WEST CENTRAL RAILWAY

WORK STUDY REPORT

ON

"*Review of staff strength of Track maintainer cadre of Engineering department of Kota division*"

STUDY PERSONNELS

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SYNOPSIS

Indian Railway is one of the biggest transportation organizations among all other transport organizations in the country. In fact, Railway is backbone of the country's transport systems. In the recent time, Railway is facing tremendous competition from road and air. In the time of competition transport system should not only the agile, prompt and amenable but also financially viable. In order to bring economy in expenditure the optimum utilization of man, machine and material will have to be ensured.

The maintenance of track is responsibility of Engineering department. The maintenance of track is a vital activity in the train operation in relation to safety & punctuality. It is the duty of engineering department to up keep the standard of track using engineering parameters for the safe running of trains.

In Railways, the process of absorption of modernization has been started and still in progress in every sphere of the system. As a result of which certain activities have become fully redundant/ obsolete from existing system. These technological up gradations have shown the considerable improvement in the efficiency and manpower productivity in Railways.

As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds for this LHS work.

Keeping in view, all these constraints, Work Study Cell is assigned to conduct work study of ***'Review of staff strength of Track maintainer cadre of Engineering department of Kota division'*** with a view to assess the staff requirement as per the existing workload after technological up gradation and outsourcing. To arrive at the actual requirement of staff, the team held discussions with officers and supervisors of this division.

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CHAPTER-I

1. INTRODUCTION

Work study on **'*Review of staff strength of Track maintainer cadre of Engineering department of Kota division'*** has been taken as a "Crash Work Study" for the year 2019-20.

The maintenance of track is responsibility of Engineering department. The maintenance of track is a vital activity in the train operation in relation to safety & punctuality. It is the duty of engineering department to up keep the standard of track using engineering parameters for the safe running of trains.

1.1 As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds for this LHS work.

1.2 Duties of Gangman/Track Maintainer:

The Gangmen perform the following regular duties of permanent way gangs:

1.	Through packing.
2.	Shallow screening
3.	Picking up slacks.
4.	Lubrication of rail joints
5.	Minor attention to cess.
6.	Clearing catch-water drains, side-drains and water ways of bridges.
7.	Casual renewal of rails.
8.	Casual renewal of sleepers
9.	Adjustment of creep over short length.
10.	Opening, examination and overhauling of level crossings.
11.	Attention to points and crossings etc.

The following items of work are carried out by the Gangmen/Track Maintainer not as a regular measure but whenever there is demand for such works which may be termed as sporadic in nature.

1.	Loading and unloading of materials.
2.	Lorrying out materials for other than casual renewals.

3.	Repairs to bridges.
4.	Painting of rails on station yards and bridges.
5.	Renewal and resurfacing of points and crossings
6.	Complete realignment of curves.

1.3 Duties of Key Man:- The prime duties of Key man are-

1.	His entire beat to be inspected by foot once a day for track as well as bridges and return along the opposite rail. While inspecting, he should carry with him all necessary tools & equipment as prescribed.
2.	While walking over his section, he should look for loose spikes, keys, chairs, fish bolts, fittings on grinder bridges/culverts, broken/burnt sleepers, broken plates/tie bars etc. and attend them as necessary.
3.	At unmanned level crossings he should maintain the flange ways between the check and the running rails clear of obstruction.
4.	If any unsafe condition of track is noticed such as broken rails, wash away of ballast, he should at once protect the line as per rules and immediately report to Mate, ASM, SE etc.

1.4 Duties of Mate:- The main duties of Mate are-

1.	He shall inspect the whole gang length once in a week for on the spot supervision regarding track condition. He should ensure the tools & equipment as prescribed are available at site of work.
2.	He shall see that the prescribed system of track maintenance is adhered to and the task allotted to him either verbally or through gang chart/diary are carried out efficiently.
3.	The Mate shall see that the whole of his gang length is kept neat and tidy and all loose materials are removed from the track.
4.	He should see that his length of line is kept safe for the passage of trains and any unsafe condition is reported immediately.
5.	In the event of train accident in between section, Mate should render assistance to Guard & Driver of the train for the protection.

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CHAPTER-II

Staff Strength

2 Kota division spread over from Nagda-Kota, Kota-GGC, GGC-MTJ, RJM-Jhalawar, Kota-Ruthiyai and Kota- Chanderia section details of these sections is as following.

Section	KMs	Line
Nagda-Kota	224.98	Double Line
Kota-Gangapur City	171.37	Double Line
Gangapur City-Mathura Jn.	152.63	Double Line
Ramganj Mandi- Jhalawar city	25.80	Single Line
Kota-Ruthiyai	164.26	Single Line
Kota- Chanderia	163.816	Single Line

To maintain the above length of track, following staff are deployed.

2.1 Sanctioned strength position of Track Maintainer staff of Kota is as under:-

SN	Category	SS	MOR	Vac
1	Track maintainer-I	286	234	52
2	Track maintainer-II	572	607	-35
3	Track maintainer-III	1048	720	328
4	Track maintainer-IV	2714	1759	955
	Total	**4620**	**3320**	**1300**

It may be seen from the above table, 4620 posts have sanctioned, 3320 posts are MOR and 1300 posts are vacant.

2.2 Workload:

2.2.1 Track maintenance system:

1. Systematic Track Maintenance activities:

a. Repairs, maintain and renew of track components.

b. Improve track geometry.

2. Classification of Works:

Annual maintenance activities are classified-

a. Emergency works

b. Routine track maintenance

c. Major track maintenance.

2.2.2 The P-way staff performs the following regular duties of permanent way gangs:

1.	Through packing.
2.	Shallow screening
3.	Picking up slacks.
4.	Lubrication of rail joints
5.	Minor attention to cess.
6.	Clearing catch-water drains, side-drains and water ways of bridges.
7.	Casual renewal of rails.
8.	Casual renewal of sleepers
9.	Adjustment of creep over short length.
10.	Opening, examination and overhauling of level crossings.
11.	Attention to points and crossings etc.
12	Arranging staff for engineering gate

2.2.3 Engineering gates of Kota division are as under:

SN	**Gate No.**	**Between**	**Kms**
1	3	NAD-KOTA	0703/12-14
2	4		0707/04-06
3	6		0710/22-24
4	8		0714/08-10
5	10		0717/30-0718/02
6	11		0718/24-26
7	12		0720/12-14
8	14		0724/16-18
9	17		0729/04-06
10	20		0737/12-14
11	21		0736/30-32
12	23		0739/16-18
13	24		0740/18-20
14	28DN		0749/28-0750/02
15	28UP		0749/29-0750/01
16	30		0754/12-14
17	32		0757/22-24
18	35		0764/06-08
19	38		0769/18-20
20	40		0772/20-22
21	43		0779/02-04
22	53		0799/24-26
23	60		0811/10-12
24	61	NAD-KOTA	0813/04-06
25	62	NAD-KOTA	0815/06-08
26	65		0821/19-21
27	69		0825/22-24

28	70		0827/10-12
29	73		0832/08-10
30	77		0841/06-08
31	80		0845/22-24
32	84		0851/28-852/2
33	85		0854/04-06
34	86		0856/18-20
35	88		0862/10-12
36	93		0876/16-18
37	94		0879/26-28
38	96		0884/08-10
39	97		0887/10-12
40	100		0893/08-10
41	101		0895/02-04
42	110	KOTA-GGC	0924/28-30
43	112		0928/06-08
44	114		0930/28-30
45	115		0932/10-12
46	117		0935/12-14
47	118		0937/02-04
48	119		0939/18-20
49	120		0940/18-20
50	122		0942/18-20
51	124		0947/25-27
52	125		0949/25-27
53	126		0951/10-12
54	127		0953/06-08
55	128		0956/00-02
56	131		0960/12-14
57	135		0966/02-04
58	136U		0967/14-16
59	136TF		0973/16-18
60	136W		0976/28-0977/02
61	137		0990/25-27
62	139		0997/00
63	140		0993/04-06
64	143		1015/28-30
65	148		1024/10-12
66	149		1025/08-10
67	154		1034/10-12
68	159	KOTA-GGC	1043/22-24
69	161	KOTA-GGC	1047/02-04
70	163		1050/12-14
71	164		1051/26-28
72	167		1060/04-06
73	168		1064/22-24
74	173		1080/10-12

75	174		1083/26-28
76	176		1087/06-08
77	177		1088/02-04
78	178		1090/06-08
79	183	GGC-BXN	1102/02-04
80	189		1114/10-12
81	190		1116/10-12
82	191		1118/14-16
83	192		1119/18-20
84	196		1127/30-32
85	198		1132/08-10
86	199		1133/28-30
87	200		1135/10-12
88	205		1144/10-12
89	206		1146/26-28
90	208		1149/00-02
91	209		1151/14-16
92	211		1153/28-30
93	214		1161/18-20
94	216		1164/00-02
95	217		1166/02-04
96	219		1168/06-08
97	232	BXN-MTJ	1193/02-04
98	234		1194/26-28
99	239		1203/08-10
100	242		1207/02-04
101	246		1214/10-12
102	248		1217/20-22
103	257		1229/28-30
104	258		1231/26-28
105	260		1233/18-20
106	261		1234/14-16
107	265		1240/17-19
108	267		1242/11-13
109	01	KOTA-COR	0001/04-05
110	02		0002/9-10
111	06		0006/02-03
112	08		0006/12-13
113	13	KOTA-COR	0010/07-08
114	14		0012/01-02
115	20		0016/01-02
116	23		0017/01-02
117	29		0020/15-0021/01
118	43		0029/01-02
119	45		0030/01-02
120	46		0033/12-13
121	49		0038/08-09

122	51		0039/11-12
123	55		0043/10-11
124	60		0059/12-13
125	65		0069/01-02
126	66		0070/00-01
127	68		0071/09-10
128	69		0073/09-10
129	85		0099/02-03
130	93		0108/01-02
131	94		0109/09-10
132	95		0111/03-04
133	96		0111/14-15
134	97		0112/12-13
135	99		0120/13-14
136	102		0128/15-16
137	117		0147/11-12
138	118		0149/04-05
139	120		0151/02-03
140	3	KOTA-RTA	0003/04-15
141	13		0025/12-13
142	16		0028/10-11
143	17		0032/08-09
144	18		0033/13-14
145	19		0035/02-03
146	20		0041/08-09
147	24		0045/16-17
148	26		0047/04-06
149	36		0063/12-13
150	41		0072/06-07
151	56		0097/02-03
152	58		0101/01-02
153	59		0102/09-10
154	61		0106/09-10
155	72		0127/01-02
156	77		0134/07-08
157	79		0137/15-16
158	81		0141/03-04
159	87		0155/05-06
160	1	RMA-JWLC	4.006
161	2		6.23
162	3		9.793
163	4		10.753

In above mentioned gate, regular staffs are used with LR & RG.

2.3 As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds

for this LHS work. As per Railway board's instruction all engineering gate should be replaced by LHS.

2.4 As per MCNTM (The committee on Manpower and Cost Norms for Track Maintenance) formula, requirements of Gange strength are as under:

SN	Unit name	Total Track KM	Total man days T+R+M+S	Calculating G/strength	Sanctioned strength	Excess/shortage
1	MEP	75.76	78924.5909	304.2574	203	-101.2574
2	VMA	76.7	70408.9309	271.6719	204	-67.67193
3	SGZ	69.2	49064.014	189.995	198	8.0050483
4	BWM	79.2	59994.1196	231.8193	201	-30.81934
5	RMA	107	95641.6352	369.2256	250	-119.2256
6	S/KOTA	82	46743.7087	181.1162	191	-9.8837677
7	N/KOTA	62.83	15032.176	293.7889	192	-101.7889
8	LKE	77.1	94831.7105	365.1264	203	-162.1264
9	IDG	76.2	45606.954	176.7631	181	-4.23688
10	SWM	74.4	48392.6112	187.4258	159	-28.42581
11	S/GGC	74.7	43399.4424	168.3193	146	-22.31929
12	N/GGC	79.9	50245.05	194.8892	151	-43.88922
13	HAN	78.3	49312.4724	190.9457	173	-17.94569
14	BXN	82.68	48141.586	186.8403	174	-12.84025
15	BTE	82.2	59182.523	229.8387	181	-48.83874
16	BAZ	85.9	61152.3814	237.2515	185	-52.25146
17	CAG	84.3	83090.7535	321.1993	184	-137.1993
18	BUDI	79.71	78277.6969	302.532	190	-112.532
19	MLGH	77.7	43716.7023	170.2833	169	-1.283299

As per formula for requirement of Gange staff, sanctioned strength of Gangeman is far behind from calculated Gange strength.

But practically, it is not possible to deploy the employees with addition to existing staff because staff crisis problems at all points of Engineering Department there. Always technical up gradation is going on as new version of track machine.

2.5 Outsourcing in engineering deptt. of Kota division: (some areas are as under)

1	Track Renewal work
2	Maintenance work of Track as Cleaning of grass, carting of materials) etc.
3	Formation treatment work
4	Collection of ballast, training out ballast by materials trains, leading ballast from stack to track, insertion of ballast in track and profiling.
5	Deep screening of the ballast in track, carried out manually or by deploying ballast cleaning, machine in which case manpower support is provided by the contractor.
6	Introduction of sub ballast and ballast layers
7	Heavy repairs to track, including lifting
8	Complete realignment of curved track
9	Through renewal of rails, sleepers and fasteners
10	Complete renewal of points and crossings, SEJs, traps etc.
11	Loading /Unloading of P-way materials for other than casual renewal
12	Security of materials in 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, side drains and catch-water drains
16	Heavy repairs(measurable) to bridges, bridge protection works, river training works and tunnels
17	Providing/repairing road surface at level crossings, including speed breakers
18	Removal of major sand breaches
19	Works arising due to restoration, following breach or accident
20	Clearing of rank vegetation in platforms and in the vicinity of tracks ;in coaching and goods yards, repairs depots and workshops of Engineering Mechanical, Electrical and S&T departments.

2.6 Outsourcing:

2.6.1 Advantages of Outsourcing Activities:

1	Monetary Saving compared to present system.
2	Availability of physically fit person for the job.
3	No detention to trains due to absenteeism, absconding from duty, incapability of doing the job due to old age etc.
4	Administrative convenience.
5	Less / no union activities therefore better work culture.
6	Enforce conditions as per the requirement and benefits to Railways
7	Saving of valuable manpower.

2.7 In KRC, all works related to Track are mechanized which work through Mobile Maintenance Gang **.**

2.7.1 Advantages of Mobile Maintenance Gang System:

1	Maintenance of track in case of emergency
2	Faster due to availability of RMVs (Rail Maintenance Van) Faster due to availability of RMVs (Rail Maintenance Van)
3	Transportation of small track machine by RMV
4	quick transportation of P-way material
5	In-situ repair welds quicker as cut rail and welding material with Gang unloaded at site.
6	Saving in the establishment cost due to out-sourcing

Manpower required for Mobile Maintenance Gang system is 0.8 Trackman per km as compared to 1.3 Trackman per km of existing system on IR.

2.8 Special Track Maintenance works Contracts:

1	Manual Deep Screening (Tunnels & Ballasted Deck bridges)
2	Shallow screening
3	De-stressing
4	Overhauling of Turnout
5	Overhauling of LC
6	USFD (75%)
7	Auxiliary works of BCM working
8	Ballasting (supply and runout)
9	Removal/making of cess.

2.9 In recent year, some LC gates are closed as per following data:

Sr. No.	Year	No. of gates closed
1	2016-17	22
2	2017-18	08
3	2018-19	08
4	2019-20	11 (RB target)

In 2018-19, 08 manned level crossing gates have been closed and 08 gates to be closed in 2019-20. So that nearly 27x4=108 men have become excess in the strength of Track Maintainer IV.

2.10 Critical Analysis:

As per RB letter no. E(MPP)2016/1/59 dtd 10.01.2017, Multi-skilling can be planned from the initial stage itself in new activities in Depot. The new activities even in the older establishments can be encouraged by calling for suggestion from employees and employee Unions. This will lead to huge reduction in costs and increased productivity. Multi skilling should be encouraged for artisans' category. To avoid delays for want of other skilled man, it is necessary that multi skilling for Artisans should be introduced.

As per Railway Board's letter No. 2006/CE-I/Misc./2(RUBs) of dt 25.03.2007, manned and unmanned level crossing gate of all railways may be closed by construction of Limited Height Subways. Railway Board also provides funds for this LHS work. As per Railway board's instruction all engineering gate should be replaced by LHS. A numbers of engineering gates have been closed of JBP division.

For save manpower, implement Mobile Maintenance Gang for Track Maintenance (Para-2.7). Railway Board has directed Zonal Railways to introduce KRCL system of track maintenance having less than 10 GMT with effect from 01.04.2018. At present, it is not possible to manage staff strength as per yard stick which is very old.

In 2018-19, 08 manned level crossing gates have been closed and 08 gates to be closed in 2019-20. So that nearly 27x4=108 men have become excess in the strength of Track Maintainer IV.

2.11 Conclusion:

Modification of engineering depot is required as like as other. Also benchmarking figure is in higher side. So, need to outsource of so many activities as per Work Study team.

2.12 Recommendation:

After closing of Engineering gate and a number of outsourcing activities, 108 vacant posts of engineering department should be surrendered immediately.

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CHAPTER-III

3 FINANCIAL IMPLICATION

Financial implication on surrender of 108 vacant posts of Engineering department of Kota division is as under-

Particular	Amount
Mean of grade	37,450
DA@9%	3371
Transportation	1800
Salary Per Month	42621
X 12 = Per annum	5,11,452
X No. of posts (108)	5,52,36,816
Say	5.52 Crore

Say Rs. 5.52 Crores Per Annum

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