologies led the track maintenance techniques from the era of pick axe & shovel to the era of modern mechanized Track maintenance. The interconnection with S&T and TRD branches is a new development in the team work. The equipments for testing the track have become sophisticated not only in detecting the failures but also in preventive check. It will be worth mentioning the use of Ultrasonic Flaw Detector (USFD) equipment which detects even the minute air crack and blowholes in the rail which might develop into a rail crack leading to derailments.

The main components of permanent way or track are rails, sleepers, ballast, formation and fittings & fastenings.

- ✓ **Rails** act as girders to transmit the wheel loads of trains to the sleepers.
- ✓ **Sleeper**s hold the rails in proper position and provide the correct gauge with the help of fittings and fastenings and transfer the load to the ballast.
- ✓ **Ballast** is placed on prepared ground known as formation, which gives a uniform level surface, provide drainage and transfers the load to larger area of formation.
- ✓ **Formation** gives a surface, where the ballast rests and transmits the total load of the track and that of the trains moving on it to the ground below.

Characteristics of a good Track:

(i) Sound condition of rails, sleepers and fittings.

(ii) All fittings are available and properly tightened.

(iii) Adequate good quality and clean ballast under the sleepers and also around it with full shoulder width.

(iv) Wear in rails, horizontal or vertical should be within limits.

(v) Alignment of rails should be perfect and other defects should be within permissible limits.

(vi) Longitudinal and cross levels should be in good condition and within allowable limits.

Annual programme of track maintenance

The following programme is normally followed annually on Indian Railways for systematic maintenance of track as per IRPWM.

Period	Work
1. Post-monsoon attention. For about six months after end of monsoon.	a) Attention to run down length in the entire gang beat to restore section to good shape.
	b) One cycle of through packing from one end of the gang beat to the other end including overhauling of 1/3 to ¼ of the beat.
	c) Attention during the monsoon; For about 4 months cleaning of side drains, catch water drains, repairs to bank and picking up of slacks.
2. Pre-monsoon attention: for about 2 months prior to break monsoon.	a) Attention to track as required; picking up of slacks.
	b) Attention to side drains, catch water drains and water ways.
3. Lubrication of rail joints, gap adjustment and curve re-alignment	Patrolling of track during heavy rains.

Need for Mechanized Maintenance:

The mechanized maintenance of track implies the deployment of track machines for day to day track maintenance works which are otherwise done by manual labour. The need for mechanized maintenance of track is felt due to the following reasons.

(i) With the introduction of concrete sleepers, the track structure has become very heavy therefore it becomes difficult for the gang men to lift the track.

(ii) There are chances of breakage of concrete sleepers if the same are hit by gang man using the beaters.

(iii) Manual packing is very hard and strenuous job. It is not possible with manual maintenance to get good quality track which is essential for high speed operations.

Inspection of track:

Purpose of Inspection:

With the running trains, there is continuous degradation of track due to vibrations. The packing of sleeper gets disturbed, the fastenings become loose or some time come out of sleepers and there is general wear and tear in rails and sleepers.

The purpose of inspection of track is to detect various flaws such as looseness of packing, loose or missing fittings, wear in rail, disturbance in cross levels and versions in curves, deficiency of ballast, unusual movements in long welded rails, inadequate or excessive gaps at joints, defects at level crossings such as inadequate gap at check rail and condition of track and bridges in general. In IRPWM it is explained in detail, the inspection schedules for each Railway officials, supervisors and maintenance staff.

Methods of Inspections:

Various methods adopted for inspection are as under:

(a) By Push Trolley/ Motor Trolley

(b) By Engine of a fast train

(c) By rear most vehicle of a train and

(d) By Track recording Car by Oscillograph Car and OMS instrument

(a) By Push Trolley / Motor Trolley:

This is the age old method of inspecting the track visually by JE/SSE and ADEN. All visual defects of track such as loose packing, missing or loose fittings, broken sleepers, deficiency of ballast are noted during the inspection.

(b) By Engine of a fast Trains:

This inspection gives an idea of running quality of track. This inspecting officer keeps standings in the engine and records all jerks, vertical or lateral which are mainly due to loose packing, uneven cross level or misalignment.

(c) By Rearmost Vehicle of a train:

By travelling at the rear end of the last coach in running trains, one gets an idea of the running quality of track just as travelling in an engine. Main difference is that lateral alignment defects and cross level defects get amplified in the rear most coach.

(d) By Amsler Car:

Amsler car is an instrumented car which records defects like misalignment, gauge, vertical unevenness of both the rails, twist i.e. difference in cross levels and super elevation at curves. The recording is done in a continuous form and defects are shown as peaks. By taking note of defects, the defects can be attended later on.

Track Recording cum Research Car By Osillograph Car & OMS Instrument:

Oscillograph car records accelerations in vertical and lateral direction when the train is running at full speed. The probes are kept at pre-determined locations which carry the acceleration through electric cables to the recording machines. This method of recording gives a very fair idea of various defects generated by rail wheel interaction due to track defects. OMS is the short name of **Oscillation Monitoring System**, which is portable machine which records both vertical and lateral accelerations.

Types of Patrolling:

- ✓ ***Key man's Daily Patrol*** - Every portion of the permanent way shall be inspected daily on **foot** by the key man of the beat in which the portion of the track falls.
- ✓ ***Gang Patrol during Abnormal Rainfall or Storm*** – In the event of abnormal rainfall or storm during day or night, the Mate should, on his own initiative organize patrolling over the length affected, independently of other patrolling, if any being done.
- ✓ ***Night Patrolling during Monsoon*** – During the monsoon, certain section of the railway line, as may be specified, shall be patrolled to detect damage by flood, such as breaches, settlements, slips and scours and immediate action taken to protect trains, when so warranted.
- ✓ ***Security Patrolling*** during Civil Disturbance and on Special occasions
- ✓ ***Hot weather Patrolling*** for LWR/CWR – Hot weather patrol is carried out when the rail temperature reaches td + 25 degree or above. The patrolling should be done in accordance with the provisions of Manual of Long Welded Rails.
- ✓ ***Cold weather Patrolling*** for LWR/CWR – Cold weather patrol is carried out when the rail temperature reaches td -30 degree or below. The patrolling should be done in accordance with the provisions of Manual of Long Welded Rails.

- ✓ ***Watchmen at vulnerable locations:*** In addition to patrolmen, stationary watchmen are posted at known locations of danger or trouble.

Latest implementation of track improvements:

Track Monitoring:

Monitoring of track is carried out periodically using RDSO's track recording cars and Oscillograph cars and portable Oscillation monitoring system (OMS 2000) at regular intervals to assess the condition of the track in good fettle and safe for passage of trains. PC based OMS systems are being used as part of modernization. Detailed analysis of results of these runs has enabled this Railway to progressively improve the quality of track. Computer program has been developed to generate exception reports to enable field staff for early identification of location for planning maintenance. 67,950 km of track is recorded with OMS/TRC recording in 2018-19 against the target of 60,000 Kms. One Air-conditioned track recording car has been inducted into the system. GPS based OMS recording machine is being processed for purchase.

Track Management System (TMS)

A web based Track Management System is implemented in all divisions as part of e-Governance and inspections of field staff are made in e-form and computer based monitoring of various track maintenance activities is introduced. Staffs are provided with note books and Data card upto field level and necessary training is imparted.

Indian Railways Projects sanctions and Management (IRPSM):

A web based IRPSM is implemented to process for works programme for all plan heads including Track Renewals as part of e-Governance. This facilitates access of data at all levels and progress monitoring of various sanctioned works/sanction of works.

The magnitude of outsource in maintenance activities paved way for a meticulous calculation to arrive at the manpower requirement in commensurate with the major developments taken place in the field of track maintenance.

The manpower requirements of SSE/PWAY/VM is arrived based on the TRMS formula of CMCNTM, approved by Railway Board vide letter No.95/CE-1/CWS/2/ Vol.II/ Pt.II dt. 06.03.2006 which recommends incorporating the effects of Modernization once in 5 years such as introduction of more number of shoulder ballast cleaners, improving rail-weld technology, better design of SEJs, maintenance free level crossing track structure.

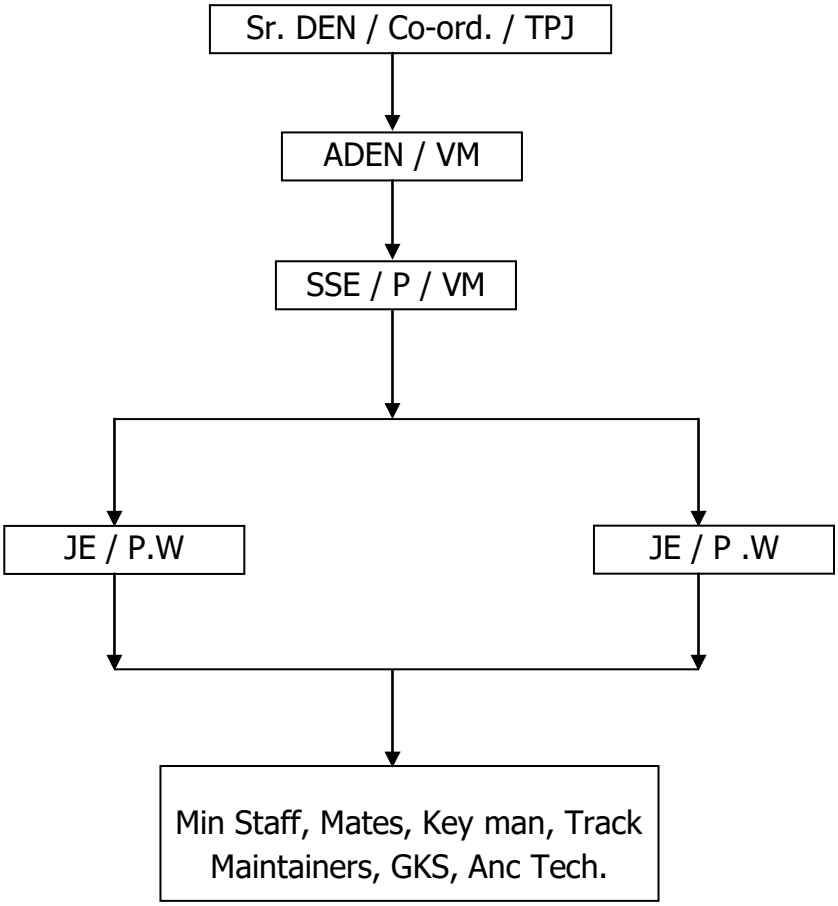
Substantial investments on Track machines over the years to improve the quality of Track structure and curtailment in the need of its annual maintenance led to the reduction in the number of staff deployed on the track maintenance activities.

CHAPTER – II

PRESENT SCENARIO

Organization:

The Engineering department of VM division is under the control of Sr.DEN/ Co-ord/TPJ. The Permanent Way section of VM which is managed by SSE/PWAY/VM is under the direct & general control of ADEN/VM.



The duties of Supervisors and Technical staff in P. Way section are:

i. Duties of SSE/P.way [prescribed in para118 -135 of Part-B of IRPWM]

- Responsible for maintenance and inspection of track and safe condition for traffic.
- Execution of all works incidental to track maintenance including track relaying works.
- Accountal and periodical verification of stores and tools.

- Maintenance of land boundary between stations and at unimportant stations.
- Co-ordination with the works, Bridge, Signaling and Electrical staff.
- Accompanying on Inspection with higher officials.
- Testing of running qualities of track.
- Inspection of Gangs, Level Crossings, points and X-ings, curve inspection
- Foot plate inspection, Rear vehicle inspection, Foot inspection.
- Accompanying OMS/TRC (RDSO) Inspection.
- Check on patrolling
- Maintenance of station yards.
- Witnessing payment to staff
- Maintenance of Records
- Custodian of stores etc.
- Apart from above P.Way maintenance activities Staff Welfare viz. promotion, claiming of salary, supply of equipment and uniform, procurement of materials, issuing of materials scrap delivery (DS8)

ii. Duties of JE/P.way: [prescribed in para136 -145 of Part-B of IRPWM]

- Inspection and maintenance of track in a safe and satisfactory condition for traffic, including execution of all works, incidental to track maintenance.
- Execution of special works, such as Renewal, Directed Track maintenance curve re-alignment, deep screening etc.
- To assist the SSE/P.way.
- Co-ordination with Works, Bridge and staff of other departments.
- Inspection of Gangs, Level crossings, Points and crossings, Curves, foot plate inspection, rear vehicle inspection and foot inspection.

iii. P.Way Mistry /Track mate: [prescribed in para136-166 of Part-B of IRPWM]

- Knowledge of Rules and Signal
- Safety of the Track
- Equipments at site of work
- Muster and Gang Charts/Diary Books

- ❖ Observance of sleepers packing during passage of train.
- ❖ Precaution when view is obstructed
- ❖ Tidiness of section and Safe custody of tools
- ❖ Action when line is unsafe or in the event of accident
- ❖ Patrolling during abnormal Rainfall
- ❖ Commencing work affecting safety of train
- ❖ Weekly inspection of Gang length by mate.
- ❖ Preventing Tress pass and theft of P.way fittings
- ❖ Relief arrangements in emergencies
- ❖ Assistance to P&T staff
- ❖ Assistance in protection of train and Assistance in placing fog signals
- ❖ Responsibilities of the mate in LWR track

iv. Duties of Key-man: [prescribed in para167 -170 of Part-B of IRPWM]

- Key-man's daily inspection
- Equipment of key-man
- Rectifying the defects whichever possible by him.
- Reporting to Mate and PWI about the defects which require assistance for attending.
- In case of serious defects protection of Track & informing as per rules.
- Work at unmanned level crossings.
- Assisting mate after completing his routine inspection.
- Any materials found fallen safe custody and disposal.
- Apart from daily inspection, he should ensure tightness of fittings in Systematic manner.

Track Maintenance Methods:

The para 228 of IRPWM prescribes the system of maintenance for concrete sleeper track as given below. The following 3-tier system of track maintenance shall be adopted on sections nominated for mechanized maintenance. They are

-On track machines (OMU)

1. Mobile Maintenance unit (MMU)
2. Sectional gangs

The mobile maintenance units shall comprise of two groups:-

MMU-1:- One for each PWAY section

MMU-2:- One for each Sub-division

MMU-1 shall be a Rail cum road vehicle with a PWAY in-charge with a jurisdiction of 40-50 Kms. double line and 90-100 Km for single line for various works including need based spot tamping and rail welding.

MMU-2 shall be a road vehicle based unit with each sub-division for reconditioning of turnout and minor repairs to the equipments of MMU.

Existing Maintenance Practices on IR

As on date, the practice of maintenance can be briefly summarized as follows;

(a) In sections where relaying with PSC sleepers has been done,
   i. Tamping with machines as and when machines are available, plus
   ii. Conventional system of maintenance

(b) In sections where relaying has not been done,
   Only conventional system of maintenance is being used.

Annual programme of regular track maintenance is as follow:

Sl. No.	**Period**	**Work**
1.	Post monsoon attention for about six months	Attention to run down stretches, one round of through packing
2.	Pre-monsoon attention for about two months	Clearing of drains
3.	Attention during monsoon for about four months.	Attention to track as required.

The role of open line organization of Engineering Department in IR mainly meant for maintenance/ strengthening/ modification of existing infrastructure i.e. track for permitting higher speeds and heavier Loads.

The manual maintenance of the track has given way to highly mechanized maintenance practices that has become inevitable for the following reasons.

- The high safety standards that can be achieved
- The capability for higher axle load, speed etc.,
- The overall economy in cost of maintenance
- The accuracy in testing, checking and inspections that can be achieved through mechanization.
- The necessity to avoid harsh physical work under inclement weather and isolated locations.
- The speed of maintenance
- The need to carry out the maintenance works within the constraints of time for line block etc.,

The provisions of "Small Track Machines Manual":-

The para1.3.2 says that the "Requirement of Manpower doesn't include Leave reserve". Further, the para1.3.3 stipulates that the Creation of posts for operation and maintenance of small track machines should be done by surrender of equivalent money value of live revenue charged posts of Gang man /other category involved in the track maintenance. The component of unskilled staff being created should be barest minimum. The proportion of skilled personnel should form at least 75% of the total posts to be created.

The brief outline of activities at P.Way /VM is as under

- Casual renewal of rails and distressing and welding of joints.
- Casual renewal of broken sleepers, SEJ sleepers, Points and Crossing sleepers, Bridge approach sleepers and LC sleepers.
- Pre-tamping and post tamping works for machine packing.
- Switch and stock rail renewal.
- Crossing renewal.
- LC opening and Examination and road repair works.
- Attention SEJ`s Bridge approaches, Points and crossing packing.
- Attention to Officer`s inspection notes.
- Attention to Joint inspection of points with S&T track notes.

- Oiling and greasing of fish plated joints.
- Weeding of track, boxing of ballast, and Anti-corrosive painting of rails.
- Attention to lifting barrier gates and installations.
- Attention to frequent trespass locations.
- Attention to cutting of trees likely to affect track.
- Attention to side drain clearing in cuttings.
- Attention to weld failure and rail failure.
- Security patrolling, Monsoon patrolling, patrolling of vulnerable location.
- Shallow screening of track.
- ERC greasing.
- Attention to TRC notes and OMS notes.

On the above activities, most of them are already outsourced and gang staffs are attending only on emergencies.

The actual staff strength of SSE/PWI/VM as on September 2020 is 133 including SSE, JEs, Artisans, Ministerial staff & Track men's as against the sanctioned strength of 153 (including Excess of 18). The Sanction, Actual, Vacancy, Excess statement is placed as **Annexure-I.**

The entire section is maintained by 9 gangs and the distribution of staff is enclosed as **Annexure -III.**

Summary of Staff Strength:

Track Maintainers	124
Supervisors	3
Artisans	3
Trainees	3
Total	133

The stations coming under this Jurisdiction is detailed below :

- Villipuram (VM)
- Valavanaur (VRA)
- Vilaianaur (VI)
- Chinnababusamudram (CBU)
- Pondicherry (PDY)

The present Sanction and actual staff of SSE/P.Way/VM including supervisors ministerial staff & track men categories are as under:- (as per Division/Section)

Sl. No.	Designation	Sanction	Actual	Vacancy
1	Sr. Section Engineer	6	2	4
2	Junior Engineer	2	1	1
3	Sr Tech Blacksmith	2	0	2
4	Blacksmith I	1	1	0
5	Blacksmith-III	1	1	0
6	Sr Tech Painter	2	0	2
7	Welder-III-Trainee	1	1	0
8	Carpenter-I	1	0	1
9	Carpenter-III	1	0	1
10	Carpenter-Assistant	1	0	1
11	Track man GR. I	14	5	9
12	Track man GR. II	27	11	16
13	Track man GR. III	27	27	0
14	Track man GR.IV	67	80	+13
15	Track man GR.IV (Trainees)	0	1	+1
16	Substitutes	0	1	+1
17	Trainee-JE/Pway	0	2	+2
Total		153	133	20

Level crossing gates:

There are 33 manned level crossing gates under the jurisdiction of SSE/P.WAY/VM, out of which 27 are Engineering LC gates, and 6 are traffic gates. There is no unmanned level crossing Gate.

Roster followed by Engineering LC's manned gates is here under:

Out of 27 engineering LC gates, 2 A class and 25 B& C class gates are there.

Number of Level Crossing Gates: (Engineering)

Sl.No	LC. No	Location	Block section	Interlocked/Non interlocked	Class of LC
1	2	1/500-600	VM-CBU	Non-I	C
2	3	2/300-400	VM-CBU	I	C
3	4	3/800-900	VM-CBU	Non-I	C
4	6	5/200-300	VM-CBU	Non-I	C
5	7	6/100-200	VM-CBU	I	C
6	9	7/300-400	VM-CBU	Non-I	C
7	10	8/100-200	VM-CBU	Non-I	A
8	11	8/400-500	VM-CBU	Non-I	C
9	13	9/200-300	VM-CBU	Non-I	C
10	14	9/500-600	VM-CBU	I	C
11	18A	14/700-800	VM-CBU	I	B
12	20	15/600-700	VM-CBU	I	B
13	23	17/900-18/000	VM-CBU	I	C
14	26	20/000-100	VM-CBU	Non-I	C
15	29	23/200-300	CBU-PDY	Non-I	C
16	29A	24/200-300	CBU-PDY	Non-I	C
17	30	24/900-25/000	CBU-PDY	Non-I	C
18	33	27/900-28/000	CBU-PDY	Non-I	C
19	34	29/000-100	CBU-PDY	I	A
20	35	29/800-900	CBU-PDY	I	C
21	36	30/200-300	CBU-PDY	I	C
22	37	30/300-400	CBU-PDY	I	C
23	38	30/700-800	CBU-PDY	I	C
24	40	32/000-100	CBU-PDY	Non-I	C
25	41	32/800-900	CBU-PDY	Non-I	C
26	42	33/800-900	CBU-PDY	Non-I	C
27	44	35/600-700	CBU-PDY	I	B

2.7 BRIDGES:

There are 108 Bridges available in the section. (ROB, RUB & FOB)

(3 MAJOR & 105 MINOR Bridges)

Various track machines and their periodicity of working is Detailed below:-

Sl. No.	Name of the Machine	Work done	Frequency
1.	BCM-Ballast Cleaning Machine	Deep screening of track	Once in10 years
2.	DUOMAT/CSM – Continuous Action Tamper	Tie Tamping LWR work	Once in 2 years
3.	DGS - Dynamic Track stabilizer	For consolidating track after works affects core stability	Once in 10 years along with BCM
4.	UNIMAT/MPT	Tamping Points & crossing	Once in 2 years
5.	BRM - Ballast Regulating Machine	Boxing of track	
6.	UTV - Utility Track Vehicle	Leading and stacking materials	As per need
7.	T-28 - T28 cranes – One job crane (PRC laying Machine)	For re-laying of Points & crossing	As per requirement
8.	PQRS	For re-laying track	-do-
9.	TRT	For CTR of track	-do-

DETAILS OF TRACK MACHINES USED DURING 2018-2019

1. UNIMAT - 10 times
2. UTV Machine - 43 times
3. CSM 929 - 13 times
4. BCM 380 - one time

2.8.1 **List of Rail/Weld failures during the last two years is as follows**.

Year	NO. OF FAILURES		
	RAIL FAILURES	WELD FAILURES	Weld Crack
2018	1	1	-
2019	--	1	-
TOTAL	1	2	-
AV/Year	0.5	1	-

Units/Gangs Jurisdiction & distribution of PWI/VM:

Gang No	HQs/Station	Gang Mileage	Length	Strength
1	VM yard	Rd 4,5,6/VM yard		1+1+9
2	VM yard	Rd 7,8 VM-PDY sec		1+1+9
3	VM yard	Rd 1,2,3/VM yard, BD& MRV siding		1+1+9
4	LC No 7/COU	1/500-7/800	6.3 km	1+1+9
5	LC No 14/VRA	7/800-14/300	6.5 km	1+1+9
6	LC No 20	14/300-20/700	6.4 km	1+1+9
7	CBU	20/700-27/300	6.6 km+CBU yard	1+1+9
8	LC No 35	27/300-33/600	6.3 km	1+1+9
9	PDY	33/600-37/800	4.2 km+PDY yard	1+1+8

Duty Hours:

The normal working hours of the Ministerial and Artisans & Gang staff is given below.

Ministerial staff:

07.00 to 17.30 hours from Monday to Saturday

Lunch break 30 minutes.

Artisans and Units staff:

Morning: 07.00 to 12.00 hours

Evening: 14.30 to 17.30 hours. Sunday is rest.

As per executive summary of the said MCNTM report para 0.13, 12.5 % LR is allowed for all non-supervisory and non-secretarial category staff. The Rational formula covers all activities as per para 0.14 of the report.

As per para 0.20 Annual Review of gang strength is to be conducted on every 1st of April continuously. IRICEN will be custodian of software for calculating man power.

Equated Cost Kilometre (ECKM) can be evolved as performance unit in future.

EMKM is defined as numerically equal to 0.6 times of the number of track men required for the section for all the activities T, R, M & S as per rational formula.

TRACK MAINTENANCE ACTIVITIES

The whole activities connected to Track Maintenance are clubbed under four main categories under CMCNTM studies. They are:

a) Activity 'T' – Affected by Traffic Density
b) Activity 'R' – Not affected by Traffic Density — Primary activities
c) Activity 'M' – Miscellaneous
d) Activity 'S' – Site specific — Auxiliary activities

ACTIVITY 'T' – AFFECTED BY TRAFFIC DENSITY

T_1	-	Slack attention to	a) Bad spots b) Low joints (FP, welded, glued joints) c) SEJ (1 No. / Km) d) Minor curve alignment
T_2	-	For Tie tamper Working	a) Pre tamping operations b) Along with tamper c) Post tamping operations
T_3	-	Casual Renewal of	a) Rails b) Sleepers c) Fasteners along with re gauging
T_4	-	Repair Welding	

ACTIVITY 'R' – Not affected by Traffic Density

R_1 - Lubrication of ERCs

R_2 - Shallow screening

R_3 - Loading, Leading, Unloading

R_4 - Overhauling of LC gates

R_5 - Watching of caution spots & misc.

R_6 - Tree cutting for visibility

R_7 - Lubrication of Rails in Curves

R_8 - Accident Relief and carcass removal in run over cases

R_9 - Bridge, Sleeper attention & Renewal

R_{10} - Pre-monsoon attention such as clearing of drains and waterways, Cess repair, de-weeding of track and attention to cuttings & Trolley refuges.

R_{11} - Creep pulling approaches to bridges, turnout

R_{12} - Rectifying damage to LC posts and gates.

ACTIVITY 'M' – Miscellaneous

M_1 - Monsoon patrolling

M_2 - Hot weather patrolling

M_3 - Cold weather patrolling

M_4 - Watching vulnerable locations

M_5 - Gate keeping of LC gates

M_6 - Rest giving for key man

M_7 - Water man duty

M_8 - Store watch man duty

ACTIVITY 'S' – Miscellaneous

S_1 - Tunnel Maintenance

S_2 - Bridge substructure maintenance

S_3 - Long girder maintenance

S_4 - Extra maintenance due to very steep curves, deep cutting, steep gradient

S_5 - Maintenance of track on extremely bad formation

S_6 - Look out man duty

S_7 - Fog signal man duty

S_8 - Filth removal from track

S_9 - Security patrolling

S_{10} - Watching of water level in suburban section

(T.R.M.S details are enclosed as Annexure – III)

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CHAPTER – III

CRITICAL ANALYSIS

The laying and maintenance of P.Way is a laborious task right from survey, sanction of funds, acquisition of land, construction through undulated and difficult terrains of mountains, rivers, ravines etc. Bridges, tunnels cuttings, gradients, curves, draining of water etc., pose big challenges not only for construction but also for maintenance.

Engineering Branch in Indian Railways has progressed by leaps and bounds from the time of Clark and Robert Stephenson. Bridges and tunnels running to a length of even 7 kilometres and 350m height, underground track running for long stretches etc., has become the order of the day. The gruesome manual maintenance of the track has given way to highly mechanized maintenance practices.

TROLLEY MOVEMENTS:

The details of Trolley inspections conducted during the last one year are 39 and in an average 3 inspections conducted every month.

SOME REFERENCES FROM MCNTM REPORT 2000

(a) The MCNTM Committee recommends that the effort to improved rail welds should receive adequate thought and that a review should made after 5 years from now, so as to avoid reduction factors to be applied for the yard stick of man power requirement for SWR/LWR track (Para 0.4).

(b) Rational formula can be amended easily by recasting the relevant tables. The Committee recommends that the Rational Formula can be reviewed once in five years and amended (Para 0.8 & 4.15)

(c) Possible man power savings by deploying on track tampers for machine packing on BG

(d) The Pilot study has given confidence that the implementation of Rationalized formula will only result in savings in manpower and expenditure, at the same time ensuring equitable distribution of manpower in accordance with workload (Para 9.5 to 9.7 of MCNTM).

(e) As and when modernization in various sub-activities progresses, some of the sub-activities may reduce in part or vanish, or these many require less man power (Para 4.13 of MCNTM).

(f) The Committee recommended the Railway Board may order review of the Rational formula once in 5 years to incorporate the effects of modernization , such as introduction of more number of shoulder ballast cleaners, improving Rail weld technology, maintenance free level crossing track structures etc. (para 4.15 of MCNTM).

(g) **Hot Weather patrolling**

In zones of less temperature variation and in the case of track structure with adequate lateral strength, hot weather patrolling can be dispersed with as decided by CTE (Para 6.2.2 of MCNTM)

(h) **Cold weather patrolling**

CTE should authorize the need for this activity (Para 6.2.3 of MCNTM).

(i) **Gate keepers**

Only RG need be given from Trackman (para 6.2.5 of MCNTM)

The MCNTM Committee had not differentiated the requirements for SWR and LWR due to the problems then experienced in SEJ (Switch Expansion Joints) onaccount of poor welding technology. But the situation has now improved, and adistinction is warranted now between SW & LW track.

MCNTM & TRMS FORMULA

The report of MCNTM & TRMS Formula will convince us the need for rightsizing the manpower for track maintenance. It should be kept in mind that the very TRMS formula was evolved by studying the conditions existed during 1996 – 2000 period ie., when the mechanization was only in the experimental stage and when a good portion of the lines were in MG. Though the report was accepted in 2006 only, the basic points in the report are drawn from the above period.

INFERENCES :

a) The TRMS formula was approved in 2006 and it should have been implemented everywhere now.

b) The TRMS formula itself is 16 years old and requires periodical review.

c) The CMCNTM REPORT itself calls for annual review of staff strength based on the progressive mechanization and new technologies.

d) The very discarding of basic unit of the ETKM (Equated Track Kilometer) and the replacement of the same by Equated Manpower Kilometre (EMKM) and suggestions to transform it on Equated Cost Kilometre (ECKM) underscores the stress on manpower economy and cost economy in this field. So the work study is supposed to exercise a review on the TRMS formulae itself.

EXTERNAL FACTORS

Certain external factors have also got a bearing on the manpower requirements especially under T, R, M & S activities, they are –

a) The improvements in road transport and vehicles
b) The improved availability of water, residence etc.,
c) The substitution of manual checking / testing / Inspection due to the use of machines like USFD, WILD etc.,
d) The longevity ensured due to mechanized laying of track and construction / inspection methods.
e) The supervisory element of work in the contracts.

Observation during the field study:

The work study team conducted a field study at SSE/P.WAY/VM.

During the interaction with the SSE/P.WAY/VM, it was stated that about 42 Track Women are available in this unit and hence difficult to allocate the work to them. They could not be utilized as Key women or for patrolling or any Track repair works.

With regard to Track women in the division, it is suggested that Track women may be equally distributed to each section in the Division by the Sr DEN (co-ord) in consultation with the ADEN's of the division.

Activities Recommended for Outsourcing by Rational Formula.

1. Formation of treatment Works:
2. Collection of ballast, training out ballast by material train leading ballast from stack to track, insertion of ballast in track
3. Deep screening of the ballast in track, carried out manually by deploying BCM in which case man power is provided by the contractor
4. Introduction of sub ballast and ballast layers
5. Heavy repairs to track, including lifting
6. Complete realignment of curved track
7. Through renewal of rails, Sleepers and fosterers
8. Complete renewal of points and crossings, SEJs, traps etc
9. Resurfacing of crossings and switch rails
10. Loading and unloading of P.Way materials is bulk
11. Loading out of P.Way materials for other than casual renewal
12. Security of materials kin a depot which is closed and locked
13. Painting of Rails and weld collars
14. Painting of bridge girders
15. Heavy repairs(Measurable) to formation cutting bides drains and catch water
16. Heavy repairs (measurable) to bridges, bridge protection works, river training works and tunnels.
17. Removal of major sand breaches
18. Works arising due to restoration following breach or accident
19. Clearing of rank vegetation in platforms and in the insanity of tracks in coaching and goods yards, repair depots and workshops or Engineering/Mechanical/Electrical and S & T depts.

MANDAYS FOR T, R, M & S ACTIVITIES FOR TRACKMAINTAINER:

Track Km of segment: (Jurisdiction km)

VM including – PDY including	=	38.10
MS-BG 161/970- 162/760	=	0.863
VM – TPJ Guard line 162.760/163.233	=	0.473
Main line 162.760/163.259	=	0.525
VM-KPD 0.000-0.876	=	0.876
Total	=	47.710

In the interest of Rightsizing the manpower in P.Way maintenance, IRICEN/Pune has recommended more than 20 activities mentioned in the rational formula for outsourcing. Furthermore, as per the Railway Board instructions, CTE vide letter no. W.315/94/G-man Rational Formula/Vol.III DT. 17.01.2014, has directed the divisions to outsource the activities (T2, T3, T4; R4 and R10) to increase the efficiency.

As per TRMS formula, the following are Man days worked out for T & R activities.

T Activity	**-**	**5386.59 (Including shallow screnning1229.2)**
R Activity	-	10946.51 Man days
Total	**-**	**16333.10 Man days**

***This includes Man days for Shallow screen activities.**

"T" Activity:

Under `T` activity, almost all the activities has already been carried out by the Track machines. Out of the total 11 activities under "T" the four activities (T_{2a}: Pre-tamping operations $_{3a:}$ Casual renewal of rails, T_{3b}: Casual renewal of sleepers &$T_{4:}$Repair welding) are the major activities that require more man power comparing the other minor activities.

The MCNTM formulae describe various activities and formulae designed for arriving manpower for all the regular maintenance activities. In the field inspection it was observed that some of the activities are not done regularly by

the gang being managed by outsourcing. Also, some of the maintenance activities are not required for our section, and some of activities not required after inducting heavy machines in track maintenance.

As per IRPWM manual part-I, Vol-II in page 76 table –P, the following norms are suggested for optimal utilization of man power per annum to maintain one km track (BG) machine packed laid with LWR on PRC sleepers in a section carrying 20 GMT traffic (non suburban) with good bank, flat curves and low rainfall .

Out of the total 11 activities under "T" these 4 activities listed above are the major ones that have the potential for outsourcing.

DISALLOWED MAN DAYS IN T ACTIVITY:

(5386.59-1229.20=4157.39)

ACTIVITY		T activity mandays	DISALLOWED MAN DAYS	
Slack attention to:		4157.39		
T-1(a)	Bad spots		35x4157.39/126	1154.83
1(b)	Low joints, glued joints		16x4157.39/126	527.92
T-2(a)	Pre tamping operations		10x4157.39/126	329.95
2(b)	Along with tamper		3x4157.39/126	98.98
2(c)	Post tamping operations		14x4157.39/126	461.93
T-3 (a)	Casual renewal of rails		6x4157.39/126	197.97
T-4	Repair welding		12x4157.39/126	395.94
			Total disallowed man days	**3167.52**

T activity after subtracting disallowed man days : 4157.39-3167.52 **= 989.87**

"R" Activity: The following sub activities have been suggested for outsourcing:

1. R_1 - Greasing of ERCs
2. R_3 - Loading, Leading & Unloading
3. R_4 - Overhauling of LCs (suggested by CTE)
4. R_6 - Tree cutting for visibility (suggested by CTE)
5. R_7 - Lubrication of Rails in curves (suggested by CTE)
6. R_{10} - Pre-monsoon attention (suggested by CTE)
7. R_{11} - Creep pulling (suggested by Rly. Board).

Out of the total 12 activities under "R" these 7 activities listed above are the major ones that have the potential for outsourcing.

DISALLOWED MAN DAYS IN R ACTIVITY:

ACTIVITY	R activity man days	DISALLOWED MAN DAYS	
R (1): Lubrication of ERCs	10946.51	2x10946.51/159	137.69
R (2): Shallow screening		55x10946.51/159	3786.52
R (3):Loading, leading & unloading		20x10946.51/159	1376.91
R (4):Overhauling of level crossing		13x10946.51/159	894.99
R (11):Creep pulling		5x10946.51/159	344.22
Total disallowed man days			**6540.33**

R activity after subtracting disallowed man days : 10946.51-6540.33 **= 4406.18**

M – Activity:

		Man days
Monsoon patrolling	-	1440
Hot weather patrolling	-	-----
Cold weather patrolling	-	-----
Vulnerable locations	-	90
Gate keeping	-	20440
RG for key men	-	639
Waterman	-	2940
Store watchman	-	----
Total Man days	**-**	**25549**
Less Waterman & Gate keeping ** (2940 + 20440)	**-**	**23380**
		2169 Man days

**** For Gate keeping activities, the requirement has been worked out separately as per the Classification of the Gate.**

****** In the present changed scenario, waterman duty is no longer in existence anywhere in Southern Railway and as such there are 7 railway stations in this section with an inter distance of 4.5 Kms on an average, where sufficient water is available. Hence the man days allotted for waterman duty are found excess and the same has been deducted from the total man days.

S – Activity:		**Man days**
Bridge structure maintenance	-	247.27
Long Grider Maintenance	-	---
Extra for very sharp curves	-	593.88
Extreme bad condition	-	1980.00
Lookout man Man days	-	---
Filth removal	-	1764.00
Security Patrolling	-	---
Fog signal man	-	-----
Total		**4585.15**
Less: filth removal	**--**	**1764.00**
		2821.15 man days

Gang strength:

Total Track Km		-	47.71
Man days	'T'	-	989.87
Man days	'R'	-	4406.18
Man days	'M'	-	2169.00
Man days	'S'	-	2821.15
Total T+R+M+S		**-**	**10386.20 Man days**

CALCULATION OF REQUIREMENT OF TRACK MEN:

No. of working days : 291

Total Man days required as T, R, and M & S for
Performing Track maintenance duties : 10386.2 Man days

No. of staff required as per T, R, M & S : 10386.2 / 291
: 35.69 Staff
or say 36 staff
LR @ 12.5% : 5 Staff
Total gang strength excluding Gate keeper : 36 + 5 = 41
NOTE: There is no need to give RG for track maintainers since they are allowed to avail weekly rest on every Sunday and attending duties on Sundays only on emergencies.
Total men required for trackmen duties = 41 staff
Requirement of key men & track mate for 9 gangs = 18 staff

Requirement of Gate Keepers:

A Class – 2 Shifts, B Class & C Class – 25 Shifts**.**
Staff requirement for Gate keeping:

No of A- gates	: 2 x 3 = 6 staff
No of C- class gates	: 25 x 2 = 50 staff

Total	56
LR @ 12.5% for 56 staff	07
RG @ 16.66% for 63 staff	11

Requirement of gatekeepers: 74 staff

Even though only 20440 Man days allotted for Gate keeping activities in TRMS, the requirement of Gate keepers has been worked out based on the classification of Gates.

Requirement of Trolley men:

SSE/P WAY (in charge) – once in a month (CS No. 132 para 124 (a), Dt: 08.04.2013.)
SSE/JE (section in charge) – once in a fortnight (CS No. 132 para 139 Dt: 08.04.2012.)
The section supervisor normally takes three days to inspect the section in trolleys in the fortnight period.
For the movements of a pushing trolley four persons are required in which, two will physically push the trolley and the other two is sitting and watching backside of the movement on safety view. **On need basis 2 sets of trolley men batch are provided to meet the requirement.**
The total trolley men required = 10

Requirement of Supervisors:

On need basis the requirement of supervisors as follows:

1. SSE/PWAY/VM : 2
2. JE/PWAY/VM : 2

Total requirement : 4

Requirement of other technicians:

S. No	Category	Requirement	Remarks
1 (a)	Blacksmith-Sr Tech	2	As per the yardstick for 10
1 (b)	Black smith Tech-I	1	LCs, 1 blacksmith required
1 (c)	Black smith Tech-III	1	
2	Welder	1	One per section supervisor
3	Painter-Sr Tech	2	
4 (a)	Carpenter-Tech-I	1	
4 (b)	Carpenter-Tech-II	1	
4 (c)	Carpenter-Helper	1	
TOTAL		**10**	

Analysis of T, R, M & S activities:

Requirement of Trackman on outsourcing:

Outsourcing of several sub activity under T, R, M, S, activities have been recommended and suggested by Railway Board vide his letter No. 2004/CE-1/GNS/1 of 04.03.2004, by CTE vide his letter No. W.315/94/G.Men/Rational formula / Vol.III dated 22.08.2011.

Summary of Requirement of Gang strength:

Requirement of Track maintainers as per T.R.M.S	(3.12)	=	41
Key men, track mate	(3.12)	=	18
Gate keeping activities	(3.13)	=	74
Trolley men	(3.14)	=	10
Total trackmen required		=	143
Supervisors	(3.15)	=	4
Other technical staff	(3.16)	=	10
Total requirement of staff		=	157
Less: 15% deduction as per RB letter No 11-2019/SPMPS /yardstick/2 Dated 30.06.2020.		=	24
			133

SANCTION VS REQUIRMENT:

Sl. No.	Category	Sanction	Actual	Requirement	Surplus
1	SSE/PWAY	6	2	2	4
2	JE/PWAY	2	1	2	-
3	Black smith-Sr Tech	2	0	2	-
4	Black smith-Tech-I	1	1	1	-
5	Black smith-Tech-III	1	1	1	-
6	Welder-Tech-III	1	1	1	-
7	Painter-Sr Tech	2	0	2	-
8	Carpenter-Tech-I	1	0	1	-
9	Carpenter-Tech-III	1	0	1	-
10	Carpenter-Helper	1	0	1	-
11	T. Maintainer-I	14	5	14	-
12	T. Maintainer-II	27	11	27	-
13	T. Maintainer-III	27	27	27	-
14	T. Maintainer-IV	67	80	51	16
15	Trainee-JE-Pway	0	2	0	-
16	Trainee-TM_IV	0	1	0	-
17	Substitutes	0	1	0	-
TOTAL		**153**	**133**	**133**	**20**

SANCTION VS REQUIRMENT: (SUMMARY)

Sl. No.	Category	Sanction	Actual	Requirement	Surplus
1	Track maintainers	135	123	119	16
2	Artisans	10	3	10	0
3	SSE & JE	8	3	4	4
4	JE/PWAY-Trainee, TM IV(Trainees) &Substitutes	0	4	0	0
	Total	**153**	**133**	**133**	**20**

RECOMMENDATIONS:

- Four posts of SSE in GP Rs 4600 are found excess to the requirement and the same may be surrendered and credited to the vacancy bank.

4 posts

- Sixteen posts of T.M-IV in GP Rs 1800 are found excess to the requirement and the same may be surrendered and credited to the vacancy bank.

16posts
(20 Posts)

SUMMARY OF RECOMMENDATIONS:

S. No	Category	GP (Rs)	No Of Posts
1	SSE	4600	4
2	Track Maintainer- IV	1800	16
TOTAL			**20**

CHAPTER - IV

4.0 PLANNING BRANCH'S REMARKS ON CO-ORDINATING OFFICER'S VIEWS

The draft work study report sent on 5/2/2021 to the coordinating officer ADEN/VM to offer his remarks in order to finalize the work study report.

No remarks were offered till this date (12/03/2021).

Hence, the final work study report is released without the remarks of the coordinating officer.

CHAPTER – V

FINANCIAL SAVINGS

If the recommendations made in the study report are implemented after outsourcing, the annual recurring financial savings will be as under:

Sl No	Category	No. of posts	Grade Pay (Rs.)	Money Value (Rs.)	Annual Savings (Rs.)
1	SSE	4	4600	109571	52,59,408
2	Track Maintainer-IV	16	1800	43817	84,12,864
Grand Total		**20**			**1,36,72,272**

SOUTHERN RAILWAY

NO.T/P 182/I/EA/Work Study

मंडल कार्यालय/Divisional Office,
कार्मिक शाखा/Personnel Branch,
तिरुचिरापल्लि/Tiruchchirappalli,
दि./Dt: 25.09.2020

CPI /Dy. CPLO/Hqrs

Sub. : Work study to review the staff strength of SSE/PWay/VM – TPJ Divn. - Reg.
Ref. : CPI/Dy. CPLO/Hqrs Lr.No.G.275/WSSR-732021/2020-21 dated 16.09.2020.

Reference to above, the statement pertaining to staff strength ("SAVE") of SSE/PWay/VM section, TPJ Division as per Book of Sanction is enclosed for the month of SEPTEMBER 2020 as desired.

SL.No.	CATEGORY	LEVEL	SANCTION	ACTUAL	VACANCY/ EXCESS
1	SSE/PWAY/VM	7	6	2	4
2	JE/PWAY/VM	6	2	1	1
3	Trainee JE/PWay	6	0	2	+2
4	BLACKSMITH				
	SR.TECH	6	2	0	2
	TECH.GR-I	5	1	1	0
	TECH.GR-III	2	1	1	0
5	TRACK WELDER				
	TRAINEE TECH.GR-III	2	1	1	0
6	CARPENTER				
	TECH.GR-I	5	1	0	1
	TECH.GR-III	2	1	0	1
	ASSISTANT	1	1	0	1
7	PAINTER				
	SR.TECH	6	2	0	2
8	TRACK MAINTAINER-I	5	14	5	9
9	TRACK MAINTAINER-II	4	27	11	16
10	TRACK MAINTAINER-III	2	27	27	0
11	TRACK MAINTAINER-IV	1	67	80	+13
12	TRAINEE TMR-IV	1	0	1	+1
13	SUBSTITUTES	1	0	1	+1
	TOTAL		153	133	20

SVenka 25.9.20

(S.VENKATRAMAN)
APO / ENGG.
/Sr. Divisional Personnel Officer / TPJ

Pg 1

JURISDICTION DETAILS
IN SECTION ENGINEER/P.WAY/VILLUPURAM

S.NO	JURISDICTION		DETAILS
1	VM including- PDY including		38.10KMs
	MS -BG 161/970-162/760		0.863KM
	VM-TPJ Chord line 162.760-163.233		0.473KM
	Main line 162.760-163.295		0.525KM
	VM-KPD 0.000 - 0.876		0.876KM
	TOTAL		47.710kms
2	Route		"E" -Route
3	Total KMs		47.710 KMs
4	E.T.K.M		98.031
5	I.T.K.M		193.947
6	Ruling Gradient		1 in 200

LIST OF LEVEL CROSSING IN SE/P.WAY/VM SECTION

S.No.	LC NO	Location	Block Section	Inter Locked/ Non	Engg/Tfc	Class	Date of Census	TVU	O & E
1	1	0/900-1/000	VM-CBU	I	Tfc	C	03/18	724	25.04.2020
2	2	1/500-600	VM-CBU	Non-I	Engg	C	03/18	846	01.07.2020
3	3	2/300-400	VM-CBU	I	Engg	C	08/17	37519	29.04.2020
4	4	3/800-900	VM-CBU	Non-I	Engg	C	06/18	6225	01.07.2020
5	6	5/200-300	VM-CBU	Non-I	Engg	C	06/18	3856	02.07.2020
6	7	6/100-200	VM-CBU	I	Engg	A	02/18	278655	06.06.2020
7	9	7/300-400	VM-CBU	Non-I	Engg	C	03/18	5520	02.06.2020
8	10	8/100-200	VM-CBU	Non-I	Engg	C	06/18	1020	02.07.2020
9	11	8/400-500	VM-CBU	Non-I	Engg	C	05/18	868	03.07.2020
10	13	9/200-300	VM-CBU	Non-I	Engg	C	05/18	2200	03.07.2020
11	14	9/500-600	VM-CBU	I	Engg	C	04/18	66112	02.05.2020
12	18A	14/700-800	VM-CBU	I	Engg	B	04/18	9347	04.07.2020
13	20	15/600-700	VM-CBU	I	Engg	B	04/18	97649	09.06.2020
14	23	17/900-18/000	VM-CBU	I	Engg	C	04/18	68499	09.05.2020
15	26	20/000-100	VM-CBU	Non-I	Engg	C	02/18	6528	04.07.2020
16	27	21/400-500	VM-CBU	I	Tfc	B	04/18	282573	10.01.2020
17	29	23/200-300	CBU-PDY	Non-I	Engg	C	12/18	224	04.07.2020
18	29A	24/200-300	CBU-PDY	Non-I	Engg	C	03/18	7440	04.07.2020
19	30	24/900-25/000	CBU-PDY	Non-I	Engg	C	03/18	4080	07.02.19
20	33	27/900-28/000	CBU-PDY	Non-I	Engg	C	03/18	7138	12.02.19
21	34	29/000-100	CBU-PDY	I	Engg	A	03/18	174493	11.01.2020
22	35	29/800-900	CBU-PDY	I	Engg	C	03/18	91720	20.02.19
23	36	30/200-300	CBU-PDY	I	Engg	C	03/18	51095	21.02.19
24	37	30/300-400	CBU-PDY	I	Engg	C	04/18	50327	21.02.19
25	38	30/700-800	CBU-PDY	I	Engg	C	03/18	34050	23.02.19
26	40	32/000-100	CBU-PDY	Non-I	Engg	C	03/18	132547	27.02.19
27	41	32/800-900	CBU-PDY	Non-I	Engg	C	03/18	3685	06.07.2020
28	42	33/800-900	CBU-PDY	Non-I	Engg	C	03/18	4185	06.07.2020
29	44	35/600-700	CBU-PDY	I	Engg	B	'04/18	168667	13.03.19
30	45	36/500-600	CBU-PDY	I	Tfc	B	07/17	252654	20.03.19
31	46	37/100-200	CBU-PDY	I	Tfc	B	04/18	104288	14.06.16
32	47	37/900-38/000	CBU-PDY	Non-I	Tfc	B	04/18	164085	18.06.16
33	48	Beach siding	PDY	Non-I	Tfc	B	04/18	64588	02.07.16

Total No.of LCs 33
Total No.of Manned LCs 33
U/M LC -Nil

Engg - 27
Tfc- 6

Non interlocked- 17
Interlocked-16

E-15, T-2
E-12, T-4

MANDAYS T,R

AS ON: 31-Mar-19

DIV : TPJ

Senior Section Engineer Unit : VM

Segment No.	Gauge	Segment Name	GMT	Maintenance Type	Track km of Segment	Length of LWR in the Segment	Composite Factor 1+A+B+C	Mandays Required for T Activities	Mandays Required for R Activities	Mandays for T+R
A	B	C	D	E	F	G	H	I	J	K
1	BG	UP	13.1	MECHANISED	4.01	0.00	1.0000	441.53	637.59	1079.12
2	BG	DN	14.2	MECHANISED	1.30	0.00	1.0000	146.37	206.70	353.07
3	BG	SL	3.2	MECHANISED	0.37	0.00	2.5068	81.11	58.83	139.94
4	BG	SL	4.3	MECHANISED	38.22	34.77	1.0146	3488.39	6076.98	9565.37
5	0	0	0.0	0	0.00		1.0000	0.00	0.00	0.00
6	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
7	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
8	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
9	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
10	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
11	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
12	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
13	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
14	0	0	0.0	0	0.00	0.00	1.0000	0.00	0.00	0.00
15	0	0	0.0	0	0.00		1.0000	0.00	0.00	0.00
16		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
17		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
18		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
19		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
20		0	0.0	0	0.00		1.0000	0.00	0.00	0.00
Total					43.9	34.77		4157.39	10946.51	15103.91

mmary Mandays T,R	Activity T	Activity R	Total Mandays
S	5386.59 Mandays*	10946.51 Mandays	16333.11
G	0.00 Mandays	0.00 Mandays	0.00
S	0.00 Mandays	0.00 Mandays	0.00
tal	5386.59 Mandays	10946.51 Mandays	16333.11

MANDAYS M

AS ON 31-Mar-19

DIV : TPJ

Senior Section Engineer Unit Name : VM

Gauge	Monsoon Patrolling		Hot/Cold Weather Patrolling of LWR						Vulnerable Locations		Gate Keeping		Rest Giver for Keymen		Watchman		Store Watchman		Total
	No of Beats	Mandays Required	Total Length of LWR	Length of LWR Requiring Hot Weather Patrolling	Length of LWR Requiring Cold Weather Patrolling	Mandays Required for Hot Weather Patrolling	Mandays Required for Cold Weather Patrolling	No of Locations	Mandays	No of Engg Manned Gate	Sanctioned Cadre of Gatemen	Mandays Required	No of Keymen	Mandays Required	No of Gangs	Mandays Required	No of Site Stores	Mandays Required	Mandays Required For M Activities
	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
BG	20	1440.00	34.77	0.00	0.00	0.00	0.00	0	0.00	28	0	20440.00	9	639.00	10	2940.00	0	0.00	25559.00
MG	0	0.00	0.00	0.00	0.00	0.00	0.00	1	90.00	0	0	0.00	0	0.00	0	0.00		0.00	90.00
NG	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0	0	0.00	0	0.00	0	0.00		0.00	0.00
TOTAL	20	1440.00	34.77	0.00	0.00	0.00	0.00	1	90.00	28	0	20440.00	9	639.00	10	2940.00	0	0.00	25649.00

AS ON: 31-Mar-19

M

Lookout Man Mandays Required	Fog Signal Man				Filth Removal		Security Patrolling				Mandays Required For 'S' Activities
	No of Mandays Required Yr(-3)	No of Mandays Required Yr(-2)	No of Mandays Required Yr(-1)	Mandays Required	No of Gangs working in Affected Area	Mandays Required	No of Mandays Required Yr(-3)	No of Mandays Required Yr(-2)	No of Mandays Required Yr(-1)	Mandays Required	
O	P	Q	R	S	T	U	V	W	X	Y	Z
0.00				0.00	6	1764.00	0	0	0	0.00	4585.15
0.00	0	0	0	0.00	0	0.00				0.00	0.00
0.00				0.00	0	0.00				0.00	0.00
0.00	0	0	0	0.00	6	1764.00	0	0	0	0.00	4585.15

MANDAYS S

Y: TPJ

Senior Section Engineer Unit Name :

r. o.	Gauge	Tunnel Maintenance		Bridge Substructure Maintenance			Long Girder Bridge Maintenance			Extra for very Sharp Curves		Extremely Bad Formation	
		Total Length in km	Mandays Required	No. of Bridges	Lineal Water Way in meters	Mandays Required	No. of Long Girder Bridges	Lineal Water Way of Long Girder Bridges	Mandays Required	Track Km on > 3deg(BG) >6deg(MG)	Mandays Required	Length of Bad Formation	Mandays Required
A	B	C	D	E	F	G	H	I	J	K	L	M	N
	BG	0.00	0.00	123	565.44	247.27	0	0.00	0.00	2.02	593.88	3300.00	1980.00
2	MG	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
3	NG	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
tal		0.00	0.00	123	565.44	247.27	0	0.00	0.00	2.02	593.88	3300.00	1980.00

Please issue - 1/7/2020

SN-2

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD

No.11-2019/SPMPS/Yardstick/2 New Delhi, dated 30.06.2020

General Managers,
All Indian Railways/ PUs

Sub: Revision of Yardsticks/ Norms of various O&M activities on the Railways

Ref: Resolution of full Board Meeting dated

Consequent upon the directive from CRB in December, 2017, a comprehensive "Manpower Strategy Note" was issued to all Zonal Railways in May, 2018. Key component of this strategy was the revision of Yardsticks/Norms of various activities on the Railways. Board in its Meeting held on 28.12.2017 decided that manpower yardsticks for various O&M activities of all departments may be reviewed on account of technological inputs, outsourcing, changes in maintenance practices.

2.0 Accordingly, in May, 2019 Zonal Railways were advised to undertake a Zero Based Review of yardsticks for all O&M activities. Based on the inputs, the detailed views were given for concluding the revision of Yardsticks. Final view has already been given on Yardsticks for Civil Engg (Trackmen), Medical, Accounts and Commercial Departments. However, the same in r/o Civil Engg.(Bridge & Works), S&T, Security, Stores, Operating, Personnel and other Miscellaneous Departments have not yet been finalized.

3.0 Pursuant to the decision taken by the Board in its meeting held on 29.06.2020, it has been decided that the Yardsticks/Norms of various O&M activities across all Departments on the Railways stand reduced by 15% on as is where basis as an interim measure w.e.f 01.07.2020. This will however not be applicable to Electrical, Mechanical and Accounts Departments where the revised Yardsticks have already been issued in September 2019.

4.0 The final Yardsticks/Norms for each discipline will be communicated subsequently with the approval of Board on case to case basis. This interim reduction will automatically get superseded once the final revision of Yardsticks/ Norms are issued.

5.0 The PCPO and PFA of concerned Zonal Railway/PU may accordingly revise the Yardsticks/Norms of various O&M activities across all Departments (except Electrical, Mechanical and Accounts) and communicate compliance to Planning Directorate.

This issues with the approval of full Board (ME,MTR,MRS/MMM,MST,MT,FC&CRB).

30/6/2020

(Sudheer Kumar)
Additional Member (Planning)
Railway Board

Copy - CRB, ME,MT,MTR,MRS/MMM,MST,FC,DG/IIR, Secy/RB,AM/Revenue

Civil Bridges Works

S&T