East Coast Railway

Waltair Division

STATION WORKING RULES

BACHELI (BCHL) and A/cabin

East Coast Railway / Waltair Division

Station Working Rules of

BACHELI (BCHL) & A/Cabin

Index of Correction Slips

Sl. No	Correction Slip No	Date of issue	No. of Pages Replaced	Total No of Pages

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Index of Page No.s

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Content index

EAST COAST RAILWAY
WALTAIR DIVISION

STATION WORKING RULES OF BACHELI STATION (B.G)

Date of Issue:
Date brought into Force:

NOTE: The Station Working Rules must be read in conjunction with General and subsidiary Rules, Operating Manual and Block Working Manual. These rules do not in any way supersede any rules in the above Rule Books.

1.STATION WORKING RULES DIAGRAM:

(i) The Station Working Rule diagram no: SI/WRD/23165 Alt "C".
(ii) CSTE/East Coast Railway Signal Interlocking Plan No: SI/23165 Alt "C".

2. DESCRIPTION OF STATION:

2.1 GENERAL (LOCATION):

a)Name of the station:	BACHELI Station & BACHELI "A" Cabin
b) Station Code	BCHL
c)class of station:	'B' class
d)section:	KOTTAVALASA - KIRANDUL
e)Double line/Single line:	Single line
f)Electrified/Electrified:	Electrified
g)Gauge BG/MG/NG:	BG
h)Railway:	East Coast Railway
i) Route	**'D'**
j) Situated at	SM Km-436.455 & "A" cabin @ 437.985F from BCHL station building
k) Reckoned from	KOTTAVALASA
l) No. of cabins	One
m) Type of interlocking	Standard – IIR
n) Operations	Individual panel Operations for both BCHL & A-Cabin

2.2 BLOCK STATIONS, IBH, IBS ON EITHER SIDE AND THEIR DISTANCE AND OUTLYING SIDINGS:

NMDC Iron ore siding controlling by BCHL "A" cabin situated at km 437.985 for loading of empty rakes as per the operational convenient.

2.2.1 BLOCK STATIONS ON EITHER SIDE AND THEIR DISTANCES:

Sl.no	Adjacent block-section	Distance	Direction
a	BHANSI	9.546	KTV end
b	KIRANDUL	9.143	KRDL end
c	Provision of IBS	NIL	NIL
d	Automatic signal	NIL	NIL

e	DK station/Out line sidings	NIL	NIL
f	Passenger Halt	NIL	NIL

2.3 **BLOCK SECTION LIMITS ON EITHER SIDE OF STATION ON DIFFERENT DIRECTIONS**:

Between stations	The point from which Block section commences	The point at which Block section ends
BCHL-KRDL (UP direction)	UP advanced starter signal no.25 of BCHL	DN Advanced starter signal No: 65 of KRDL
BCHL-BHANSI (DN direction)	DN Advanced starter signal no.60 of BCHL	UP Advanced starter signal No: 11 of BHNS

2.4 **GRADIENTS**: From BCHL station

(a) **From the centre of the Station Building towards BHNS**:

Chainage in meters from CSB		Stretch	Gradient
From	To		
0.000	530M(For ML, L-1 to L-4 & S/neck)	530M	1 in 400 raising
530M	780M from CSB (For ML & Shunting neck)	250M	Level
780M	1530M (At Take off point)	750M	1 in 80 falling
1530.50M TOP	3994M	2464M	1 in 80 falling
3994M	4173M	179M	Level
4173M	5091M	918M	1 in 80 falling
5091m	6224M	1133M	Level
6224M	6950M	726M	1 in 80 falling
6950M	7255M	305M	Level
7255M	9374M	2119M	1 in 80 falling
9374M	Into section	--	1 in 800 raising

b) From the centre of the Station Building towards KRDL:

Chainage in Meters from CSB		Stretch	Gradient
From	To		
0.000	700.30M(For KK line yard L-1 to L-4)	700.30M	1 in 400 falling
700.30M	2102M (For KK line)	1401.30M	1 in 150 falling
2102M	Into section	---	Level

Gradients for BCHL "A" /Cabin @ chainage 2687.6 M

i) From Take off point to uni-flow line for Bi- direction:

Chainage in Meters from Take off point BHNS end		Stretch	Gradient
From	To		
0.000 (1530M F/CSB)	169.50M 1361M F/CSB)	169.50M	1 in 80 raising
169.50M(1361M F/CSB)	219.50M(1311M F/CSB	50M	Level
219.50M(1311M	1481M(49.50M F/CSB for	1261.50M	1 in 130 falling

F/CSB	uniflow & Loading line		
1481M(49.50M F/CSB)	2747M (1216M F/CSB for Uniflow, Loading lines Reception yard)	1266M	Level
2747M	Towards Loading lines, reception yard	--	1 in 400 raising

ii) <u>From NMDC entry point to RYD LINES</u>:

From	To	Stretch	Gradient
0.00 (700 from CSB)	1904.10	1904 M	1 in 100 Rising
1904.10	1972.10	68 m	Level
1972.10 F/LL SRJ	1257 F/LL SRJ		1 in 400 Falling

2.5 (A) **<u>LAYOUT: BCHL station</u>**

Sl. No	Running/Non Running line	Length in Mts CSL	Electrified/ Non-Electrified
1	Running line / Route-1 (1st loop)	702.38 STR to STR	Electrified
2	Running line / Route-2 (Main line)	719.61 STR to STR	Electrified
3	Running line / Route-3 (2nd loop)	778.39 STR to STR	Electrified
4	Running line / Private siding NMDC	761.33 STR to STR	Electrified

(A-1) LAY OUT: BCHL "A" CABIN

Sl. No	Running/Non Running line	Electrified/ Non-Electrified
1	Running line / NMDC Line No.1(Reception yard)	Electrified
2	Running line / NMDC Line No.2(Loading line, Hump)	Partly Electrified
3	Running line / NMDC Line No.3(Loading line, Hump)	Partly Electrified
4	Running line / NMDC Line No.4(Engine R/R/ line)	Electrified
5	Running line / NMDC Line No.5(Engine R/R/ line)	Electrified
6	Running line / NMDC Line No.6(Loading line, Fines)	Partly Electrified
7	Running line / NMDC Line No.7(Loading line, Fines)	Partly Electrified
8	Running line / NMDC Line No.8(Engine line)	Electrified
9	Running line / NMDC Line No.9(Loading line for BLD 10 & 11A)	Partly Electrified

10	Running line / NMDC Line No.10(Loading line for BLD 10 & 11A)	Partly Electrified

(B) PLATFORMS: SM STATION BUILDING

One high level passenger platform measuring 243 Mx6 M is provided on line no.1 (1st loop)

PLATFORMS FOR BCHL "A" CABIN: NIL

2.5.1 **DIRECTION OF MOVEMENT AND HOLDING CAPACITY IN CSR**:

a. **DIRECTION OF MOVEMENT: SM BCHL STATION** :

Trains coming from BHANSI and proceeding towards KIRANDUL are UP trains.

Trains coming from KIRANDUL and proceeding towards BHANSI are DN trains.

DIRECTION OF MOVEMENT: SM BCHL "A" CABIN:

The movements are being done with the coordination & correlations with the of SM/SS of station BCHL. Any movement is to be done with the consent of SS/SM of the centre.

b. **HOLDING CAPACITY IN CSL**: **Main YARD**

Line no	Designation	CSL	Electrified/Electrified	CSL starting & destination
Line no. 1	1st loop	702.38 M	Electrified	STR to STR
Line no. 2	Main line	719.61 M	Electrified	STR to STR
Line no. 3	2nd loop	778.39 M	Electrified	STR to STR
Line no. 4	Private siding NMDC	761.33M	Electrified	STR to STR

BCHL YARD "A" CABIN

Sl no.	Running lines	Name of the Line	CSL in Mets SHS to STR	Electrified/Non Electrified
1	Entry Line	NMDC Line No.1	1318	Fully Electrified
2	LYD R1	NMDC Line NO. 2	725	Top wired
3	LYD R2	NMDC Line NO. 3	725	Top wired
4	LYD R3	NMDC Line NO. 4	771	Fully Electrified
5	FOH R3	NMDC Line NO. 5	752	Fully Electrified
6	FOH R2	NMDC Line NO. 6	718	Top wired
7	FOH R1	NMDC Line NO. 7	750	Top wired
8	10 &11A Siding R3	NMDC Line NO. 8	866	Fully Electrified
9	10 &11A Siding R2	NMDC Line NO. 9	782	Top wired
10	10&11A siding R1	NMDC LineNO. 10	770	Top wired

BCHL RECEPTION YARD

Sl No	**NAME OF THE LINE**	**CSL in Mets SHS to STR**	**Electrified/Non Electrified**
1	LINE 1	911	Electrified
2	LINE 2	832	Electrified
3	LINE 3	834	Electrified
4	LINE 4	794	Electrified
5	LINE 5	886	Electrified

2.5.2 **ANY SPECIAL FEATURES IN THE LAYOUT**:

SLIP SIDING:

1) One Slip siding is provided towards KTV end of the yard beyond DN common starter signal no. 16 which is released by DN advanced starter signal no.60. The normal position of the slip siding point no. 103 and also point no. 101A/B is interlocked with block instrument of the section BCHL-BHNS. It can be operated only in TGT/TCF position of the block instrument.
2) For every slot transmission between BCHL station SS/SM & BCHL "A" cabin for reception/ dispatch of trains, it should be supported by a PN exchanging.

2.6 **LEVEL CROSSINGS GATES**:

-NIL-

3.0 **SYSTEM AND MEANS OF WORKING: For BCHL :**

1	System of working:	Absolute Block system.
2	Block instruments:	Single line token less Block instruments (Handle type) are provided for block sections between BCHL-BHNS and BCHL-KRDL.
3	Co-operative/Non co-operative:	Co-operative
4	Provision of block telephone BCHL-BHNS and BCHL-KRDL.	Telephone push button attached to block instruments connecting the adjacent block instruments of the concerned sections
5	Custody of keys of block instruments:	Block instrument is provided with double locking. One key will be with SM and other key will be with S&T maintainer.
6	Inter slotting arrangements	Between BCHL and 'A' cabin.

For "A" cabin: Inter slot arrangement between BCHL SS/SM & BCHL SS/SM of "A" cabin.

4. SYSTEM OF SIGNALLING AND INTERLOCKING for BCHL STATION :

1	Standard of Inter Locking	The Station & "A" cabin Standard II R Route Relay Inter locking.
2	Type of signalling	Multiple Aspect Colour Light MACL governed by as per GR 3.08(4) (b).
3	Mode of Operation	Individual Central Panel board
4	Provision of "calling ON" signal	Calling-on signals are provided below UP & DN Home Signals. Similarly C-5 is provided below S-5 signal as per GR.3.13 (1) (b), (2) (3) (4) & (6) (b). To take off Calling-on signal the tra5in must come to stop at the foot of the home signal, occupying the track circuit (1AT, 2AT as the case may be) in rear of the Home signal. When a train occupies the track circuit, a RED light strip will appear on the Panel/VDU. The particular route on which the train is intended to be received shall be set by selecting and setting desired route through Panel by SS/SM on duty. After a lapse of 60 seconds, the Calling-on signal clears i.e. white light

		glows at the concerned Calling-on signal on the Panel. **NOTE:** SS/SM on duty to ensure that no through signals are given while receiving a train on Calling-on. Miniature colour light Calling-on signal is provided below the Home signals in terms of GR.3.13 (6) (b). A Calling-on signal shows no light in the 'ON' position and Yellow light when taken "OFF". A calling-on signal, will be taken 'OFF' for reception of a train when the Home signal above it cannot be taken 'OFF' due to failure or any other reason or for admission of train on blocked line. Before taking 'OFF' **Calling on signal during failure of track circuit the route and clearance of the track over which the train will be admitted must be checked physically by SM on duty.** (The detailed procedure is given in Appendix-B) Calling-on signal route C-1B can be initiated, only after either of signal S3 or C3 route has been set and locked. Calling-on signal C3 will assume OFF aspect only after occupation of 3AT track circuit. **Taking of Calling on signal at BCHL "A" cabin**:- C5 (A-I), is provided for after entry in uniflow for respective A-I grids fro receiving the empty train. Each operation of calling-on shall be recorded in the TSR, station diary and in the register meant for this purpose.
5	Provision of shunt signals	**For the BCHL station SS/SM centre.** ➢The following shunt signals are provided at BCHL station. • Independent shunt signals: SH-4A/B/C/D, towards KRDL end and SH-11A/B, SH-9A/B/C/D. towards BHNS end provided for shunt back purpose. • Dependent shunt signals: SH-8, SH-10. On L-4, L-3 **Similarly the following shunt signals are provided at the BCHL "A" Cabin:-** The following independent Shunt signals are provided in the NMDC lines:- SH-7 (A-G),SH-20(A-C),SH-18(A-C), SH-16(A-C) SH-45(A-E),SH-14,SH-47(A-D)SH-43(A-E),SH-41(A-E), SH-9(A-C) SH-58 SH-14 for NMDC line from RYD The following dependent Shunt signals are provided in NMDC Lines:- SH 40, SH 42, SH 44 SH-46, SH-48,SH-50,SH-52,SH-54,SH-56 On bellow the respective starter signals in the Dn direction similarly SH-23, SH-25, SH-27 SH-29, SH-31,SH-33, SH-35, SH-37 SH-39 were provided in respective Up starter signals. SH-10(A-D), SH-8(A-D),SH-6(A-D), SH-4(A-D).
6	Emergency Cross Over	Nil

7	Track Circuits	The following track circuits are provided in BCHL yard. 1AT, 1T, 101AT, 101BT, 58T, 3AT1, 3AT, 3T, 103T, 105AT, 105BT, 16AT, 18T, 109AT, 109BT, 111T, 113T, ,L1T1 L2T1, L3T1 L4T1, L1T2 L2T2, L3T2, L4T2,L1T3 ,L2T3,L3T3,L4T3,L4T4,106T,102T,102BT, 104BT, 25AT, 2T, 2AT, 5AT2, 5AT1, 5AT and 5T. **AT BCHL "A" CABIN**: - 5T, 60AT, 115T, 117T, 45AT, 43AT, 41AT, 109T, 21T, 110T, 112AT, 112BT, 14AT, 108AT, 108BT, 106T and 102T.
8	Axle counter	The following analog axle counters are provided at BCHL 'A' cabin for all the NMDC lines to know the weather line is clear or not. 113XT, 107XT, 103XT, L1AXT, L2AXT, L3AXT, L4AXT, L5AXT, L6AXT, L7AXT, L8AXT, L9AXT, L10AXT127XT, 123XTand 119XT, 58 AXT at BCHL yard: 04 AXT, and on L1 NMDC HASSDAC. When a signal is cleared, the particular route appears with white strip of lights and 'Red' light appears as the train occupies the Axle counter/ track circuit. Entire Block Section between BCHL-BHNS & BCHL- KRDL is provided with High Availability Single Section Digital Axle Counters (HASSDACs). **For section: BCHL-BHNS :-** A pair of digital axle counter is provided between BCHL-BHNS on IT track near Advance starter Signal No 60 of BCHL and another one on 2T track nearer to Advance Starter signal No 11 of BHNS for proving LVV for section BCHL -BHNS. **For section: BCHL-KRDL :-** A pair of digital axle counter is provided between BCHL-KRDL on 67T beyond Advance starter Signal No 65 of KRDL and another one on 2T track nearer to Advance Starter signal No 25 of BCHL for proving LVV for section BCHL-KRDL. A pair of High Availability Single Section Digital Axle counter (HASSDAC), L1 AXT is provided on NMDC Line No 1 of BCHL one detection point just beyond starter signal No 18 on 18T track circuit and another detection point just beyond stop signal No 21 on 21T track circuit. The position of the block section whether 'clear' or 'occupied' is reflected on the axle counter reset box provided in the Station Master's office which shows 'GREEN' when the block section is clear and 'RED' when block section is occupied. Whenever a train enters into the block section "Block section clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears. After complete arrival of the train the 'RED' indication disappears and 'GREEN' indication appears. If after complete arrival of the train 'RED' indication does not change to 'GREEN' it should be assumed as Block instrument failure for the particular section and necessary action as per GR 14.13 is

		to be followed. The axle counters are interlocked with the respective block instruments for that section. If axle counter fails, advanced starter signal/IB Home Signal cannot be taken off for next train and the concerned instrument shall remain locked in last operated position. A resetting arrangement is provided in the SM office to reset the system to normal position in case of failure of axle counter. The resetting is to be initiated by the SM at the receiving station only after physical verification of complete arrival of train by exchanging private number. The resetting can be accomplished only with the co-operation of SMs at either end of the block section. If a train passes through the station without confirming the last vehicle indicator, the Station Master on duty shall advise the station in advance to stop the train for last vehicle verification and he need not to withhold closing of block section in rear. He shall obtain confirmation under exchange of private number about the complete arrival of the train with its last vehicle from the station in advance and subsequent trains may be dispatched. In case of failure of Axle counter the SM on duty shall obtain complete arrival certificate from the TMR of the train in the complete arrival Register (T/1410) maintained at the station for stopping train. For through passing train the SM on duty shall satisfy himself the complete arrival of the train by verification of the Last Vehicle Indicator vide GR 4.17 (1) that the train had arrived completely. In case a train passes incomplete, action shall be taken as per SR.4.17.02, the "Train out of Block Section" report shall be withheld to the station in rear until complete arrival Certificate is received from the station in advance supported by a private number. Train passing on adjacent line shall be stopped and TMR & Loco pilot shall be issued with caution order to proceed cautiously and stop sort of any obstruction as per SR.4.17.03. On occasions when motor trolley follows a train the points shall not be operated until the following motor trolley is admitted on the same line. In event of motor trolley is delayed in the section the SM on duty shall take action in terms of SR.15.25.03 (b) (vi). **NOTE:** Before taking off reception and dispatch signals for UP or DN directions the SM on duty shall ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication.

<table>
<tr>
<td>9</td>
<td>Crank Handle</td>
<td>When any point fails to operate normally by the Route Setting operation through VDU, it is inevitable to operate the points with crank handle. The SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for use of crank handle for motor operated points shall be followed as per operating manual chapter-2, para-2.18 & 2.19.

Under the control of BCHL SS/SM
<table>
<tr><th>Sl. No</th><th>CRANK HANDLE</th><th>CONTROL POINTS</th></tr>
<tr><td>1</td><td>CH1</td><td>101</td></tr>
<tr><td>2</td><td>CH2</td><td>103,105</td></tr>
<tr><td>3</td><td>CH3</td><td>107,111</td></tr>
<tr><td>4</td><td>CH4</td><td>109,113</td></tr>
<tr><td>5</td><td>CH5</td><td>102, 106</td></tr>
<tr><td>6</td><td>CH6</td><td>104</td></tr>
</table>
Under the control of BCHL “A” Cabin SS/SM
<table>
<tr><th>Sl. No</th><th>CRANK HANDLE</th><th>CONTROL POINTS</th></tr>
<tr><td>1</td><td>CH1</td><td>101,103,105,107,109</td></tr>
<tr><td>2</td><td>CH2</td><td>110,111,113.</td></tr>
<tr><td>3</td><td>CH3</td><td>108,102.</td></tr>
<tr><td>4</td><td>CH4</td><td>102,104,106.</td></tr>
<tr><td>5</td><td>CH5</td><td>115,117.</td></tr>
<tr><td>6</td><td>CH6</td><td>119,121</td></tr>
<tr><td>7</td><td>CH7</td><td>123,125</td></tr>
<tr><td>8</td><td>CH8</td><td>127,129.</td></tr>
</table>
These crank handles are interlocked with the signalling and interlocking system at this station & “A” cabin respectively, normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out only when all signals are not taken ‘OFF’ and the route is not locked for whatever reasons. Crank Handle can be released by pressing common ‘TRANS’ push button and concerned Crank handle control push button simultaneously. When the keys are taken out no signal can be taken ‘OFF’ over the particular route on the points nominated by the crank handle. This key can be electrically transmitted at both ends locations of the yard for manual operation of the defective points.

The failure of motor operated points must be ensured by physical checking that there is no obstruction. SM on duty shall personally ensure the clamping and padlocking of all facing and trailing points. An emergency Crank handle register shall be maintained by the SM on duty at the station</td>
</tr>
</table>

		as per the Operating Manual 2.18 & 2.19. Correct setting, clamping and Padlocking of the points devolve on the SM on duty. (Details of use of Crank Handle as per Appendix-'B'). The cases of failure of motor point, it should be promptly reported to the concerned signal maintainer/signal inspector for immediate rectification.
10	Emergency point operation	Emergency point operation facility is provided to operate the point from the Panel in case of failure of point controlling track circuit. Each operation of emergency point operation shall be recorded in the TSR, station diary and in the register meant for this purpose. (Detailed procedure for operation of emergency point operation is laid down in Appendix-B)
11	Block Instruments	Single Line Token Less Block Instruments (Handel Type) are provided for Block section between BCHL-BHNS & BCHL – KRDL.
12	Emergency Route Release	This panel interlocking is based on the principle of 'DEAD APPROACH LOCKING'. As such, when a route is set and signal is taken off on the route, the route gets locked. Normally the route is released by the passage of the train over the route. When it becomes necessary to alter the route after the signal has been taken off vide SR 3.36.02 (a), the concerned signal must be put back to danger by pressing the Signal cancellation button and the concerned signal button. Then the emergency route release button (white with red dot) positioned in the top of panel is to be pressed by breaking the seal and subsequently the concerned signal button pertaining to the route is to be pressed. A white light will flash (Up or Down) indicating that the timer is working. After 120 seconds, the white light along with the white strip of light will disappear suggesting the route has been released. In case the route illumination (a white strip of lights) does not disappear, it suggests that the route is not released/cancelled. In such case the emergency cancellation of route has to be resorted to. The concerned S&T staff should be advised immediately to get the emergency route release button resealed after rectification of fault if any. Each operation of emergency cancellation of route is recorded in the emergency route release counter by registering the next higher number. All such operations and the new number should be recorded in the TSR, station diary and the register meant for this purpose.
13	Emergency Gate Release	Not Applicable
14	Emergency crank	Emergency crank handle release operation facility is provided

	handle release.	to operate the point by using the crank handle in case of Route locked condition. Each operation of emergency crank handle operation shall be recorded in the TSR, station diary and in the register meant for this purpose.
15	IB Signal	Not Applicable.
16	Operation Of Control Panel	Individual panels are provided with SM's key under the personal custody of Station Master on duty at BCHL station as well as at BCHL " A " cabin individually.

4.2 **CUSTODY OF RELAY ROOM KEY/RELAY HUBS/GOOMTIES/GATE GOOMTIES/CABIN HOUSING ETC. AND PROCEDURE FOR ITS HANDING OVER AND TAKING OVER BETWEEN STATION MASTER AND S&T MAINTENANCE STAFF:**

Relay room key/relay hubs/goomties/Gate goomties/cabin housing and procedure for its handover and taking over between SM and S&T staff has to follow the procedure as per JPO issued by COM and CSTE vide No. JPO/02/2012 dated 29.08.2012 and JPO issued by AM/Traffic & AM/Signal vide No. 2021/Sig/21/Safety Performance dated 10.06.2023. Relay room/ relay hubs/goomties/Gate goomties/cabin housing are provided with two independent locks. The key of one lock shall be in the personnel custody of Station Master on duty and the key of other lock shall be in the custody of S&T Maintainer. In the event of necessity such as for attending failure, or regular maintenance, on being requisitioned by S&T maintainer, SM shall hand over the key to the Maintainer. On completion of the work, maintainer shall lock the relay room/ relay hubs/goomties/Gate goomties/cabin housing and shall return the key to SM. The particulars of such transactions shall be entered by the SM in the relay room key register vide OM 2015 Para No.13.16 and in case of relay hubs/goomties/Gate goomties/cabin housing in the register meant for this purpose.

4.3 POWER SUPPLY:

Normal: AT-230V, 50Hz.

1st Stand by: - Local supply (Chattishgarh State Electricity Board Supply)

2nd standby: DG set.

Normal: UP AT & DN AT.

i) CLS Auto Change Over panel with Auto change over switch is provided in the SM's room with the three power supplies viz UP AT, DN AT and local power supply for changing the switch to the required supply position. Luminous indicator's are provided above the circuit breaker for each supply to indicate the availability of the supplies.

ii) Normally the rotary switch will be kept towards UP AT or DN AT position. Whenever the power block is to be given on the line, the on duty SM must ascertain the power is available on the other AT e.g if power block is to be given on the UP line, DN AT must be available and vice versa.

iii) During the non-availability of both the AT supplies SM on duty shall keep the rotary change over switch towards the local supply to feed available local supply to the Installation.

iv) In case of failure of one of the AT supply without any power block, on duty SM has to check whether the Miniature Circuit Breaker has tripped. (Three Miniature Circuit Breakers are provided in the changeover switch board, one for each supply and their normal position is UP and when tripped, it goes to DN). In case of failure of both AT supplies, the local supplies shall be utilized by operating the switch. If the Miniature Circuit Breaker is tripping, even after resetting, no attempts shall be made to hold it by any other means and a message shall be given to the AEEE/GEN and CTFO/GEN for prompt rectification.

v) For IPS system that provides power supply /back up to the signaling system of EI. Selection output is taken from CLS Auto change over Panel.
vi) There is a remote monitoring ASM box provided at the station to monitor the health of IPS.

REMOTE MONITORING ASM BOX:

Remote monitoring ASM box gives alarm to the SM/SS for the following fault conditions:-

a) 50% DOD (Depth of Discharge) of Battery. In this condition Audio/Visual alarm comes which can be acknowledged with audio cut off.
b) 60% DOD (Depth of Discharge), which warns for emergency. The Alarm for this condition is same as for condition 1.
c) 70% DOD (Depth of Discharge), which signals system, shut down. In this condition Signal feed cut off and all DC-DC converters continue working. Audio alarm will continue till power supply restored.
d) Any of the Module fails, which calls for "Call S&T".
e) Whenever there is a failure of power supply in one AT, the SM shall take prompt action to inform to all concerned for the rectification. The SM himself, during his daily checks, shall test the availability of power supply on both AT's and make an entry in station diary duly initiating action for rectification of failure, if any.

(C) WORKING OF AUTOMATIC FIRE ALARM DETECTION SYSTEM:

I. In case of any alarm in any particular area due to fire or dust-Zone number on the LCD display can be seen.
II. Note down the zone No. and panel display name, by referring display chart.
III. Once you find the zone number rush to that particular area where the detector gives alarm.
IV. The moment the smoke detector detects any smoke particles, the RED LED will blink along with the alarm.
V. Once you reach the area where the detector is giving the alarm, check whether the alarm is due to the fire or for any other reason.
VI. To alert the people in case of emergency press "*" sign of the fire which is present inside the key pad together for few seconds. This will enable you to hear the panel alarm.
VII. To reset the panel press "OFF" button and enter the code 1111 (1 digit four times).
VIII. The control panel will get reset and siren muted.
IX. If the power fails on this will enable us to see the red indicator on the panel.
X. In case of failure in power and if the battery is fully charged, the panel can function effectively as long as the charge in the battery is present.

D. AUTO DIALLING:

If you hear alarm from the panel, this system will dial the telephone/mobile number you fed. The prerecorded messages will be heard on the phone. If you want to make two-way communications, press "6" on your mobile. You can have this communication for 50 seconds. If you want to talk more, press again "6" before completion of 50 seconds for another 50 seconds or you can acknowledge the receipt of call by pressing "2" on SSE/Signal mobile, in case number "2" is not pressed the system will dial again the same telephone number as per the programmed dial attempt and still if acknowledgement not come from 1stnumber then panel will dial 2nd number till the time acknowledgement comes it will keep on dialing.

5.TELECOMMUNICATIONS:

At BCHL Station:-

1) Telephone attached to Block instruments connected to adjacent block stations on either end.
2) Hot line is provided to adjacent block stations on either side.
3) The station is connected to KRDL-KRPU control circuit.

4) The station is connected to WAT-KRDL Traction power control circuit.
5) VHF 25 watts set is provided for emergency communication.
6) Magneto phone to CH location boxes at either end.
7) Telephone connection is provided between SM's room and 'A' cabin.
8) Railway auto telephone is provided.
9) NMDC telephone is provided.
10) CUG telephone is provided at the station.

At BCHL "A" cabin:-

i) VHF 25 watts set is provided for emergency communication..
ii) Telephone connection is provided between SM/SS BCHL Station.
iii) Railway Auto dialling telephone is provided.

5.1 FAILURE OF COMMUNICATIONS:

a) In the event of partial failure of communication SR 6.02.06 shall be observed.
b) In the event of total failure of communication SR 6.02.04 shall be observed.

6. SYSTEM OF TRAIN WORKING:

1) For SS/SM BCHL station & "A" Cabin. Duties of Train working Staff.

The movement of trains is controlled by section controller on duty whose orders shall be complied with provided they do not contravene any provisions of General Rules, Subsidiary Rules, Station Working Rules, Block working manual, Operating Manual and any other safe working instructions issued from time to time. In the event of suspension of control working the Station Master on duty shall work independently in conjunction with the Station Master of adjoining Block Stations and shall be responsible to ensure that there is no undue delay to train operation in general.

2) For SS/SM BCHL "A" cabin.

I. Reception of trains from BCHL ends via NMDC entry line:

On line clear enquiry message from SS/SM/BCHL, SM 'A' cabin shall grant Line clear to SM/BCHL by releasing Slot 1 under exchange of Private number.
Before lowering Home signal, SS/SM "A" cabin should ensure that:
a) L/1(NMDC entry line) shall be clear and free of any obstruction.
b) Line shall be clear upto signal no. 21
c) All shunting operations infringing, the line nominated for reception of a train at his end of the yard, are suspended.
d) Slot no. 1 shall be released to take off Home signal NO-1.

II. Reception of trains from BCHL ends via Uniflow line:

The SS on-duty BCHL after getting the out report of an empty train from BHNS, which is intended for loading, will receive trains in the following ways:

III. Via Uniflow line :

a) As per the instructions of Section Controller SM/BCHL shall inform to SM/A cabin that the train is intended to receive via uniflow line supported by PN. After receiving the information SM/A cabin shall nominate any of the fully wired vacant line i.e LYD –(L/4) , FYD—(L/5), NS – (L/8) and release the slot. After obtaining the slot SM/BCHL will lower the home signal. On line clear enquiry message from SS/SM BCHL , SS/SM "A" cabin shall grant line clear to SS/SM BCHL by releasing slot 3 under exchanging of PN (Private Number)
Before granting Line clear SS/SM "A" cabin should ensure that:

i) Line nominated for receiving the train should be from any obstruction.

ii) Line shall be clear up to Advance Starter signal No 60.
iii) All shunting operations infringing, the line nominated for reception of a train at his end of the yard suspended.
iv) Slot No. 3 shall be released to take of Home signal No. 1.

The SS/SM on duty BCHL after getting the out report of any empty train from BHNS, which is intended for loading, will receive trains in the following way.

a) The LP of the train should stop at the concerned stop signal on the nominated line and sign off after giving charges to the Saunter. The Saunter shall draw ahead the train into RYD as per the instructions of YM/RYD. The YM RYD shall nominate a vacant line in RYD for reception of the empty rake accordingly.
b) After arrival of the rake into the yard completely the YM shall allow the saunter to back the entire empty rake into the nominated loading line by lowering the respective shunt signals.
c) After placement the BV shall be re-marshaled favorably towards dispatch direction.
d) After completion of more than 50% of loading, staff will be deputed to check and clear the line. At some times C&W staff also will be informed duly attaching outgoing loco towards KRDL end.
e) After confirmation of completion of the loading, the loaded rake will be drawn on to any of the vacant lines in RYD by lowering the shunt signals. During the course of drawing out weighment will be done.
f) If, there is no excess loads found, loco will be reversed and dispatched to BHNS either via any fully wired vacant line in the loading yards (Via Unifllow line) or otherwise via entry line as per the possibility.
g) If there any excess loading is found, then also the Loco will be attached towards BHNS end and the loaded rake will be drawn on to the line nominated for load adjustment.
h) NMDC officials will be informed well in advance regarding excess loading who in turn depute manpower for the load adjustment. After reception of confirmation regarding the load adjustment, the rake will be dispatched to BHNS directly via Uniflow line.

NOTE:- While giving placement the BV will be detached in the adjacent line /grid on the top of the line by clearing the fouling mark. The rake further pushed into the intended line. After placement of the rake in the lading line, the BV shall be attached on the train thereby the BV automatically reversed as rear most vehicle to the outgoing direction.

MOVEMENT OF TRAINS FROM LOADING YARD TO RECEPTION-CUM-DESPATCH YARD:

I. DISPATCH OF TRAINS FROM A CABIN TOWARDS BCHL END VIA NMDC LINE:

Whenever a train is ready in all aspects to dispatch a train towards BHNS:

a) SM/A cabin will inform the readiness of the train to SM/BCHL.
b) SM/BCHL shall release slot 20 to A cabin for dispatch via Uniflow line.
c) SM/A cabin shall take off the concerned starters.
d) SM/BCHL shall take off last stop signal in accordance with rules laid down in GR 3.42 and BWM 2.07(5)

II. Despatch of trains from A cabin towards BCHL end via Uniflow line.

Whenever a train is ready in all aspects to dispatch a train towards BHNS:

I. SM/A cabin will inform the readiness of the train to SM/BCHL.
II. SM/BCHL shall release slot 22 to A cabin for dispatch via Uniflow line.
III. SM/A cabin shall take off the concerned starters.
IV. SM/BCHL shall take off last stop signal in accordance with rules laid down in GR 3.42and BWM 2.07(5).

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3 <u>For SS/SM BCHL station</u>

In phase I BCHL railway yard will be commissioned and rest of the connecting yard of NMDC, RYD with PI & Uniflow line will be commissioned in Phase – II.

Working of BCHL Station and NMDC Yard, RYD yard & Uniflow Line is as follows till commissioning of Phase II works.

Sr. No	Train Receive/ Dispatch	Via	Action to be taken by SS/SM of "A" cabin.	Action to be taken by the SS/SM of BCHL Station
1	To Receive a train into RYD	NMDC Line-1	SM/BCHL shall ask line clear from A cabin supported by Private number Cabin man of A-Cabin' shall ensure from YM/RYD about the clearance of NMDC (L/No.1 (up to point no 108A) and is free from any obstruction under exchange of PN and after getting PN shall give the slot (01) to SM BCHL	After receiving the slot from SS/SM "A" cabin. SS/SM BCHL shall take "OFF" the signal No. S1 OR C1 (Main Home) followed by S-3 OR C-3 (Inner Home).
2	To Dispatch a train from RYD "A" cabin	NMDC Line-1	SM of A cabin after ensuring readiness of the train and suspension of shunting operations if any, shall ask, slot to SM/ BCHL supported by PN. After receiving the slot (Slot no 20) from BCHL station, SM A-cabin shall dispatch the train up to the foot of the signal no.S-18.	After receiving line clear message from Cabin man of A cabin supported by PN, SM BCHL station will give the slot (slot no.20) to Cabin man of A -cabin and then SM/BCHL shall take line clear from BHNS station and after receiving the line clear the train dispatched by taking off the signal number S-18 and S-60.
3	To receive a train in NMDC Line-2 to 10	Uniflow Line	SM/BCHL shall ask line clear from SM/SS "A" cabin supported by Private number. SS/SM of A-Cabin shall ensure from YM / RYD about the clearance of NMDC line No. 1 to Signal No. 12, Line No 2 to upto signal 10, Line No 3 upto signal No 8, Line No 4 upto signal No 6, Line 5 upto Signal No 4 and is free from obstruction under Exchange of PN , after getting PN shall give slot -1 to SS/SM BCHL.	After receiving the slot from A- cabin, SM/ BCHL shall take off the signal no.S-1/C-1 for uniflow line up to 'STOP BOARD (stop signal no. S-5) with 10 Kmph speed and should be prepared to stop short of any obstruction.
4	To dispatch a train from		Cabin man of 'A' cabin after ensuring readiness of the train and suspension of shunting	After receiving line clear message from Cabin man of A cabin supported by PN,

	NMDC Line-2 to Line- 10		operations if any shall ask slot to SM/ BCHL supported by PN. Cabin man of A-cabin personally ensure through YM/AYM of NMDC yard that all the points of the route from which train will be dispatched are set, clamped, pad locked properly and after receiving the slot (Slot No.22) from SM BCHL shall dispatch the train up to foot of the signal no. S-58.	SM BCHL station will give the slot (slot no.22) to Cabin man of A-cabin and then shall take line clear from BHNS station and after receiving the line clear the train is dispatched by taking off signal no. S-58 & S-60.

6.1 DUTIES OF TRAIN WORKING STAFF:

The movement of trains is controlled by section controller on duty whose orders shall be complied with provided they do not contravene any provisions of General Rules, Subsidiary Rules, Station Working Rules, Block working manual, Operating Manual and any other safe working instructions issued from time to time. In the event of suspension of control working the Station Master on duty shall work independently in conjunction with the Station Master of BCHL Station and shall be responsible to ensure that there is no undue delay to train operation in general.

6.1.1 TRAIN WORKING STAFF IN EACH SHIFT: BCHL STATION

COMPLEMENT OF STAFF	STAFF IN EACH SHIFT
STATION SUPRITENDENT	1 (General)
SS/SM	1-BCHL panel
TPMA/TP	2

STAFF IN EACH SHIFIT AT BCHL "A" CABIN.

SM	1
TPM	3

The above staff shall work as per roster issued from time to time by Divisional Railway Manager (P) and these rosters shall be conspicuously displayed in the Station Master's office.

6.1.2 RESPONSIBILITY FOR ASCERTAINING CLEARANCE OF THE LINE AND ZONES OF RESPONSIBILITY:

The SM on duty is responsible to ascertain the clearance of the nominated line between Home Signal and advanced starter signal in each direction. The private number book should be under the custody of SM on duty that is authorized to use it.

For BCHL SS/SM "A" cabin:-

The SM on duty is responsible to ascertain the clearance of the nominated line before granting slot to BCHL station with PN exchange. The private number book should be under the custody of SM on duty who is authorized to use it.

6.1.3 ASSURANCE OF STAFF IN ASSURANCE REGISTER:

All staff before taking up independent charge of their duties at this station shall, make a written declaration in the Assurance Register that they have read the SWR thoroughly and understood the system of working in force at the station and must sign such declaration.

No Railway servant shall be entrusted with any duty involving the safety of the public unless the SM (In-Charge) is satisfied that the concerned staff is competent for the post. No Railway servant unless duly examined and certified shall be allowed to work the points and signals. The SM (In-Charge) is responsible to see that all the staff are well conversant with the Station Working Rules of the Station and their signature obtained in the Assurance Register after he is satisfied that they have thoroughly understood the working Rules of the Station. In case of Class-IV staff, their signature/thumb impression must be obtained after explaining full about their duties and responsibility.

The SM (In-Charge) is personally responsible for maintaining the Assurance Register and for obtaining declaration from the staff working under him. The Assurance Register must be maintained in two parts one for Group-'C' staff and other for Group-'D' staff & duplicate copy of the Assurance Register must be maintained and kept in the personal custody by the SM (In-Charge).

Fresh assurance shall be obtained in the Assurance Register when:

1. He joins at the station as a new member.
2. There is any change in the Station Working Rules.
3. He resumes duty at the station after an absence of 15 consecutive days or more.

6.2 CONDITIONS FOR GRANTING LINE CLEAR:

a. The conditions laid in GR. 8.03(2)(a)(b)(c)(ii) shall be complied with the SM on duty before line is considered clear and line clear is granted.

b. Before granting line clear for a train the SM on duty shall personally ensure that the reception signals pertaining to a train are in the "ON" position and burning properly vide GR 3.49(4).

c. Line shall not be considered clear and line clear shall not be granted to an UP train unless:

I. Whole of the last preceding UP train has arrived completely.

II. UP home signal No. 1 is put back to ON and the line is clear up to DN advanced starter No. 60.

d. Line shall not be considered clear and line clear shall not be granted to a DN train unless:

I. Whole of the last preceding DN train has arrived completely.

II. Down home signal No. 2 is put back to ON and the line is clear up to UP advanced starter No. 25.

6.2.1 ANY SPECIAL CONDITIONS TO BE OBSERVED WHILE RECEIVING OR DESPATCHING A TRAIN:

BCHL Station	If line clear is granted simultaneously at both ends of the station, the first train shall be admitted on an isolated line.
BCHL "A" cabin	**NIL**

6.2.1.1 SETTING OF POINTS AGAINST BLOCKED LINE: When a running line is blocked by stabled load wagon, vehicle or by a train which is to cross or give precedence to another train or immediately after the arrival of a train at the station etc., the points in rear end should immediately be set against the blocked line except when shunting or any other movement is required to be done on that line [Refer SR.3.51.06 (a)].

Safety Point Alarm Unit (SPAU): A safety Point Alarm is provided on the SM panel board with different indications:

1. On complete arrival of a train at the station, the SM has to set the Points immediately against the occupied line.
2. In case the SM forgets to alter the points, after a time lag of 02 minutes, an audible buzzer will be heard from this instrument along with the 'RED' indication of the line on which the train has arrived.
3. The SM shall then press 'ACK' button to mute the buzzer, and immediately set the required points against the line on which the train has arrived.
4. On setting the points against the occupied line, the RED indication will disappear.
5. In case SM fails to set the required points against the occupied line a fault message will be triggered SMS will be sent to concerned station mobile and all concerned staff. Action will be taken against on duty SS/SM.

If all the lines of a station happen to be blocked when line clear has been granted to a train the safety point alarm will not work and the point should be set for the line occupied by a stable load or a goods train by SS/SM on duty in that order so that, in case of mishap, the chance of causalities minimized. In case of all the lines are occupied by passenger trains points should be set for a loop line to negotiate which the speed of incoming train would be reduced which in turn would minimize the consequences/causalities vide SR 3.51.06(b). These precautions shall be taken in addition to the observance of other precautions as contained in SR 5.04.01 and SR 5.23.01. Block collars to be placed on the concerned button of blocked line.

Setting of points aganist blocked line For SS/SM "A" Cabin is same as above of SS/SM of BCHL Station SS/SM.

6.2.1.2 RECEPTION OF TRAIN ON BLOCKED LINE:

Trains are to be admitted on a blocked line, by taking off calling-on signal as per GR 5.09(2) (a) or if calling signal cannot be taken off, trains are to be piloted in on a written authority on Form T/509 given by SM on duty and delivered by a competent railway servant to the Loco Pilot of the train as per GR 5.09 (2)(C)(3)(4)(5) and SR 5.09.01.

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6.2.1.3 RECEPTION OF TRAIN ON NON-SIGNALLED LINE:

For SS/SM Station :Not applicable
For SS/SM "A" Cabin: Not applicable

6.2.1.4 RECEPTION OF TRAINS:

For reception of trains from BCHL yard into NMDC reception lines, slot to be received from SM/BCHL. The following are the details.

(i) For reception of train on NMDC Line no.1 for S-3E, C-3E routes, slot no-1 to be received from SM/BCHL.

(ii) For reception of train on NMDC Line no.2, for S-1A, C-1A routes, slot no.3 to be received from SM/BCHL.

(iii) For reception of train on NMDC Line no.1, for SH (12A,14), S-4, S-6, S-8, S-10, S-12 routes, slot no.20 to be received from SM/BCHL.

For SS/SM "A" cabin

For reception of trains from BCHL yard into NMDC reception lines, slot to be received from SM/BCHL. The following are the details.

(i) For reception of train on NMDC Line no.1 for S-3E, C-3E routes, slot no-1 to be received from SM/BCHL.

(ii) For reception of train on NMDC Line no.2, for S-1A, C-1A routes, slot no.3 to be received from SM/BCHL.

For reception of train on NMDC Line no.1, for SH(12A,14), S-4, S-6, S-8, S-10, S-12 routes, slot no.20 to be received from SM/BCHL.

6.2.1.5 DISPATCH OF A TRAIN ON NON SIGNALLED LINE:

NOT APPLICABLE.

6.2.1.6 DISPATCH OF TRAIN FROM LINE PROVIDED WITH COMMON STARTER SIGNAL

Dispatch of trains from line provided with common signal is governed by GR 5.12 & SR 5.12.01 shall be followed.

6.2.1.7 ANY OTHER SPECIAL CONDITIONS SHOULD BE MENTIONED GIVING REFERENCE TO THE G&SR

FOR BCHL STATION	FOR BCHL "A" CABIN
SPECIAL RESTRICTIONS: NIL	**SPECIAL RESTRICTIONS:** Whenever slot 1 of "A" cabin given to BCHL for entry line no shunting towards entry line is permitted.
SPECIAL INSTRUCTIONS i) For every slot transmission between BCHL and 'A' cabin, SMs of BCHL and 'A' cabin shall exchange private numbers. ii) calling on signal route C-1B shall iniated only after either signal S-3, C-3 route hasbeen set and locked. Calling on signal C-3 will assume off aspect only after occupation of 3 AT track-circuit. iii) Distant signal proceed aspect is controlled by Home signal proceed aspect as per Rly Board letter No 2009/safety (A&R) 19/24 dated 27.07.2011. Normal position of slip siding point No 103 and also point No 101 A-B is inter locked with block instrument of the section BCHL-BHNS. It can be operated only in TGT or TCF position of the block instrument. (iv) Trains should not be drawn up to the last stop signal and held up on the steep gradient in order to clear the reception line for giving permission to approach to the following train. (v) No shunting beyond outer most point on the steep gradient should be allowed unless a Engine /Power/ locomotive is attached at the lower end of the load in view of down gradient. vi) HASSDAC with dual sensor with media with E1 connectivity, quad cable is provided is provided for block clearance for BCHL – BHNS section. vii) In case of failure of Axle counter the procedure as detailed in SWR of the station is to be followed for re-setting the same. viii) During failure of HASSDAC,	**SPECIAL INSTRUCTIONS** i)For every slot transmission between BCHL and 'A' cabin, SMs of BCHL and 'A' cabin shall exchange private numbers. ii)As per railway board letter no. 2012/safety (A&R)/ 19/5 dated 13.06.2013, UP signals. 23, 25, 27, 29, 31, 33, 35, 37& 39 and DN signals 40, 42, 44, 46, 48, 50, 52, 54 & 56 are placed at 3Metes in rear of the replacement track axle counter in order to enhance the CSL of respective NMDC loading line-2 to line-10. SM shall ensure precautionary measures while receiving or dispatching of trains.

L1AXT the procedure as laid detailed in the SWR shall be followed for re-setting the same. (SEM para No. 17.7.5 (a) to be followed) ix) After compilation every movement trains/Engine TO & FROM "A" cabin through point No 101 SM BCHL should ensure that point No 101 is kept to normal position.	

6.3 CONDITION FOR TAKING OFF APPROACH SIGNAL:-

Conditions for taking of signal are governed by GR 3.40(1) (b), 3.40 (2)(b), 3.40(3) (b), 3.40(4), SR 3.40.01 and relevant SRs there to.

6.3.1 RESPONSIBILITY OF STATION MASTER FOR RESTORATION OF SIGNALS TO 'ON':

Station Master should ensure that the signal is put back to 'ON' after passage of train as per GR 3.36.02.

6.4 SIMULTANEOUS RECEPTION/DISPATCH, CROSSING AND PRECEDENCE OF TRAINS:

A. The following simultaneous reception and dispatch facilities are provided at this station.

1	Reception of an UP train on line no-1 setting overlap to sand hump.	AND	a) Reception of a DN train on line No.3 set to overrun line. **OR** b) Simultaneous dispatch of another UP train from line no. 2 or 3 or 4.
2	Reception of a DN train on line no-3 setting overlap to overrun line.	AND	a) Reception of an UP train on line No.1 set to sand hump. **OR** b) Simultaneous dispatch of another DN train from line no. 1 or 2.
3	Reception of a DN train on line no-4 setting overlap to overrun line.	AND	a) Reception of an UP train on line No.1 set to sand hump. **OR** b) Simultaneous dispatch of another DN train from line no. 1 or 2.

RECEPTION OF TRAINS FOR SS/SM "A" CABIN.

For reception of trains from BCHL yard into NMDC reception lines, slot to be received from SM/BCHL. The following are the details.

i) For reception of train on NMDC Line no.1 for S-3E, C-3E routes, slot no-1 to be received from SM/BCHL.
ii) For reception of train on NMDC Line no.2, for S-1A, C-1A routes, slot no.3 to be received from SM/BCHL.
iii) For reception of train on NMDC Line no.1, for SH (12A,14), S-4, S-6, S-8, S-10, S-12 routes, slot no.20 to be received from SM/BCHL.

B. **Adequate Distance**: To take off the Home signal for admission of a train the adequate distance (Signal overlap) as mentioned below shall be kept clear in terms of GR 3.40.(3)(b) and SR thereto.

CLEARING OF ADEQUATE DISTANCE		
LINE NO.	**UP TRAINS**	**DOWN TRAINS**

	FROM	TO	FROM	TO
Line No. 1 (1st Loop)	UP Loop line Starter No. 17.	The end of sand hump or UP Adv starter Signal No. 25.	DN Loop line Starter No. 14.	Up to signal no. 16 when point no. 105 is Normal.
Line No.2 (Main Line)	UP Main Line Starter No. 19	UP Advanced starter No. 25	DN Main Line Starter No. 12.	Up to signal no. 16 when point no. 105 is Normal.
Line No.3 (2nd loop)	UP loop Starter No. 21.	The end of overrun line of line no.3 or UP Adv. Starter Signal No. 25.	DN loop line Starter No. 10.	Up to D/S-107 when point 109 is normal.
Line No.4 (Private siding NMDC)	UP loop Starter No. 23.	The end of overrun line of line no.3 or UP Adv. Starter Signal No. 25.	DN L-4 Starter No.8.	Up to D/S-107 when point 109 is normal.

6.5 COMPLETE ARRIVAL OF TRAINS:

BCHL STATION	**BCHL "A" CABIN**
Section BCHL-BHNS & BCHL-KRDL: Entire Block section between BCHL-BHNS and BCHL-KRDL is provided with (HASSDAC) High Availability Single Section Digital Axle Counter. **For section BCHL-BHNS**: A pair of High Availability Single Section Digital Axle Counter (HASSDAC) is provided between BCHL-BHNS one at just beyond DN advanced starter signal No.60 of BCHL and another beyond DN home signal of BHNS for last vehicle verification. **For section BCHL-KRDL:** A pair of High Availability Single Section Digital Axle Counter (HASSDAC) is provided between BCHL-KRDL one at just beyond UP Advance starter signal no.25 of BCHL and another beyond UP home signal of KRDL for last vehicle verification. A pair of High Availability Single Section Digital Axle counter (HASSDAC), L1 AXT is provided on NMDC Line No 1 of BCHL one detection point just beyond starter signal No 18 on 18T track circuit and another detection point just beyond stop signal No 21 on 21T track circuit. The position of the Block section whether clear or occupied is reflected on the axle counter	**Complete arrival of the trains** :-the entire berthing track from NMDC Line No. 2 to 10 point zones 103XT, 107XT and 113 XT are monitored by analog axle counter system and the position of the berthing track and point zones whether '**occupied'** or '**Clear**' indicated on panel at SM's office. As soon as train enters in to the berthing track or point zones the RED indication appears on panel and if train clears, Clear indication appears on the panel board. In case of failure of Axle counter the SS/SM on duty shall verify physically the respective berthing track or point zone. After assurance from site reset procedure should be adopted from Line variation Boxes provided at site. On obtaining line /Point zone verification indication SM-A/Cabin press reset button provided on the panel Board. Resetting can be accomplished only with the co-operation of SM at one end and staff at other end of the line verification Box. All such operations and the new number should be recorded in the TSR, station diary and the register meant for this purpose.

reset box provided in the Station Master's office which shows 'GREEN' when the Block Section is clear and 'RED' when occupied. Whenever a train enters in to the Block Section, "Block Section Clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears. After complete arrival of the train the 'RED' indication will disappear and 'GREEN' indication will appear. If after the complete arrival of the train the 'RED' indication does not change to 'GREEN' it should be assumed as Block Instrument failure for the particular section and necessary action as per GR.14.13 is to be followed. The axle counters are interlocked with the respective block instruments for that section. If axle counter fails, Advanced Starter signal cannot be taken off for next train and the concerned instrument shall remain locked in last operated position. A resetting arrangement is provided in the SM office to reset the system to normal position in case of failure of axle counter. The resetting to be initiated by the SM at the receiving station only after physical verification of complete arrival of train by exchanging private number. The resetting can be accomplished only with the co-operation of SMs at either end of the block section. All such operations and the new number should be recorded in the TSR, station diary and the register meant for this purpose	

6.6 DISPATCH OF TRAINS:

BCHL STATION	**BCHL " A" CABIN**
a) To dispatch a train, the Station master on duty having obtained line clear for that train, shall set the route for the outgoing train correctly and satisfy him selves by observing the visual indication on the Panel Board. He shall suspend all non-isolated shunting and then shall take "OFF" the concerned route starter and advanced starter signal. The 'OFF' aspect of the advanced starter is the authority to proceed into the block section. As soon as the train passes the advanced starter signal, Train entering section indication will appear on the panel. The SM will then send the train entering bell code	a)To dispatch of train from 'A' cabin from uniflow line/Entry line, SM/A cabin shall take off concerned starter signals

signal to the station in advance. [Refer GR 3.38, 3.42, SR 3.36.04(b), 3.42.04 and BWM 2.07.5(a)] b) Whenever in consequence of the line being under repairs or for any other reasons special precautions are necessary. A Caution Order detailing the Kilometers and Speed at which train should run with reasons for taking such precautions shall be handed over to the Guard and Loco pilot in terms of GR 4.09 and SRs thereto	

Note:
Before taking off reception and dispatch signals for UP or down directions the SM on duty should ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication.

6.7 **WORKING IN CASE OF FAILURE: PROCEDURE TO BE FOLLOWED FOR WORKING OF TRAINS DURING FAILURE /SUSPENSION OF INTERLOCKING /SIGNALS/ POINTS:**

BCHL STATION/ BCHL "A" CABIN		
1	TRACK CIRCUITS	In case of failure of track circuits/Axle counter, the clearance of the concerned line should be ensured physically before a train is piloted.
2	AXLE COUNTER	If the axle counter fails between the block sections, resetting procedure will be adopted as per Para 26.0 of SWR (Appendix-B) if the axle counter indication does not appear 'GREEN & continues to show 'RED' condition after resetting, the concerned block section shall be suspended & failure intimation to be given to sectional signal Maintainer /JE/SE (signal) for rectification. If the axle counter fails on berthing lines and respective point zones, after physical verification resetting procedure will be adopted a per Para 25.0 of SWR (Appendix-B).
3	POINTS	Procedure prescribed in GR 3.77 and relevant SRs shall be followed
4	BLOCK INSTRUMENTS	In the event of partial/total failure of block instrument, the concerned block instrument shall be suspended till its rectification and trains shall work as per GR (Refer SR 6.02.03 & 6.02.06)
5	RECEPTION OF A TRAIN ON OBSTRUCTED LINE:	Whenever trains are to be admitted on an obstructed line it is necessary that the train is piloted in on a written authority given by the SM on duty and delivered by a competent Railway servant to the Loco Pilot of the train or by taking off calling-on signal. [Refer GR 5.09 & SRs there to]
6	RECEPTION OF A TRAIN ON NON-SIGNALLED LINE:	NIL

7	DEFECTIVE SIGNALS	Whenever signals become defective, the procedure laid down in GR & SR shall be followed. [Refer GR 3.68 to 3.71, 3.80 and SR 3.68.01©] In the event of signal showing no lights, station master on duty shall before giving line clear initiate action in accordance with the procedure laid down in GR and relevant SRs. [Refer GR 3.51, 3.69, 3.49(4), 3.68 to 3.77]
8	DEFECTIVE/DAMAGED POINTS	When any point fails to operate normally by the route setting operation or individually through Panel it is inevitable to operate the points with crank handle. The SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the Route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for the use of crank handle (GR 3.77).

6.9 PROVISIONS FOR WORKING OF MOTOR TROLLIES / MATERIAL LORRIES:

(a) Motor trolleys on "Following line clear" are prohibited on sections BCHL-KRDL and BCHL-BHNS vide DSO/WAT's No. WTA/2 of 11.09.79.
(b) Material trolley working on **Form 'B'** is prohibited in sections BCHL-KRDL and BCHL-BHNS vide safety circular no. 10/88 of 30.03.88.

7. BLOCKING OF LINE:

Whenever a running line is blocked either by loose vehicles or by stabling train or by a train which is to cross or give precedence to another train, the points at either end should
Immediately be set against the blocked line except during shunting movement. A clear remark in 'RED' ink shall be made immediately in the train signal register and a record shall be made in the Station Master's diary also. Stable load register is also to be maintained. The stable load or loose vehicles are to be secured to prevent rolling down of vehicles. [Refer SR 3.36.3(b), GR 5.23 and SR 5.23.01]

A. SECURING OF VEHICLES: -

As far as practicable, loose vehicle shall not be allowed to stand on the running line. However under unavoidable circumstances, if it is necessary to detach vehicle from a train
Or to stable a train and leave them standing on the running line, the SS on duty shall be responsible to secure the vehicle/stable loads to prevent rolling down of vehicles and arrest obstruction and fouling.
NOTE:
Special care should be taken to secure special type vehicles fitted with roller bearing while standing in siding or in running lines. [Refer GR 5.23 & SR 5.23.01]

B. USE OF REMINDER BLOCK COLLARS:-

Whenever any running line is blocked or when a train is stopped to cross another train or detained for any other reason, even for a short while or during shunting operations, reminder collars shall be used by the SM on duty on the push buttons concerned.

8. SHUNTING:-

8.1 GENERAL PRECAUTIONS.

Shunting shall be carried out at the station in accordance with General Rule and relevant Subsidiary Rules and Block working Manual [Refer GR 3.46, 3.52 to 3.56, 5.13,5.14,5.16 to 5.23, 8.05,8.06, 8.14 and 8.15] with relevant SRs and OM 7.01, 7.07, 7.08 shall be followed.
NOTE:
For any non signalled movement physical verification of the clearance of the crossover points shall be ensured by the Guard/SM on duty for supervising shunting operations.

SHUNTING OPERATIONS AT BCHL "A" CABIN

Shunting operations shall be carried out by taking off concerned shunt signals.

Shunting shall be carried out at the cabin in accordance with General Rule and relevant Subsidiary Rules and Block working Manual [Refer GR 3.46, 3.52 to 3.56, 5.13,5.14,5.16 to 5.23, 8.05,8.06, 8.14 and 8.15] with relevant SRs and OM 7.01, 7.07, 7.08 shall be followed.

NOTE:
For any non signalled movement physical verification of the clearance of the crossover points shall be ensured by the YM/Guard/SM on duty for supervising shunting operations.

8.2 SHUNTING IN FACE OF AN APPROACHING TRAIN:

Shunting in the face of an approach train is strictly prohibited vide GR 8.09 and SR there to.

8.3 PROHIBITION OF SHUNTING, SPECIAL FEATURES IF ANY:

i) Hand shunting is prohibited at both ends of the yard vide GR 5.20.
ii) Fly shunting is prohibited at both ends of the yard vide SR 5.21.01 (c).
iii) For shunting in both ends of the yard, engine should be leading towards the falling gradient.
iv) No Shunting shall be allowed at both ends, unless sufficient number of brakes is put on and all precautions are taken to prevent vehicles getting out of control.
v) Shunting shall be supervised by person as specified in para 5.13 and 5.14 of G&SR.
vi) While shunting, it shall be ensured that visibility is cleared and weather is fair.

8.4 SHUNTING ON SINGLE LINE:

i) Within station section: Governed by GR 8.10.
ii) Between last stop signal and opposite first stop signal: Governed by GR 8.12.
iii) Beyond opposite first stop signal: Unless the line is blocked back, the line outside the first stop signal shall not be obstructed vide GR 8.13.
iv) During failure of Block instrument: Block back messages shall be exchanged between Station master at either end of the section which is intended to be obstructed supported by private number. Both the Station Masters shall fix line block collars on respective Block Instruments and shall continue shunting provided the Block section is clear.

8.5 SHUNTING ON DOUBLE LINE:

Not applicable.

8.6 SHUNTING IN THE SIDING TAKING OFF FROM THE STATION YARD :

Not applicable to this station.

9. ABNORMAL CONDITIONS:

(Procedure to be followed for working trains during abnormal working).

a) RULES TO BE OBSERVED IN THE EVENT OF FOLLOWING ABNORMAL CONDITIONS:

i) During partial interruption/failure of electrical communication instruments SR 6.02.06 shall be followed.
ii) The authority to proceed in the occupied block section in case of obstruction of line or accident etc is T/A-602 and SR 6.02.05 shall be followed.
iii) Trains delayed in the block section: GR 6.04 and relevant SRs shall be followed.
iv) Failure/ passing of IBS signed in ON position: Not applicable.
v) Failure of Axle Counter Block/BPAC: Procedure to be followed vide GR 14.13 & 14.14.
i) Failure of MTRC: Not applicable.

b) (i)PROCEDURE FOR EMERGENCY OPERATION OF POINTS BY CRANK HANDLE.

The detailed Procedure for emergency operation of points by Crank Handle of motor operated points shall be followed.

Crank handle operation is interlocked with the signalling and interlocking system at this station. Key of crank handles normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out only when all signals leading over the points are in the Normal position and the route is not locked for whatever reasons. Crank Handle can be released by operating common 'TRANS' push button and concerned Crank handle control push button simultaneously. When this key is taken out, no signal to the concerned point can be taken 'OFF' in the yard. This key can be electrically transmitted at both ends of the yard.

On account of the doubtful operation of any track circuit by a light vehicle including self propelled vehicle such as Motor trolley or light Diesel/electrical engine or tower wagon, indicating the occupancy of the track. It is necessary that SM on duty satisfies himself that the said vehicle has cleared point zone track circuits by observing the track indications of the track on either side of the cross over by positively checking the entrance and exit track circuits are showing occupancy and clearance in accordance with the train movement.

(ii) Procedure for emergency operation of points with point zone Track circuits failure and emergency route release:

Emergency point operation facility is provided to operate the point from the panel in case of failure of point controlling track circuit. A push button (Black with Red dot) for emergency point operation is provided on the top of the Panel. If such operation is necessary, the SM on duty, after ensuring that SM's point Key is 'IN' and no vehicle is standing on the concerned point zone shall press the emergency point operation button (by breaking the seal) along with relevant point button simultaneously.

Then keeping point button pressed, emergency point button to be released and the point group normal button or point group reverse button is to be pressed for operating the point
to 'NORMAL or REVERSE. Every emergency point operation shall be recorded in the station diary and in the register meant for this purpose.
Rules regarding locking of points and damaged points vide GR 3.39 and GR 3.77 to be followed.

(iii) Procedure for EMERGENCY ROUTE RELEASE

The Panel interlocking is based on the principle of 'DEAD APPROACH LOCKING'. As such when a route is set and signal is taken 'OFF' on the route, the route gets locked. Normally the route is released by the passage of the train over the route.

When it becomes necessary to alter the route after the signal has been taken 'OFF' vide SR 3.36.02(a), the concerned signal must be put back to Danger by simultaneously pressing the signal cancellation button and concerned signal button. After this, first the emergency route release button (White with Red Dot) positioned on the top of the panel to be pressed after breaking seal and subsequently the concerned signal button is to be pressed. A white light will be lit indicating that the timer is working. After a lapse of 120 seconds the white light along with the white strip of light will disappear suggesting that the route has been released. In case the route illumination (white strip lights) does not disappear, it suggests that the route is not released/cancelled. In such case the concerned S&T staff should be advised immediately to release by rectifying the fault. It is to be ensured that after every emergency route release operation S&T staff shall seal the emergency route release button.

Each operation of emergency cancellation of route should be recorded in the emergency route release counter register by registering the next higher number. All such operations and the new number should be recorded in the station diary counter register and in the train signal register.

c) CERTIFICATIONS OF CLEARANCE OF TRACK BEFORE CALLING ON SIGNAL OPERATION ARE INITIATED:

Before taking off calling on signal clearance of the line on which the train is to be admitted and to be ensured by SS/SM on duty.

d) REPORTING FAILURE OF POINTS, TRACK CIRCUITS/AXLE COUNTERS AND INTERLOCKING.

i) All failure whether relevant to points, signals, track circuits, axle counters or block instruments shall be promptly reported by SM on duty to the concerned S&T maintainer

ii) through a memo immediately and shall resume normal working only after rectifying the concerned gear at fault and obtained a memo from S&T maintainer concerned.

iii) Such failures are to be recorded in the signal failure register, SM's diary, TSR and urgent order book.

9.1 TOTAL FAILURE OF COMMUNICATIONS:

In the event of total failure of communications, SR 6.02.04 shall be observed.

9.2 TEMPORARY SINGLE LINE WORKING ON DOUBLE LINE SECTION:

Not applicable

9.3 DESPATCH OF TRAINS UNDER AUTHORITY TO PROCEED WITHOUT LINE CLEAR OR UNDER BLOCK TICKET TO ASSIST THE CRIPPLED TRAINS:

a) During total interruption of communications, while allowing the trains under authority to proceed without line clear, the relevant provisions under SR 6.02.04 shall be followed.

b) The last stop signal shall not be taken 'OFF' but an authority to pass the last stop signal at 'ON' in the prescribed Form T/B 602 shall be issued.

c) ISSUE OF BLOCK TICKET (T/A 602):

Rules and regulations for working trains on an obstructed line in case of obstruction or an accident on the authority of block ticket (T/A-602) when communications are available shall be followed, in accordance with the provisions of SR 6.02.05.

10. VISIBILITY TEST OBJECT:

The signal lights of UP starter signal No.17 and DN starter signal No. 14 of Loop line (L-1) are earmarked to serve as visibility Test object during day and night vide GR.3.61(2)(b)(iii).

11. **ESSENTIAL EQUIPMENT AT THE STATION:**

(Details are given in Appendix-'E')

12. **FOG SIGNALS AND STAFF NOMINATED TO BE CALLED IN CASE OF FOG:**

In case of thick, foggy or tempestuous weather impairing visibility, whenever it is necessary to indicate to the Loco Pilot of an approaching train the locality of a signal, the SM on duty at station shall arrange for signalling in terms of General Rules 3.61 and Subsidiary Rules thereto. The assurance of the staff shall be obtained in the month of OCTOBER every year in the Fog Signal Register vide SR.3.61 as a token of their acknowledgement in fog signalling Rules.

Fog signalmen shall be detailed for duty at stations being recruited partly from the station traffic staff and partly from Engineering Gang man and must not be substitutes or casual labour but regular employees of the railway.

12.1 STATION DETONATOR REGISTER (OPT/124):

A Register regarding detonator is maintained at the station.

12.2 INSTRUCTIONS:

a. This register contains the following parts.

Part. - I: Particulars of fog signal men posted at the station from time to time.
Part – II: Particulars of receipt and stock of detonating (fog) signals at the station to be filled in whenever detonators are used or received.
Part – III: Periods of fogs, fog signalmen on duty and details of detonators used.
Part – IV: Particulars of issue and testing of fog signals at the station.

b. In charge of the station shall ensure that the information maintained in the register is kept up to date and is accurate in all respects.

c. Transportation inspectors shall check the registers and also the stock of detonators on hand each time they visit the station and initial with date as an indication having done so.

13. APPENDICES:

APPENDIX 'A'	Working of level Crossing gates.
APPENDIX 'B'	System of signalling and interlocking and Telecommunications
APPENDIX 'C'	Anti Collision Device (Raksha Kavach).
APPENDIX 'D'	Duties of Train Passing Staff and Staff in each shift.
APPENDIX 'E'	List of Essential equipment provided at the Station.
APPENDIX 'F'	Working of DK stations, halts, IBH, IBS and outlying sidings.
APPENDIX 'G'	Rules for working of trains in electrified sections.

APPENDIX 'A'

WORKING OF LEVEL CROSSING GATES AT BACHELI STATION & A/Cabin

--NIL--

EAST COAST RAILWAY
WALTAIR DIVISION

APPENDIX 'B'
SYSTEM OF SIGNALLING AND INTERLOCKING AND TELECOMMUNICATIONS

1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALLATIONS:

BACHELI is a 'B' Class station with Standard II(R) Interlocking (with isolation) The Station Working Rule diagram no: SI/WRD/23165 Alt "C". (ii) CSTE/East Coast Railway Signal Interlocking Plan No: SI/23165 Alt "C. The points and signals are power operated from a composite miniature 'DOMINO TYPE' full-fledged panel installed in the Station Master's room. This station is equipped with manually operated Multi Aspect Colour Light Signalling.

1.1 **Description of Panel** :

The yard layout is depicted on the panel board in a miniature form and is fixed parallel to the track, so that when the Station Master on duty faces this panel, the Yard drawing on the panel corresponds to the actual field layout in either direction.

1.2 **Point Buttons** :

Push buttons Black for individual operation of points are provided for each point. Point group push buttons (black with red dot) for operation of points normal/reverse are also provided. Point button and point Group button normal/reverse shall conjunctively be pressed for operation of point to required position. To indicate the position of point, a small indicator lamp is provided on panel above the concerned points.

1.3 When a point is set correctly in normal, a white steady strip indication appears suggesting that the point is in normal position.

1.4 When a point is set correctly in Reverse, a white steady strip indication appears suggesting that the point is in Reverse position.

1.5 When the points of any route have been correctly set and relevant signals taken off a Red indication appears indicating the concerned points are locked either in normal or Reverse position as the case may be.

1.6 When the point starts to operate to normal/reverse position, the white strip indication will start flashing till the concerned point housed in required position. After the point housed in required position i.e. normal/reverse, the white flashing indication extinguished and steady point indication will glow for normal/reverse suggesting the point in correctly housed.

Points are operated to normal or Reverse by pressing individual point button in conjunction with the point group button there by the white strip indication will start flashing till the points are set to normal or reverse position and locked. Then the white steady strip indication will appear for Normal point zone or reverse point zone will appear as the case may be. During

automatic route setting for train operation also, the same indications will glow.

1.7 OPERATION OF POINTS :

1.7.1 All running line points are operated by Electric point machine.

1.7.2. In the event of the point could not be set in the desired position, the concerned points are to be checked by the Station Master on duty according to G&SR 3.68.01(c) and if there is a defect other than obstruction the point has to be considered as defective and action shall be taken for clamping and pad locking these points in the desired position by the Station Master on duty himself for all trains according to SR 3.69.03(c).

2. DESCRIPTION OF POINT BUTTONS AT BACHELI :

Sl. No.	Point Button No.	Colour	Description
1.	101 WN	Black	Cross-over point between Main line and Bi-directional line at BHNS end.
2.	102 WN	Black	Cross-over point between Main line and line no.3 at KRDL end.
3.	103 WN	Black	Slip siding point at BHNS end.
4.	104 WN	Black	Cross-over point between Main line and Line no.1 at KRDL end.
5.	105 WN	Black	Cross-over point between Main line and NMDC line no.1 at BHNS end.
6.	106 WN	Black	Cross-over point between L-3 and L-4 at KRDL end.
7.	107 WN	Black	DS on shunting neck of L-3 at BHNS end.
8	109 WN	Black	Cross-over point between L-2 and L-3 at BHNS end.
9	111 WN	Black	Cross-over point between L-3 and L-4 at BHNS end.
10	113 WN	Black	Cross-over point between L-1 and L-2 at BHNS end.
11.	Point group button (Normal)	Black with Red dot.	Common button for normal operation of points.
12.	Point Group Button (Reverse)	Black and Red dot.	Common button for Reverse operation of points.

2.1 DESCRIPTION OF SIGNAL BUTTONS:

Sl.	Signal Button No.	Colour	Description
1	C-1GN	Red with white dot	Calling-on signal button for Main yard and Reception yard.
2	S-1GN	Red	Main signal button for Main yard and R&D yard.
3	C-2GN	Red with white dot	Calling-on signal button for Main yard L-1 to
4	S-2GN	Red	Main signal button for Main yard L-1 to L-4.

5	S-3GN	Red	Main signal button for Main yard L-1 to L-4 and NMDC L-1.
6	C-3GN	Red with white dot	Calling-on signal button for Main yard L-1 to L-4 and NMDC L-1.
7	SH-4GN	Yellow	Shunt signal button for Main yard -L1 to L-4.
8	S-8GN	Red	DN Starter signal for Main yard L-4.
11	SH-8GN	Yellow	Dependent shunt signal button on L-4 of Main yard for shunting in shunting neck.
12	SH-9GN	Yellow	Shunt signal button for Main yard L-1 to L-4.
13	S-10GN	Red	DN Starter signal for Main yard L-3.
14	SH-10GN	Yellow	Dependent shunt signal button on L-3 of Main yard for shunting in shunting neck.
15	SH-11 GN	Yellow	Independent Shunt signal button on shunting neck for shunting in L-3 & L-4
16	S-12 GN	Red	DN Starter signal button on L-2 of Main yard.
17	S-14 GN	Red	DN Starter signal button on L-1 of Main yard.
18	S-16 GN	Red	DN Intermediate starter button on Main yard.
19	S-17 GN	Red	UP Starter signal button on L-1 of Main yard.
20	S-18 GN	Red	DN intermediate starter signal button on NMDC L-1.
21	S-19 GN	Red	UP Starter signal button on L-2 of Main yard.
22	Slot-20 GN	Green	Button for Slot extended to 'A' cabin for taking off signals SH-12A,14), S-4,S-6,S-8,S-10, S-12 on NMDC L-1.
23	S-21 GN	Red	UP Starter signal button on L-3 of Main yard.
24	Slot-22 GN	Green	Button for Slot extended to 'A' cabin for taking off intermediate starter no.60.
25	S-23 GN	Red	UP Starter signal button on L-4 of Main yard.
26	S-25 GN	Red	UP Advanced starter button.

3. ROUTE BUTTONS:

Sl no	Route button No.	Colour	Description
1	L-1/1 UN	White with Black dot	Common route button for signals C-2A, S-3A, C-3A, SH-4A, SH-9A routes for reception of trains on Line no.1 of main yard.
2	L-1/2 UN	White	Common route button for signals S-2A, S-3A routes for reception of trains on Line no.1 of main yard.
3	L-2 UN	White	Common route button for signals S-2B, C-2B, S-3B, C-3B, SH-4B, SH-9B routes for reception of trains

			on Line no.2 of main yard.
4	L-3/1 UN	White with Black dot	Common route button for signals S-2C, C-2C, S-3C, C-3C, SH-4C, SH-9C, SH-11A routes for reception of trains on Line no.3 of main yard.
5.	L-3/2 UN	White	Common route button for signals S-2C, S-3C routes for reception of trains on Line no.3 of main yard.
6.	L-4 UN	White with Black dot	Common route button for signals S-2D, C-2D, S-3D, C-3D, SH-4D, SH-9D, SH-11B routes for reception of trains on Line no.4 of main yard.
7	3A UN	White	Common route button for signals S-1B, C-1B for admission of train on main yard.
8	16A UN	White	Common route button for starter signals S-8, S-10, S-12 and S-14 on main yard towards KTV end.
9	18 UN	White	Route button for intermediate starter signal no. 60.
10	25A UN	White	Common route button for starter signals S-17, S-19, S-21 and S-23 on main yard towards KRDL end.
11	25UN	White	Route button for UP advanced starter.
12	60A UN	White	Common route button for intermediate starter signal S-16, S-18 towards KTV end.
13	60 UN	White	Route button for DN advanced starter.
14	SN-UN	White	Common route button on shunting neck for SH8 & SH10.
15	Group (Trans)	White with Black dot	Common Trans button for crank handle and siding control.
16	Group Restore	White with Black dot	Common Restore button for crank handle and siding control.

4. CRANK HANDLE PUSH BUTTONS:

Sl no	CRANK HANDLE	CONTROL POINTS
1	CH-1	101 A/B
2	CH-2	103, 105 A/B
3	CH-3	107, 111 A/B
4	CH-4	109 A/B, 113 A/B
5	CH-5	102A/B, 106A/B
6	CH-6	104A/B

5 MISCELLANEOUS PUSH BUTTONS:

SL No.	Button No	Colour	Description
1	SM's EMERGENCY POINT OPERATION KEY	---	This key is to be inserted and operated in the event of Emergency point operation

2	SM's PANEL KEY	---	To lock the control panel to prevent unauthorized operation
3	GROUP TRANS PUSH BUTTON	WHITE WITH BLACK DOT	To be pressed to initiate slot or crank handle or LC gate operation along with concerned slot/Crank Handle/L.C.Gate button.
4	GROUP RELEASE PUSH BUTTON	WHITE WITH BLACK DOT	To be pressed to withdraw/Normalize the control of slot of crank handle or LC gate operation along with concerned slot/Crank Handle/L.C.Gate push button.
5	POINT GROUP NORMAL PUSH BUTTON	BLACK WITH RED DOT	To be pressed to initiate' NORMAL setting of point along with concerned point push button.
6	POINT GROUP REVERSE PUSH BUTTON	BLACK WITH RED DOT	To be pressed to initiate' REVERSE' setting of point along with concerned point push button.
7	EMERGENCY ROUTE RELEASE PUSH BUTTON	WHITE WITH RED DOT	To be pressed for emergency Route Release
8	SIGNAL CANCELLATION PUSH BUTTON	RED	To be pressed for 34cancelling a signal which is already taken 'OFF' or to release a route after passage of a train.
9	SIGNAL LAMPFAILURE ACKNOWLEDGEMENT	RED WITH WHITE DOT	To be pressed for acknowledging signal lamp failure.
10	POINT FAILURE ACKNOWLEDGEMENT	BLACK WITH WHITE DOT	To be pressed for acknowledging point failure.
11	EMERGENCY POINT OPERATION	BLACK WITH RED DOT	To be pressed to operate the point when concerned point zone track circuit failed.
12	BUTTON HELD ACKNOWLEDGEMENT PUSH BUTTON	WHITE WITH RED DOT	To be pressed for silencing button held buzzer in case of any push button remains pressed after the button is released.
13	UP TRAIN ARRIVED ACK PUSH BUTTON	CHOCOLATE WITH WHITE DOT	To be pressed for normalizing the Block instrument for section BHNS-BCHL.
14	DN TRAIN ARRIVED ACK PUSH BUTTON	CHOCOLATE WITH WHITE DOT	To be pressed for normalizing the Block instrument for section KRDL-BCHL.
16	SM'S COMMON AXLE COUNTER RESET KEY	----	SM's common reset key to be inserted and turned for resetting of axle counters along with concerned axle counter reset button.

6.<u>POWER FAILURE INDICATION/BUZZER AND POWER ACKNOWLEDGEMENT:</u>

Power supply to the signalling installation is through integrated power supply system. The IPS is

normally fed through AT supply. The 1st standby power supply is Local (CSEB) and 2nd standby power supply is through DG set. The available local / DG supply is fed to the IPS through auto change over switch provided in IPS. In the event of failure of local supply, the SM on duty shall start the Diesel generator. The power supply of D.G.set is fed to the auto change over switch provided in IPS. Through auto change over switch the D.G. set power supply will be extended to the IPS.

The IPS system is connected with battery for safe working during transition of power.

7. REMOTE MONITORING:

ASM console for IPS is provided at SM's office, which will give the following instructions.

	Instruction	**Condition**	**LED Indication**	**Remarks**
A	Run Get Set	50% DOD	Red	Auto/ Visual alarm. Alarm shall be acknowledged by SM on duty
B	Emergency start Generator	60% DOD	Red	-do-
C	System shut down	70% DOD	Red	Signal feed cut off and all DC-DC converters to work. Audio alarm will continue till Generator is started.
D	Call S&T Staff	Equipment fault	Red	Failure of any module will give the alarm is ASM's panel. Alarm shall be acknowledged by SM on Duty for audio cut off.

In the event of failure of Remote monitoring ASM console due to any reason when local power is failed the SM on duty shall start D.G. Set immediately. In case "call S&T staff" or "System shut down" is appears on the remote monitoring panel of IPS and / or malfunctioning of the Remote monitoring panel SM on duty shall inform the same to the concerned S&T staff immediately.

7.1 **SIGNAL (LED)/POINT FAILURE INDICATION (RED SIGNAL LAMP MUTTING BUTTON RED WITH WHITE DOT):**

Whenever LED signal becomes blank, as point failure, a flashing Red light indication appears along with an audible buzzer indicates Signal lamp as point failure. The Station Master on duty shall press the signal lamp/point failure Ack. Button thereby the buzzer stops but the Red indication lamp becomes steady which continues till either the LED signal is replaced/rectification of point failure.

7.2 **BUTTON HELD INDICATION WHITE/BUTTON BUZZER WHITE WITH RED DOT:**

Whenever any button remains held up in pressed condition 'Button Held' white. Indication starts flashing along with an audible buzzer. The Station Master on duty then acknowledge it by pressing the "Button Held" push button (white with red dot) the buzzer stops but the white indication continues to flash till the same is rectified.

8. TRACK CIRCUITS / AXLE COUNTERS:

The following track circuits are provided in BCHL yard.

1AT, 1T, 101AT, 101BT, 58T, 3AT1, 3AT, 3T, 103T, 105AT, 105BT, 16AT, 18T, 109AT, 109BT, 111T, 113T, ,L1T1 L2T1, L3T1 L4T1, L1T2 L2T2, L3T2, L4T2,L1T3 ,L2T3,L3T3,L4T3,L4T4,106T,102T,102BT, 104BT, 25AT, 2T, 2AT, 5AT2, 5AT1, 5AT and 5T.

AT BCHL "A" CABIN: - 5T, 60AT, 115T, 117T, 45AT, 43AT, 41AT, 109T, 21T, 110T, 112AT, 112BT, 14AT, 108AT, 108BT, 106T and 102T.

The following analog & HASSDAC axle counters are provided at BCHL yard:

I) on line No 4, 4AXTis replaced with the L4T2 berthing track, ii).On L1 NMDC line , L1AXT Provided High Availability Single Section Digital axle counter (HASSDAC)iii) another High Availability Single Section Digital axle counter (HASSDAC) for last vehicle verification between BCHL-BHNS Block section to prove clearance/occupancy of the track. The occupation of the axle counter section is indicated on the Axle counter box by RED indication. If the Axle counter zone (HASSDAC) shows occupation indication (RED) continuously on the Axle counter box after passage of train due to failure of the same, then SS/SM on duty shall initiate resetting procedure. Refer Para No. of Appendix-"B".

For section BCHL-BHNS:

A pair of HASSDAC axle counter is provided between BCHL-BHNS one at just beyond DN advanced starter signal No. 60 of BCHL and another at DN home 11 of BHNS for last vehicle verification. If the Axle counter zone (HASSDAC) shows occupation indication (RED) continuously on the Axle counter box after passage of train due to failure of the same, then SS/SM on duty shall initiate resetting procedure. Refer Para No. of Appendix-"B".

For section BCHL-KRDL:

A pair of Digital axle counter is provided between BCHL-KRDL one at just beyond UP Advance starter signal no.25 of BCHL and another at UP home of KRDL for last vehicle verification.

For NMDC Line as L1 AXT:

A pair of High Availability Single Section Digital Axle counter (HASSDAC) [L1 AXT] is provided on NMDC Line No 1 of BCHL one detection point just beyond starter signal No 18 on 18T track circuit and another detection point just beyond stop signal No 21 on 21T track circuit.

The position of the Block section whether clear or occupied is reflected on the axle counter reset box provided in the Station Master's office which shows 'GREEN' when the Block Section is clear and 'RED' when occupied. Whenever a train enters in to the Block Section, "Block Section Clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears. After complete arrival of the train the 'RED' indication will disappear and 'GREEN' indication will appear. If after the complete arrival of the train the 'RED' indication does not change to 'GREEN' it should be assumed as Block Instrument failure for the particular section and necessary action as per GR.14.13 is to be followed. The axle counters are interlocked with the respective block instruments for that section. If axle counter fails, Advanced Starter signal cannot be taken off for next train and the concerned instrument shall remain locked in last operated position.

A resetting arrangement is provided in the SM office to reset the system to normal position in

case of failure of axle counter. The resetting to be initiated by the SM at the receiving station only after physical verification of complete arrival of train by exchanging private number. The resetting can be accomplished only with the co-operation of SMs at either end of the block section.

RESETTING OPERATION FOR HASSDAC[L1AXT]

After complete arrival of train, if L1AXT does not clear and clear indication (Green) does not appear in the panel/reset box provided at the BCHL station as well as at BCHL "A" cabin. For resetting of HASSDAC both SMs will press the key and reset button at a time for about 5 seconds. On successful completion of reset procedure the system goes preparatory reset state and preparatory reset miniature indication (Green) glows on the Reset Boxes provided at BCHL Station & BCHL "A" cabin. The counter reading incremented after a gap of 5 seconds approximately. The counter reading should be recorded in the concerned register by SM on duty. Then one train is to be piloted out/In or to be receiving by calling ON signal in the L1 AXT to make the system normal. If the Axle Counter works properly, then L1AXT cleared indication 'Green' will appear on the Reset box and the concerned working will be normalized after arrival of train which is piloted our or received on Calling ON.

If L1AXT indication does not appear 'Green' and continues to show 'Red' Indication failure intimation is to be given to sectional signal Maintainer/JE/SE (Signal) for early rectification.

S. No.	Indication	Automatic action taken by Equipment	Action by SM
1.	Only SSDAC-1 fails after arrival of the train	System resets automatically	NIL
2.	Only SSDAC-2 fails after arrival of the train	System resets automatically	NIL
3.	Both SSDAC-1 & 2 Fails after arrival of the train (or)for any reason	No automatic action	SM to reset the system as procedure laid down in the Para No.6.1 and makes an entry in the axle counter register.
4.	Both SSDAC-1 & 2 Fails even after reset by SMs of both the end	No automatic action	Enter in Signal Failure Register issue failure memo to signal technician. Procedure to be adopted is same as laid down.
5.	Either SSDAC-1 or SSDAC-2 fails continuously for long time	--------	Report to signal staff without entering in signal failure

NOTE:

Before taking off reception and dispatch signals for UP or down directions the SM on duty should ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication.

9. CRANK HANDLE FOR EMERGENCY OPERATION OF POINTS:

Crank handle key of point machine is inter locked with the signalling and inter locking system at this station and the crank handle key of point machine which is normally locked up in the RKT instrument at the East and West location can be taken out when the signals for the connected route, are in the normal position and the route is not locked for any reason. Even when the route is locked the crank handle key of point machine can be extracted from the RKT through emergency operation by pressing crank handle key of point machine button along with Group Trans button. The release

Can be affected by pressing the push button for its release and when this key is taken out the signals leading over the particular point in either direction cannot be taken off.

9.1 **CRANK HANDLE CONTROL FOR OPRATION OF POINTS:**

Sl No.	Crank Handle	Control points
1	CH-1	101 A/B
2	CH-2	103, 105 A/B
3	CH-3	107, 111 A/B
4	CH-4	109 A/B, 113 A/B
5	CH-5	102A/B, 106A/B
6	CH-6	104A/B

9.1.1. On account of the doubtful operation of any track circuit by light vehicle/ vehicle including self propelled vehicles such as motor trolley or a diesel shunting engine or a tower wagon, in indication of the occupancy of the track it is necessary that the station master on duty satisfied himself that the said vehicle/ vehicles has/have cleared the point zone track circuits by observing the track indication of the tracks on either side of the cross over by positively checking of the ENTRANCE and EXIT track circuit are showing occupancy and clearance in accordance with the train movement.

9.1.2. **STATION MASTER'S KEY:**

The panel is also fitted with Station Master's lock up key to prevent unauthorized operation of this panel but with the arrangement to put back the signal to the ON position in the case of emergency without altering the route when the panel is in locked position.

9.3. **EMERGENCY OPERATIONS:**

The following are the instructions for Emergency operations.

9.3.1 CANCELLATION BUTTON OR COUNTER:

For the purpose of the emergency operations there is an emergency Route cancellation and also there is a counter for counting emergency operations involving the concurrent operation of the emergency route cancellation button. The station master on duty must press the emergency route button by breaking the seal along with concerned signal button for which emergency route releases is required. A yellow indication will appear below the signal indicating that the timer has started operation and after lapse of 12Ca0 seconds. The desired route will be released provided all other conditions are favourable for the route release. The

counter registers to next higher number every time emergency route cancellation is initiated. SM on duty shall ensure sealing of emergency route cancellation button by S&T maintenance staff after completion of the work.

The numbers on the counter register the number of operations performed for such emergency cancellation and the station master on duty should specify the cause for such usage giving the particulars of cause and the time of operation as related to a Particular train etc. in the train signal register. The detailed operation instructions are as follows:

EAST COAST RAILWAY
WALTAIR DIVISION

APPENDIX-C

ANTI COLLISION DEVICE (RAKSHA KAVACH)

-NIL-

EAST COAST RAILWAY
WALTAIR DIVISION

APPENDIX 'D'

The following staff are concerned with the movement of the trains whose duties are given below: AT BCHL STATION

COMPLEMENT OF STAFF	STAFF IN EACH SHIFT
STATION SUPERINTENDENT/ STATION MASTER (INCHARGE)	**01 (General)**
STATION SUPERINTENDENT/ STATION MASTER	**01**
TRAFFIC POINTS MAN	**02**

The following staffs are concerned with the movement of the trains whose duties are given below: AT BCHL"A" CABIN IN EACH SHIFIT.

COMPLEMENT OF STAFF	STAFF IN EACH SHIFT
STATION SUPERINTENDENT/STATION MASTER	1
TRAFFIC POINTS MAN	3

1. STATION SUPRITENDENT/ STATION MASTER (IN CHARGE):

1. Station in-charge is responsible for the efficient discharge of duties by different members of staff at his station.
2. He shall ensure that the general working of the station is being carried out in strict accordance with the current rules, procedures and instructions.
3. He is responsible for trains passing during his shift.
4. He shall maintain complete and up to date record of Engg./S&T/TRD restrictions. He shall be responsible for bringing forward the caution order register every Monday.
5. He shall be responsible for maintaining Accident Register and Accident Charts and keeping these up to date.
6. He shall maintain figures in respect of the stock and get them relayed to the control in time.
7. He is responsible for the general and satisfactory working of the station and for the efficient discharge of duties by staff working under him.
8. He shall keep all Rule books, Registers, Files and documents neat and up to date.
9. He shall ensure that all equipment, apparatus, and instruments including signaling and interlocking gears and fittings are kept clean and oiled by S&T officials.
10. He shall follow the instructions laid down in SR.3.68.01 (c) and (d) and SR 14.07.01 and B.W.M.2.09 (e).
11. He shall promptly attend to accidents and report them.
12. He shall ensure that fire fighting equipment at the station such as fire extinguisher,

fire buckets etc. are in good fettle and ready for use.

13. He must ensure that the essential safety equipment at his station are the same complete and in good condition. If there is any deficiency it should be made good without delay.
14. He shall see that TSR, SM's Diary, Inspection Note Book, Reference Books and other station record is properly maintained and preserved for a minimum period as prescribed in this Operating Manual.
15. He shall ensure that all correction slips of Manuals and SWR are posted and changes are made in respective pages.
16. He shall supervise the work of safe working staff and conduct night inspections and report lapses of staff working under him.
17. His special attention is drawn to Chapter-II of G&SR and GR 5.01 to 5.08 with relevant SRs and O.M. Chapter-2.

2. STATION SUPRITENDENT/ STATION MASTER

a) He shall come on duty after taking complete rest and shall not perform his duty under the influence of drugs or intoxicants.
b) When on duty or when called upon to do so, in case of emergency, he shall be responsible for obtaining and granting line clear to trains as per SWR & GR.
c) He shall handle the control VDU/Panel himself when on duty and shall not permit any unauthorized person to manipulate panel.
d) He shall keep the SM's control keys of control panel in his personal custody whenever, he is required to leave his office even for a short duration.
e) While coming on duty, he shall ensure that all points and signals are in good working order and all the registers, records, pertaining to train passage are completed in all respect before taking over the charge.
f) He shall personally ensure that conditions for taking off the reception signals are fulfilled and the clearance of line is verified as per SWR before actually pressing the relevant button for taking off the signals.
g) He shall ensure from indications available in the panel that the signals are burning brightly and are giving correct indications.
h) He shall ensure that proper indications of points, signals, track circuits, crank handle, level crossing gate etc., are displayed at their proper places.
i) He shall ensure that all Shunting operations are carried out as per extant orders and GR 5.19 and SRs thereof.
j) He shall inform the Technician/JE/SE(sig) in writing or through a written message, any failure of track/signals/points/keys or panels etc, and shall invariably enter these failures in Signals Failure Register.
k) He shall keep his reference books up to date, posted with latest correction slips and shall keep himself fully conversant with the extant rules. He shall keep his books, readily available for inspection when asked to do so.
l) He shall not absent himself from duty without prior permission of his superiors. He shall not leave his duty unless properly relieved by his reliever and shall not exchange his duty without prior permission of his superiors.

m) He shall not consider himself relieved of duty unless he has completed transactions of trains for which he has given/obtained line clear till the complete arrival of such trains.

4. <u>TRAFFIC POINTSMAN:</u>

a) He shall obey all lawful orders of the SS/SM on duty or official in-charge supervising the shunting during the course of shunting operations including coupling or uncoupling of vehicles, wagons fixing rubber washers, closing wagon doors, displaying hand signals etc.
b) He shall exhibit danger signal to the official supervising the shunting vehicles are fouled during shunting operation.
c) He shall pilot the trains in case of abnormal working and when ordered by the SS on duty.
d) He shall be in proper neat and clean uniform while on duty He shall come on duty after taking complete rest and shall not perform duty under the influence of liquor, drugs, or intoxicants.
e) Neither shall he absent himself from duty nor shall he exchange his duty without prior permission of his superiors.
f) He shall not leave his duty unless properly relieved or authorized by his superiors.
g) He shall set the points properly in non-interlocked yard and man them for all shunting movements and shall not interfere with the points while the vehicles are standing and or passing over them.
h) He shall be responsible to see that fouling marks are kept clear after completion of shunting.
i) He shall always commence his duty equipped with hand signal lamps during night and flags during day.
j) He shall verify the correct setting of route before delivering required papers to the Loco Pilot either though taking "OFF" the relevant shunt signal or by personal observation.
k) In case of track failure he shall assist the SM to ascertain the clearance line.
l) He shall be responsible for lighting up of the indicators in the evening and putting out in the morning time fixed by DRM office and ensure that these are burning brightly at night.

NB: - All staff should be in uniform while on duty and follow their rosters issued by DPO/WAT from time to time.

EAST COAST RAILWAY
WALTAIR DIVISION

APPENDIX 'E'

ESSENTIAL EQUIPMENT
BACHELI STATION

List of essential equipment is given below vide OM 11.15 which shall be maintained in good working order.

Sl. No.	Equipment	Station
1.	Detonators	20
2	Battery operated LED based flashing Hand Signal lamps	3(1 spare)
3	Hand Signal flags	4 (2 Spare) Sets
4	Clamps with Padlocks	6
5	Safety chains with Padlocks	6
6	Fire and Sand Buckets	5
7	DCPT fire extinguishers	2
8	First Aid-Box	1
9	Blanket woollen	1
10	Stretcher	1
11	Skids	4

AT BCHL "A" CABIN

List of essential equipment is given below vide OM 11.15 which shall be maintained in good working order.

Sl. No.	Equipment	Station
1.	Detonators	10
2	Battery operated LED based flashing Hand Signal lamps	4(1 spare)
3	Hand Signal flags	4 (1 Spare) Sets
4	Clamps with Padlocks	12
5	Safety chains with Padlocks	8
6	Fire and Sand Buckets	5
7	Fire extinguishers ((DCPT)	2
8	First Aid-Box	1
9	Stretcher	1
10	Skids	12

EAST COAST RAILWAY
WALTAIR DIVISION

APPENDIX 'F'

WORKING OF D.K. STATIONS, HALTS, IBH, IBS AND OUTLAYING SIDINGS:

N I L