

## **TRACK DESIGN DIRECTORATE**

### **Functions of Track Design Directorate:**

The main functions of Track Design Directorate are as under.

#### **A. Developmental**

- 1 Research, design and Development of:
  - i) Flat bottom rails;
  - ii) Sleepers including prestressed Concrete Sleepers;
  - iii) Conventional and Elastic Fastenings and Glued Insulated joints;
  - iv) Turnouts including techniques for resurfacing of switches and crossing;
  - v) Switch Expansion Joint;
  - vi) Ballastless track;
  - vii) Level Crossing;
  - viii) Rail welding, ultrasonic testing of rails and
  - ix) Other track components.

The process of development involves framing the specification. In case development is to be followed by field trials, further work involving preparation of detailed trial scheme, collection and analysis of data, change of design, if necessary, and final approval of the item are also undertaken.

2. Standardization of rail welding techniques by flash-butt, Alumino-thermic and gas pressure welding process.
3. Monitoring of quality of rails manufactured indigenously.
4. Framing and revision of specification for track components.

#### **B. Service Engineering.**

Consultancy to Zonal Railways on the matters pertaining to track.

#### **C Inspection**

In addition to Developmental Inspection of new items, inspection of 'Spring Setting Device and Electrodes are carried out. M&C Directorate is associated in inspections, where relevant, e.g. electrodes.

#### **E. Training**

Dissemination of technical knowledge on track matters to the Zonal Railways.

## Technical & General work Distribution of ED/Track-I & ED/Track-II

Track Design Directorate is headed by Executive Director/Track-I & Executive Director/Track-II. The directorate has four units headed by Director/Joint Director to oversee the detailed function as indicated in following paras.

1. Executive Director/ Track-I is the member-secretary of Track Standards Committee. The duties involve organization of Track Standards Committee Meeting including preparation of Agenda, Minute and circulation of Board's Orders.
2. Executive Directorate/ Track is member of various BIS Committees.

<b>Executive Director/Track-I</b>	<b>Executive Director/Track-II</b>
<p><b><u>Technical works:</u></b>  <b><u>Rail Section:</u></b>            1 Rail            2 Rail Lubrication            3 Analysis of Rail/Weld failures            4 Rail fracture detection system            5 Glued Joints            6 Fish Plate &amp; Fish Bolts            7 Rail Welding by                a) Gas pressure welding                b) Flash Butt Welding            8 LWR/CWR            9 Level Crossings            10 Retro Reflective Engineering Indicators            11 TMRS Project on Corrosion Prevention of Rails.  <b><u>Speed clearance cell:</u></b>            1. Speed Clearance of new &amp; modified rolling stock.            2. Study of results of Oscillation Trials.            3. Rail Stress Calculations methodology            4. Schedule of Dimension (SOD)            5. Studies regarding High Speed and Heavy Axle Load Operations.            6. SOD for DFC, FR and other newly developed vehicle designs and development of fixed structure gauge for the same.            7. Co-ordination of sanction of condonation of SOD for infringements            8. Standing Criteria Committee            9. Monitoring of Pilot Project on CC+8+2t and 25t axle load            10. WILD Thresholds  <b><u>Welding section:</u></b>            1. Rail Welding by AT Welding techniques.            2. Vendor Development for AT welding technique            3. USFD Testing of Rails/Welds            4. Outsourcing of USFD testing.            5. USFD Testing by Vehicular Systems            6. Analysis of weld failures</p>	<p><b><u>Technical works:</u></b>  <b><u>P&amp;C</u></b>            1. Steel Channel Sleepers &amp; Fittings            2. Welding electrodes including treatment of wheel burns &amp; cupped welds.            3. FRP, Composite &amp; ST Sleepers.            4. All types of switches &amp; crossings            5. SEJ  <b><u>Concrete sleeper Cell</u></b>            1. Concrete &amp; Wooden Sleepers            2. Inserts            3. Special Cement  <b><u>Elastic fastening cell</u></b>            1. ERC            2. Rubber Pads            3. GFN Liner            4. Metal Liners            5. Plastic Dowel            6. Single Coil Spring Washer            7. Ballastless track            8. Washable aprons            9. TMRS Project on Improved Fastenings  <b><u>General works:</u></b>            1. Service Engineering            2. Pre selection training for AEN, SE Exam.            3. Cell of so/Track            4. Rajbhasha            5. IPWE            6. Training of officers/staff / probationers            7. Track Sectional Library, Railway Board annual &amp; Year Book            8. Inspection note of ME            9. Works Program/Budget            10. Computerization of drawing            11. All Establishment matters (Gaz., Non-Gaz &amp; Class-IV except training)            12. Pre-selection training to candidates for AEN, SE exam etc.</p>

**Rail grinding section:**

1. PCDO to ME
2. Rail/Wheel interaction
3. Rail Grinding
4. Study for optimization of rail/wheel profile to increase rail life.

**General works:**

1. Track Manual & IRPWM
2. TSC Meetings
3. Logistics: Record section, office Accommodation, Furniture, Photocopiers, AMC etc.
4. ISO.
5. GMs/PCEs/CTEs/CAOs conference
6. Five year plans & Projects progress
7. Computer & Computer related correspondence and procurement training including CAD etc.
8. GCM, CBRR,
9. GMT Booklet
10. Audit & Inspection Note
11. Operation of website for Track Design Dte.
12. RDSO's quarterly & Annual Reports etc.
13. Safety

**General work Distribution of DST-I, DST/JDST-II, DST-III & DST-IV**

<b>DST-I</b>	<b>DST/JDST-II</b>
<ol style="list-style-type: none"> <li>1. Track Manual &amp; IRPWM</li> <li>2. ISO.</li> <li>3. GMs/PCEs/CTEs/CAOs conference</li> <li>4. TSC Meetings</li> <li>5. Logistics: Record section, office Accommodation, Furniture, Photocopiers, AMC etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. GMT Booklet</li> <li>2. GCM, CBRR</li> <li>3. Five year plans &amp; Projects progress</li> <li>4. Audit &amp; Inspection Note</li> <li>5. RDSO's quarterly &amp; Annual Reports etc</li> </ol>
<b>DST-III</b>	<b>DST-IV</b>
<ol style="list-style-type: none"> <li>1. Works Program/Budget</li> <li>2. All Establishment matters (Gaz., Non-Gaz &amp; Class-IV )</li> <li>3. Computerization of drawing</li> <li>4. Training of officers/staff / probationers</li> <li>5. Track Sectional Library</li> <li>6. Inspection note of ME</li> <li>7. Rajbhasha</li> </ol>	<ol style="list-style-type: none"> <li>1. Service Engineering</li> <li>2. Pre-selection training to candidates for AEN, SE exam etc.</li> <li>3. Cell of so/Track</li> <li>4. IPWE</li> <li>5. Railway Board annual &amp; Year Book</li> </ol>
<b>DST-V</b>	
<ol style="list-style-type: none"> <li>1. Safety</li> <li>2. Computer &amp; Computer related correspondence and procurement training including CAD etc.</li> <li>3. Operation of website for Track Design Dte.</li> </ol>	

## Unit wise distribution of works of Track Design Directorate

In order to rationalize the subject matters being dealt with various units and to accommodate the changes due to transfer of some officers of directorate, following redistribution of work for officers of Track Design Directorate will come into force with immediate effect:

### Executive Director/Track-I

S.No.	Unit No.	Director/Jt. Director	DD/ADE/AIEs	Works to be looked after
1	I	Sanjay Sahu, DST-I	R.K. Khare ADE/T-6	1 Rail 2 Rail Lubrication 3 Analysis of Rail/Weld failures 4 Rail fracture detection system 5 Glued Joints 6 Fish Plate & Fish Bolts 7 Rail Welding by <ol style="list-style-type: none"> <li>a) Gas pressure welding</li> <li>b) Flash Butt Welding</li> </ol> 8 LWR/CWR 9 Level Crossings 10 Retro Reflective Engineering Indicators 11 TMRS Project on Corrosion Prevention of Rails.
			J.R. Meena DDST-III	Coordinating work related to following activities pertains to EDST-I & EDST-II <ol style="list-style-type: none"> <li>1. Track Manual</li> <li>2. IRPWM</li> <li>3. TSC Meetings</li> <li>4. Logistics: record section office accommodation</li> <li>5. Furniture</li> <li>6. Photocopiers AMC etc.</li> <li>7. ISO</li> <li>8. GMs/PCEs/CTEs/CAOs conference</li> <li>9. Computer &amp; Computer related correspondence and procurement</li> <li>10. Training including CAD</li> <li>11. Operation of website for Track Design Dte.</li> <li>12. Pre selection training for AEN, SE Exam.</li> <li>13. Cell of so/Track</li> <li>14. Rajbhasha</li> <li>15. IPWE</li> <li>16. Training of officers/staff / probationers ,</li> <li>17. Track Sectional Library, Railway Board annual &amp; Year Book</li> <li>18. ME Inspection note</li> <li>19. Service Engg.</li> </ol>

				<ul style="list-style-type: none"> <li>20. GCM, CBRR, GMT Booklet</li> <li>21. Safety</li> <li>22. Five year plans &amp; Projects progress</li> <li>23. Audit &amp; Inspection Note</li> <li>24. RDSO's quarterly &amp; Annual Reports etc</li> </ul>
2	<b>II</b>	<b>S.K. Sapra DST-II</b>	M.P. Joshi, ADE/T-1	<ul style="list-style-type: none"> <li>1. Speed Clearance of new &amp; modified rolling stock.</li> <li>2. Study of results of Oscillation Trials.</li> <li>3. Rail Stress Calculations methodology</li> <li>4. Schedule of Dimension (SOD)</li> <li>5. Studies regarding High Speed &amp; Heavy Axle Load Operations.</li> <li>6. SOD for DFC, FR and other newly developed vehicle designs and development of fixed structure gauge for the same.</li> <li>7. Co-ordination of sanction of condonation of SOD for infringements</li> <li>8. Standing Criteria Committee</li> <li>9. Monitoring of Pilot Project on CC+8+2t and 25t axle load</li> <li>10. WILD Thresholds</li> </ul>
3.	<b>V</b>	<b>Rajiv Kumar DST-V</b>	D.K. Nagpal, ADE/T-2	<ul style="list-style-type: none"> <li>1. PCDO to ME</li> <li>2. Rail/Wheel interaction</li> <li>3. Rail Grinding</li> <li>4. Study for optimization of rail/wheel profile to increase rail life.</li> </ul>
			Ajay Sharma ADE/T-VII	<ul style="list-style-type: none"> <li>1. Rail Welding by AT Welding techniques.</li> <li>2. Vendor Development for AT welding technique</li> <li>3. USFD Testing of Rails/Welds</li> <li>4. Outsourcing of USFD testing.</li> <li>5. USFD Testing by Vehicular Systems</li> <li>6. Analysis of thermit weld failures.</li> </ul>

**Executive Director/Track-II**

<b>S.No.</b>	<b>Unit No.</b>	<b>Director/Jt. Director</b>	<b>DD/ ADE/AIEs</b>	<b>Works to be looked after</b>
1	<b>III</b>	<b>Alok Kumar Mishra DST-III</b>	D.S.Tomar, AIE/T-2	1. Steel Channel Sleepers & Fittings 2. Welding electrodes including treatment of wheel burns & cupped welds. 3. FRP, Composite & ST Sleepers
			V.P. Singh, ADE/T-V	1 All types of switches & crossings 2 SEJ
2	<b>IV</b>	<b>Ashwani Kumar DST-IV</b>	S.K. Awasthi, DDST/T-II	1. Concrete & Wooden Sleepers 2. Inserts 3. Special Cement
			Ritu Raj, DDST-4	1. ERC 2. Rubber Pads 3. GFN Liner 4. Metal Liners 5. Plastic Dowel 6. Single Coil Spring Washer 7. Ballastless track 8. Washable aprons 9. TMRS Project on Improved Fastenings

**Any other work as deemed necessary can be assigned by EDST/DST concerned.**

**Annexure-I****LIST OF TECHNICAL STAFF IN DIFFERENT UNITS**

<b>S.No.</b>	<b>Unit No.</b>	<b>Director/Jt. Director</b>	<b>DD/ ADE/AIEs/XEN</b>	<b>Staff attached</b>
<b>1.</b>	<b>I</b>	<b>Sanjay Sahu, DST-I</b>	R.K. Khare ADE/T-6	1. Shiv Prakash, SSE/D 2. R.K.Srivastva, SE/I 3. S.K.Tripathi, SE/I 4. Lala Bhaia Singh, SE/D 5. S.K.Nigam, JE-I/D 6. S.C.Jugran, JE-I/D 7. Ajeet Kumar, JE-I/D
			J.R. Meena DDST-III	1. S.K. Goal SSE/D 2. H.C.Nigam SE/D 3. Subhash Sharma SE/D 4. S.N.Asgar SE/D 5. Mithilesh Kumar Shukla SE/D 6. Ranjeet Prasad JE-II/D 7. Mahadeo Mahato JE-II/D 8. H.O. Khare, SSE/D 9. Bijendra Kumar JE-II/D
<b>2.</b>	<b>II</b>	<b>S.K. Sapra DST-II</b>	M.P. Joshi ADE/T-1	1. Ashok Kumar, SSE/D 2. Dharmendra Kumar, JE-II/D 3. Sujeet Kumar, JE-II/ D 4. Harendra Kumar, JE-II/D
<b>3.</b>	<b>III</b>	<b>Alok Mishra DST-III</b>	D.S.Tomar AIE/T-2	1. P.K.Bose, SSE/D 2. V.R.Sarasvat, SSE/D 3. R.L.Waghmare SSE/D 4. A.A.Faridi, SE/D 5. M.K.Mandal JE-II/D
			V.P. Singh ADE/T-V	1. Dharmendra Kumar, SE/D 2. Ram Kanhai Das, JE-II/D 3. Ram Mohan ,SE/D
			Jitendra Kumar Singh, DEN	
<b>4.</b>	<b>IV</b>	<b>Ashwani Kumar DST-IV</b>	S.K. Awasthi DDST/T-II	1. Shivanna M., SSE/I 2. Sharif Shaikh, SE/D 3. K.J.Singh , SE/D 4. Anand Kumar, SE/D
			Ritu Raj DDST-4	1. Akhlesh Kumar, SE/I 2. A.K.Bajpai, SE/I 3. Brijesh Chandra, SE/D 4. Sunil Kumar ,JE-II/D 5. Sunil Kumar Gupta, JE-II/D 6. Dev Prakash Pal
<b>5.</b>	<b>V</b>	<b>Rajiv Kumar DST-V</b>	D.K. Nagpal, ADE/T-2	1. Shashi Kumar , JE-II/D 2. Ram Singh, JE-II/D
			Ajay Sharma ADE/T-VII	1. Mahesh Kumar, SE/I 2. Manoj Kumar, SE/D



**Details of duties in respect of Group 'C' Technical Staff of  
Track Design Directorate.**

**Senior Section Engineer (SSE) / Section Engineer (SE)**

(For subject matter pertaining to them)

1. To willingly associate himself with the computer working for preparation of plans, estimates, drawings, designs etc.
2. To supervise day to day establishment matter concerning his unit.
3. To analyse the data received from field and preparation of draft technical notes on the subjects.
4. To maintain proper liaison with the field/ work-shop / manufacturers for successful execution of different designs prepared and to incorporate any design modifications if considered necessary based on field interaction/ feedback.
5. To carry out checking / testing of samples of product under development/approval and preparation of report.
6. To carry out checking/testing of samples of product under development/approval and preparation of report.
7. To carry out testing/checking of gauges and other related accessories submitted by manufacturer at the various stages of development process.
8. To carry out inspection in the field/workshop/private manufacturer's premises/railway plants in respect of trails/developmental behalf of RDSO.
9. Any other item to be allotted by the higher officers by general or special order from time to time.

**Junior Engineer-I (JE-I)/ Junior Engineer-II (JE-II)**

(For subject matter pertaining to them)

1. To undertake preparation of designs and drawings involving major assemblies.
2. To prepare detailed drawings based on line drawings/sketches prepared at higher level by designers/officers.
3. To trace and re-trace including stenciling in ink on paper or cloth , pencil drawings etc. made on old drawings as per requirement.
4. Custody of plans, drawings, documents, literature given for his specific custody.
5. To carry out literature survey for collecting state of the art details on respective design worked entrusted.
6. To visit field / workshops premises/railway plants for getting an exposure for ensuring their proper design/drawings.
7. To assist SSE/SE in conducting the field trails for new items of design in developmental stage.
8. To willingly associate himself with the computer working for preparation of plans, estimates, drawings designs etc.
9. Any other item allotted by higher officer.

### **Section Engineer/Track Inspection (SE/TI)**

(For subject matter pertaining to them)

1. To carry out inspection in the field/workshop/private manufacturer's premises/railway plants in respect of trail/developmental items on behalf of RDSO.
2. To carry out checking/testing of samples of product under development /approval and preparation of report.
3. To carry out testing/checking of gauges and other related accessories submitted by manufacturer at the various stages of development process.
4. To analyse the data received from field and preparation of draft technical notes/report there upon.
5. To inspect and to ensure that the components and assemblies as manufactured are in accordance with the specification and drawings of developmental tested .
6. Follow up at different manufacturing stages to ensure that the material as processed is in accordance with the requirements.
7. To help in improving/modifying drawing and specification based on his observations in field and experience.
8. To willingly associate himself with the computer working for preparation of plans, estimated, drawings, design etc.
9. Any other item to be allotted by the higher officers (s).

#### **The duty list of office Peons/ Helpers (all grades)/Khalasis are as under:**

1. To attend to all official calls of the officers to whom attached.
2. To take files/Dak from the officer and handover to the concerned section and vice versa.
3. To attend to any other official duties as and when required by his official superiors.