EXECUTIVE SUMMARY

1.0 INTRODUCTION

"M/s APL Apollo Building Products Ltd was incorporated on 19th December 2019 under the Companies Act, 1956, with the objective of establishing an industry for manufacturing a wide range of building products such as pipes and sheets.

The company is proposing to expand its existing Cold Rolling Mill capacity from 28,000 TPA to 1,150,000 TPA, along with the expansion of other facilities for manufacturing pipes, sheets/coils, and other non-EC products." The Brownfield project has implemented its unit on a total land area of 149.59 hectares (88.12 Ha. land at Village Ringni and 61.47 Ha. land at Village Kesda). The entire land is already owned by the company. The company will develop a greenbelt in around 53.30 ha (35.63%) area of total project land.

In accordance to the Consent under Air Act and Water Act, the company holds consent No. 4246/TS/CECB/2024 dated 16.08.2024 for Hot Rolled Pickled Oiled Coil/Sheet (28,000 TPA) and Cold Rolled Coil/Sheet (28,000 TPA), renewed up to 31.05.2029. It also holds consent No. 1491/TS/CECB/2025 dated 05.05.2025 for Corrugated Galvanized Sheets (50,000 TPA), Hollow Section Black Pipe (300,000 TPA), GP Pipes (120,000 TPA), Precision Pipe (60,000 TPA), Special Pipes (100,000 TPA), CRFH Pipes (25,000 TPA), and Color Coated Coils/Sheet (200,000 TPA), renewed up to 31.03.2027.

Consent No.	Capacity (in TPA)		Remark
1338/TS/CECB/2023 Dtd. 31.05.2023	Hot Rolled Pickled Oiled Coil/ Sheet	28,000	The consent is renewed up to 31.05.2029 vide letter No. 4246/TS/CECB/2024 Dtd. 16.08.2024
	Cold Rolled Coil/ Sheet	28,000	
343/TS/CECB/2019 Dtd.18.04.2022	Corrugated Galvanized Sheets	50,000	The consent is renewed up to 31.03.2027 vide letter No. 1491/TS/CECB/2025 Dtd. 05.05.2025
	Hollow Section Black Pipe	3,00,000	
	GP Pipes	1,20,000	
	Precision Pipe	60,000	
	Special Pipes	1,00,000	
	CRFH Pipes	25,000	
	Color coated Coils/ Sheet	2,00,000	

In accordance with the Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the proposed project falls under Category "B". It is classified under Project Activity '3(a)' Metallurgical Industries. Therefore, the project requires Environmental Clearance (EC) from SEIAA-SEAC, Chhattisgarh.

The company applied for Terms of Reference vide proposal No. **SIA/CG/IND1/546127/2025** dated **05/08/2025** and ToR granted for proposed project by SEIAA Chhattisgarh, vide file No. **OL/TOR/IND1/BALODABAZAR/4685**, dated **28th January, 2025**. Approved ToR letter enclosed as Annexure I. ToR compliance with cross referencing is provided in the beginning of the chapter scheme.

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in 'Category A' environment consultant organization has been assigned to undertake an Environmental Impact Assessment

(EIA) study and preparation of Environment Management Plan (EMP) for various environmental components, which may be affected due to the impacts arising out of the proposed project.

The EIA-EMP report is being prepared to secure Environmental Clearance (EC) from State Environment Impact Assessment Authority, Chhattisgarh as well as the Consent for Establishment from the Chhattisgarh Environment Conservation Board (CECB) for the proposed expansion project.

1.1 IDENTIFICATION OF PROJECT

M/s. APL Apollo Building Products Ltd. proposes Brownfield project involving for production of Cold Rolled Steel product including Pickling, Precision Steel Pipe, CRFH Pipe, Coil Reduced Cold Annealed (CRAC) Coil, Galvanizing/ Galvalume of Coil, GP Pipe, Corrugated Galvanized Sheets, Color coated coils/ sheets, Hollow Section Pipe, Hollow Special Steel Pipes. The project is proposed to be located at Village Ringni and Kesda, Tahsil -Sigma, District Balodabazar-Bhatapara (CG) Pin code – 493113. The proposal is to seek Environment Clearance based on energy efficient as well as well proven technology process.

TABLE 1: PROPOSED, EXISTING ADDITION/CAPACITY AND FINAL CONFIGURATION AFTER EXPANSION

S. No.	Product	Existing Capacity	Proposed Addition	Final capacity after Expansion	Remark
1.	**Cold Rolled Steel Product including pickling**	**28,000**	**11,22,000**	**11,50,000**	**This process is under purview of EC.** **HR Steel coils/ Steel strips to be procured from outside and only pickling will be done and pickled Coil/Sheet will be cold rolled.**
Downstream production through above Cold Rolled Steel Products					
2	Precision Steel Pipe	60,000	0	60,000	Only Pipe making through ERW process from CR strips.
3	CRFH Steel Pipes	25,000	95,000	1,20,000	Only Pipe making through ERW process from captive cold rolled sheet
4	Coil Reduced Close Annealed (CRCA) Coil	0	1,00,000	1,00,000	**New annealing facility will be implemented**
5	Galvanizing/ Galvalume of coil	1,70,000 (based on CTE, CTO not yet obtained)	6,30,000	8,00,000	Not under EC purview.
Downstream production through above Cold Rolled Galvanized/ Galvalume Steel Coils					
6	GP Pipes	1,20,000	1,20,000	2,40,000	Only Pipe making through ERW of pre-galvanized strips/sheet.

S. No.	Product	Existing Capacity	Proposed Addition	Final capacity after Expansion	Remark
7	Corrugated Galvanized Sheets	50,000	0	50,000	Only corru of pre-galvanized sheets
8	Color coated Coils/ Sheet	2,00,000	3,00,000	5,00,000	Color coating and drying involve on pre-galvanized coil/sheets
Other product from HR Strips /coils from outside					
9	Hollow Section Black Pipe	3,00,000	3,00,000	6,00,000	Only Pipe making through ERW of HR strips/sheets
10	Special Pipes	1,00,000	0	1,00,000	Only Pipe making through ERW from HR strips

1.2 LOCATION OF THE PROJECT

The proposed expansion project is planned on a total land area of 149.59 hectares at Village Ringni and Kesda, Tahsil Sigma, District Balodabazar-Bhatapara, Chhattisgarh. This has already been acquired by the project proponent. The land is entirely owned by company and has been duly diverted for industrial purposes. As part of the environmental management measures, 35.6% of the total land area has been developed under greenbelt, in accordance with regulatory requirements.

The nearest city is Raipur. Nearest airport is Swami Vivekananda Airport, Raipur which is around 48.8 km at SSW direction. The project site can be reached from nearest city Simga through a connecting road to Simga Hathbandh Road, which is connected to national highway No. 200. The project is well connected to all weather roads. Nearest Railway station Hathbandh about 3 KM in E direction from the project site.

The study area of 10 km radial distance from the project site is shown in **Figure 1**.

1.3 EIA/ EMP REPORT

As per approved ToR obtained from SEAC-SEIAA, Chhattisgarh, baseline environmental monitoring was already conducted during **Pre-monsoon Season (1st March, 2025 – 31st May 2025)** has been considered for determining the status of ambient air quality, ambient noise levels, surface and groundwater quality, soil quality, status of flora, fauna and eco-sensitive areas and socio-economic status of the villages within 10 km radius study area from the project site **(Figure 1).** The observations of the studies are incorporated in the EIA/EMP report. Impacts of the proposed expansion project activities during construction and operation stages were identified and duly addressed in the EIA- EMP report.

EIA - EMP report along with the proposed management plan to control/ mitigate the impacts. Environmental Management Plan is suggested to implement the pollution control in the project.

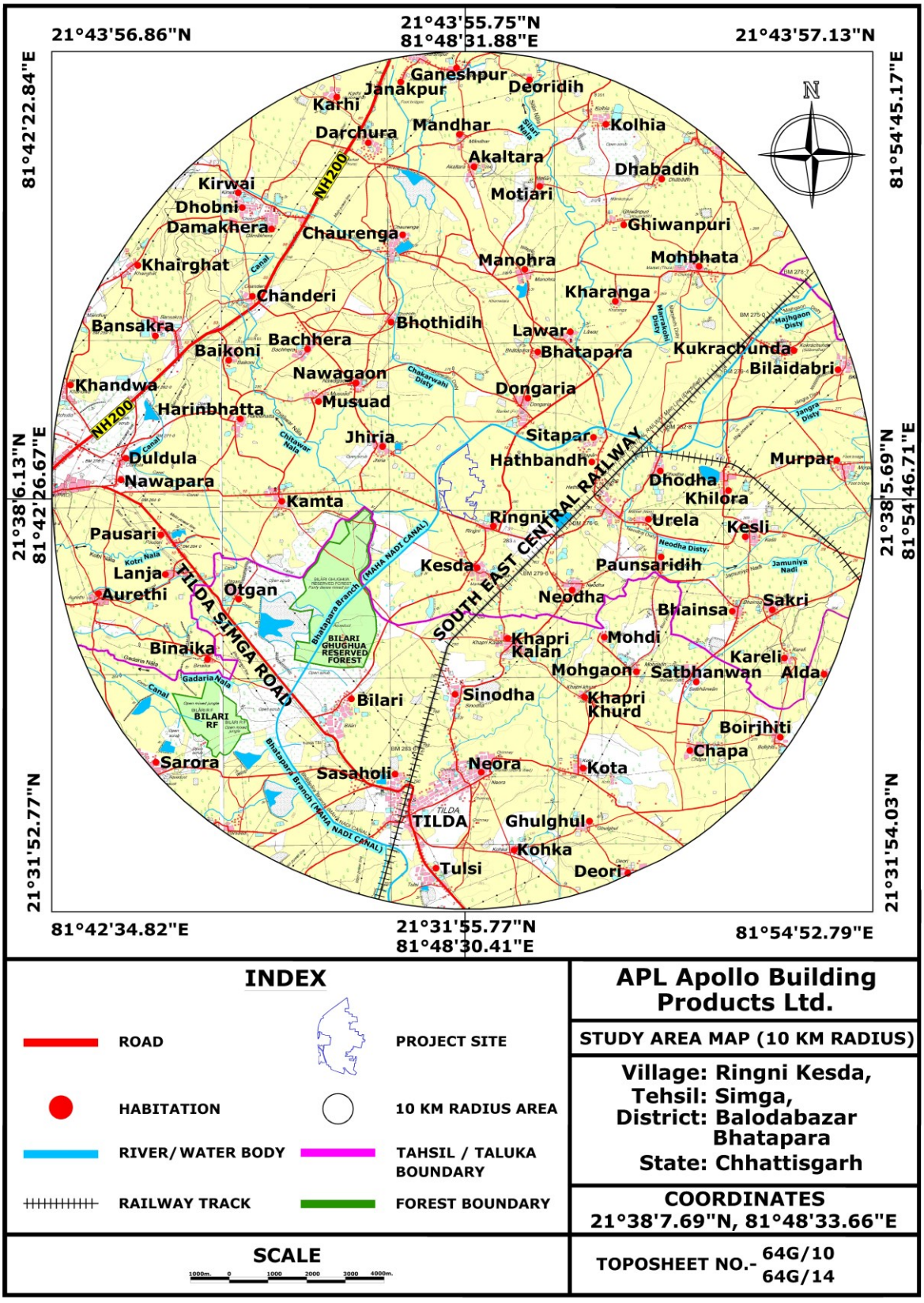

FIGURE 1 A: STUDY AREA (10 KM RADIAL DISTANCE)

TABLE 2: DETAILS OF ENVIRONMENTAL SETTINGS

<table>
<tr><th>Sl.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Project Location</td><td>Village- Ringni-Kesda, Tehsil- Simga District- Balodabazar-Bhatapara (Chhattisgarh) Pin Code – 493113</td></tr>
<tr><td>2.</td><td>Latitude/ Longitude</td><td>Geo coordinates:
<table>
<tr><th>PTS.</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>1.</td><td>21°38'30.97"N</td><td>81°48'40.55"</td></tr>
<tr><td>2.</td><td>21°38'12.65"N</td><td>81°48'51.60"E</td></tr>
<tr><td>3.</td><td>21°37'56.55"N</td><td>81°48'57.86"E</td></tr>
<tr><td>4.</td><td>21°37'46.28"N</td><td>81°48'48.39"E</td></tr>
<tr><td>5.</td><td>21°37'37.10"N</td><td>81°48'51.30"E</td></tr>
<tr><td>6.</td><td>21°37'21.93"N</td><td>81°48'48.48"E</td></tr>
<tr><td>7.</td><td>21°37’21.07"N</td><td>81°48'38.87"E</td></tr>
<tr><td>8.</td><td>21°37'25.59"N</td><td>81°48'27.06"E</td></tr>
<tr><td>9.</td><td>21°37'47.68"N</td><td>81°48'19.96"E</td></tr>
<tr><td>10.</td><td>21°37'53.20"N</td><td>81°48'14.47"E</td></tr>
</table></td></tr>
<tr><td>3.</td><td>Location covered in Toposheet No</td><td>Toposheet No.: 64G/10 and 64G/14</td></tr>
<tr><td>4.</td><td>Nearest representative IMD Station</td><td>IMD Raipur - 48.10 km / SSW</td></tr>
<tr><td>5.</td><td>Site elevation above Mean Sea Level</td><td>297 m to 312 m</td></tr>
<tr><td>6.</td><td>Nearest roadway</td><td>1.NH200 - 6.54 km / NW
2.Tilda Simga Road - 6.13 km / SW
3.Road Connecting Simga and Hathbandh (Simga Road) – Adjoining / S</td></tr>
<tr><td>7.</td><td>Nearest Railway Station</td><td>1.Hathbandh Railway Station – 3 km / E
2.Ringni Railway Siding – 2 km / SE
3.Tilda Neora Railway Station - 8.15 km / S</td></tr>
<tr><td>8.</td><td>Nearest Air Port</td><td>Swami Vivekananda Airport, Raipur - 48.8 km / SSW</td></tr>
<tr><td>9.</td><td>Nearest village</td><td>1.Ringni - 0.1km / SE
2.Kesda - 0.7 km / S
3.Jhiriya - 1km / WNW
4.Dongaria -1.4 km / NE</td></tr>
<tr><td>10.</td><td>Nearest Port</td><td>Gopalpur Port - 416.75 km / SE</td></tr>
<tr><td>11.</td><td>Distance from Sea Coast</td><td>Bay of Bengal – 415 km / SE</td></tr>
<tr><td>12.</td><td>Nearest major city with 2,00,000 population</td><td>Raipur - 37.3 km / SW</td></tr>
<tr><td>13.</td><td>Nearest State/National Boundaries</td><td>Madhya Pradesh - 95.15 km / NW
Odisha - 98.50 km / SE</td></tr>
<tr><td>14.</td><td>Hills/Valleys</td><td>None within study area</td></tr>
<tr><td>15.</td><td>Ecologically sensitive zone</td><td>None within study area</td></tr>
<tr><td>16.</td><td>National Parks, Wildlife Sanctuaries, etc.</td><td>None within study area</td></tr>
<tr><td>17.</td><td>Nearest Reserved / Protected forests</td><td>1.Bilari Ghughua Reserved Forest - 1.70 km / SW
2.Bilari RF - 7.45 km / SW</td></tr>
<tr><td>18.</td><td>Historical/Tourist places</td><td>None in study area</td></tr>
</table>

<table>
<tr><th>Sl.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>19.</td><td>Nearest Industries</td><td>
<table>
<tr><th>Sr. No.</th><th>Name</th><th>Distance (Km)</th><th>Direction</th></tr>
<tr><td>1</td><td>Sky Power and Steel Pvt Ltd.</td><td>1.2</td><td>SW</td></tr>
<tr><td>2</td><td>Swadesh Metallic Keshada & Newdha, Kesda</td><td>2.43</td><td>SE</td></tr>
<tr><td>3</td><td>Venkatrama Poultries Limited, Khapri Kalan</td><td>3.45</td><td>SSW</td></tr>
<tr><td>4</td><td>Krishna Iron Solar Power Plant, Simga</td><td>4.85</td><td>NW</td></tr>
<tr><td>5</td><td>Shree Shyam Sponge & Power Limited, Bachera</td><td>5</td><td>NW</td></tr>
<tr><td>6</td><td>Sagar Industries, Neora</td><td>5.95</td><td>S</td></tr>
<tr><td>7</td><td>K.K. Industries, Tilda</td><td>5.95</td><td>S</td></tr>
<tr><td>8</td><td>Amit Chawal Udyog, Main Rd, Tilda Newra</td><td>6.22</td><td>S</td></tr>
<tr><td>9</td><td>MM Feeds, Simga, Baikoni</td><td>6.86</td><td>WNW</td></tr>
<tr><td>10</td><td>Pitambara Foods, Neora</td><td>6.45</td><td>S</td></tr>
<tr><td>11</td><td>Earthstahl And Alloys Limited, Duldula</td><td>6.91</td><td>WNW</td></tr>
<tr><td>12</td><td>Raipur Refratherm Pvt.Ltd, Parsada</td><td>8.25</td><td>SW</td></tr>
<tr><td>13</td><td>Hitech Power & Steel Limited, Sarora</td><td>8.15</td><td>SW</td></tr>
<tr><td>14</td><td>Agrasen Rice Industries, Parsada</td><td>8.52</td><td>SSW</td></tr>
<tr><td>15</td><td>Vidyasri Rice Mills, Kota</td><td>8.36</td><td>SE</td></tr>
<tr><td>16</td><td>Gravity Iron and Power Pvt Limited, Champa</td><td>8.9</td><td>SE</td></tr>
<tr><td>17</td><td>Sambhv Steel Tubes Limited (Tilda Division Sarora</td><td>8.71</td><td>SW</td></tr>
<tr><td>18</td><td>Central Cement Industries, Sarora</td><td>9.10</td><td>SW</td></tr>
<tr><td>19</td><td>Mahendra Sponge and Power Ltd, Sarora</td><td>9.30</td><td>SW</td></tr>
</table>
</td></tr>
<tr><td>20.</td><td>Nearest Water Bodies</td><td>
<table>
<tr><th>Sr. No.</th><th>Name</th><th>Distance (Km)</th><th>Direction</th></tr>
<tr><td>1</td><td>Bhatapara Branch (Maha Nadi Canal)</td><td>0.02</td><td>W</td></tr>
<tr><td>2</td><td>Chakarwahi Disty</td><td>0.20</td><td>N</td></tr>
<tr><td>3</td><td>Pond near Ringni Village</td><td>0.01</td><td>SE</td></tr>
<tr><td>4</td><td>Chitawar Nala</td><td>0.60</td><td>SW</td></tr>
<tr><td>5</td><td>Marrakohi Disty</td><td>3.18</td><td>ENE</td></tr>
<tr><td>6</td><td>Silari Nala</td><td>3.85</td><td>NE</td></tr>
<tr><td>7</td><td>Neodha Disty</td><td>3.47</td><td>E</td></tr>
<tr><td>8</td><td>Jamuniya Nadi</td><td>3.95</td><td>SE</td></tr>
<tr><td>9</td><td>Ghughua Tank</td><td>4.33</td><td>SW</td></tr>
<tr><td>10</td><td>Tariya Mohgaon</td><td>5.23</td><td>SE</td></tr>
<tr><td>11</td><td>Jangra Disty</td><td>5.56</td><td>ENE</td></tr>
<tr><td>12</td><td>Gadaria Nala</td><td>5.96</td><td>SW</td></tr>
<tr><td>13</td><td>Atal Sagar</td><td>6.66</td><td>S</td></tr>
<tr><td>14</td><td>Kotri Nala</td><td>6.54</td><td>WSW</td></tr>
<tr><td>15</td><td>Purani Basti Talab</td><td>6.80</td><td>S</td></tr>
<tr><td>16</td><td>Majhgaon Disty</td><td>8.85</td><td>ENE</td></tr>
</table>
</td></tr>
<tr><td>21.</td><td>Archaeological Sites</td><td>None within study area</td></tr>
<tr><td>22.</td><td>Religious Places</td><td>
<table>
<tr><th>Sr. No.</th><th>Name</th><th>Distance (Km)</th><th>Direction</th></tr>
<tr><td>1</td><td>Ram Mandir, Ringni</td><td>0.50</td><td>ESE</td></tr>
<tr><td>2</td><td>Maa Durga Mandir, Dongariya</td><td>1.8</td><td>NE</td></tr>
<tr><td>3</td><td>Shankar Mandir, Hathbandh</td><td>3.10</td><td>E</td></tr>
<tr><td>4</td><td>Rajim Lochan Mandir Khilora</td><td>5.91</td><td>E</td></tr>
<tr><td>5</td><td>Sheetala Mandir, Tilda, Neora</td><td>6.66</td><td>S</td></tr>
<tr><td>6</td><td>Mahamaya Mandir, Tilda, Neora</td><td>6.68</td><td>S</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sl.</th><th>Particulars</th><th>Details</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>7</td><td>Jama Masjid Neora, Tilda, Neora</td><td>6.78</td><td>S</td></tr>
<tr><td>8</td><td>Shiv Mandir, Purani Basti, Neora</td><td>6.78</td><td>S</td></tr>
<tr><td>9</td><td>Kabirpanthi Damakheda, Damakheda</td><td>8.16</td><td>NW</td></tr>
<tr><td>10</td><td>St. Thoma Church,Tilda Newra</td><td>8.01</td><td>S</td></tr>
<tr><td>11</td><td>Shri Laxmana Dham, Dhabadih, Koliha</td><td>9.40</td><td>NNE</td></tr>
</table>
</td></tr>
<tr><td>23.</td><td>Hospitals and Education Institutions (Sensitive Manmade Landuse)</td><td>
HOSPITALS
<table>
<tr><th>Sr. No.</th><th>Name</th><th>Distance (Km)</th><th>Direction</th></tr>
<tr><td>1</td><td>Govt. HR. Sec. School Nawagaon</td><td>2.80</td><td>WNW</td></tr>
<tr><td>2</td><td>Primary Health Centre, Hathband</td><td>3.26</td><td>E</td></tr>
<tr><td>3</td><td>Sadhuram Clinic, Tilda, Neora</td><td>7.07</td><td>S</td></tr>
<tr><td>4</td><td>Jyoti Hospital, Tilda Newra, Neora,</td><td>7.31</td><td>S</td></tr>
<tr><td>5</td><td>Dr Prem Shankar Speciality Hospital</td><td>7.44</td><td>S</td></tr>
<tr><td>6</td><td>Evangelical Mission Hospital, Sasaholi, Tilda</td><td>7.86</td><td>S</td></tr>
<tr><td>7</td><td>Kanha Children Hospital, Baloda Bazar</td><td>8.12</td><td>S</td></tr>
<tr><td>8</td><td>Government Hospital Tilda, Tilda</td><td>8.17</td><td>S</td></tr>
<tr><td>9</td><td>Community Health Centre Tilda</td><td>8.02</td><td>S</td></tr>
<tr><td>10</td><td>Suna Hospital, Tilda Newra, Tilda</td><td>8.91</td><td>S</td></tr>
<tr><td>11</td><td>Shri Ram Multi Speciality Hospital Simga</td><td>8.92</td><td>W</td></tr>
</table>
EDUCATIONAL INSTITUTIONS
<table>
<tr><th>Sr. No.</th><th>Name</th><th>Distance (Km)</th><th>Direction</th></tr>
<tr><td>1</td><td>Government School, Ringni</td><td>0.26</td><td>SE</td></tr>
<tr><td>2</td><td>Govt. School Dongaria, Dongariya</td><td>0.95</td><td>E</td></tr>
<tr><td>3</td><td>Middle School Kesda, Kesda</td><td>1.35</td><td>S</td></tr>
<tr><td>4</td><td>Govt. High School Dongariya</td><td>1.78</td><td>NE</td></tr>
<tr><td>5</td><td>Govt.Middle School Jhiriya, Jhiriya</td><td>1.97</td><td>WNW</td></tr>
<tr><td>6</td><td>Govt. HS. School Hathband</td><td>2.92</td><td>E</td></tr>
<tr><td>7</td><td>Govt. HSS Khaprikala, Khapri Kalan</td><td>3.23</td><td>SSE</td></tr>
<tr><td>8</td><td>Government Higher Secondary School, Moh Bhatha</td><td>7.61</td><td>NE</td></tr>
<tr><td>9</td><td>B N B High School, Tilda</td><td>7.35</td><td>S</td></tr>
<tr><td>10</td><td>Primary School Champa, Tilda Newra</td><td>8.30</td><td>SE</td></tr>
<tr><td>11</td><td>Govt ITI Kohka, Tilda</td><td>8.43</td><td>S</td></tr>
<tr><td>12</td><td>Art & Science College Kohka, Tilda</td><td>8.66</td><td>S</td></tr>
<tr><td>13</td><td>Rajeev Gandhi Government College Simga</td><td>9.54</td><td>W</td></tr>
</table>
</td></tr>
<tr><td>24.</td><td>Community Places</td><td>1.Sahu Samaj Bhawan Dongariya - 1.74 km / NE
2.Sanskritik Bhawan, Simga - 9.58 km / W</td></tr>
<tr><td>25.</td><td>Seismic zone</td><td>Zone II (Least Active Zone)</td></tr>
</table>

2.0 PROJECT DESCRIPTION

2.1 PROCESS DESCRIPTION (OPERATIONAL ACITIVITIES)

1. Cold Rolled Steel Coil/Sheet (with Pickling)

- **Pickling:** HR coils are dipped in hydrochloric acid to remove oxide scales, rinsed, and prepared for further processing.
- **Cold Rolling:** The cleaned coils are passed through rollers to reduce thickness, increase length, and improve mechanical properties.

2. Precision Steel Pipes / CRFH Pipe

- CR full hard material is slit into required widths.
- Pipes are formed using **ERW (Electric Resistance Welding)**, ensuring strong, leak-free joints.
- Output: precision pipes and CRFH pipes for structural and industrial use.

3. Coil Reduced Close Annealed (CRCA) Coil

- **Annealing:** Cold rolled coils are softened in controlled atmosphere furnaces to improve ductility and relieve stresses.
- **Skin Pass/Temper Rolling:** Optional light rolling enhances flatness, surface finish, and mechanical properties.
- **Recoiling & Inspection:** Coils are rewound, checked for defects, and packaged for dispatch.

4. Galvanizing / Galvalume Coating

- CR/HR sheets are coated with **zinc or aluminum-zinc alloys** to provide corrosion resistance.
- This process extends product life and prepares material for downstream applications like GP pipes and color-coated sheets.

5. GP Pipe

- Pre-galvanized/pre-galvalume coils are uncoiled and formed into round, square, or rectangular pipes.
- Pipes are welded using ERW, cut to customer sizes, bundled, and packed for delivery.

6. Corrugated Galvanized Sheets

- Pre-galvanized/ pre-galvalume sheets are corrugated to add strength and rigidity.
- Widely used in roofing, cladding, and structural applications.

7. Color Coated Coils/Sheets

- Pre-galvanized/ pre-galvalume coils are cleaned, dried, and coated with primer.
- Top and bottom paint coats are applied, baked in ovens, cooled, and recoiled.
- Final product: durable, aesthetic sheets for construction and consumer applications.

8. Hollow Section & Special Pipes

- HR coils are de-coiled and formed into circular shapes.
- Pipes are welded continuously using **high-frequency current**, then sized and cut.

2.2 LAND REQUIREMENT

The expansion project proposed in an area of 149.59 hectares (Entire land is company owned land), at Kh. No. 7/1, 18/2, 20, 77, 80, 81, 92, 93, 94, 97, 98, 99, 100, 101, 102, 103, 108, 109, 111, 112, 411, 418, 420/2, 421, 422, 423, 424, 425, 438/2, 447, 446, 464/2, 465/2, 466, 467, 530, 532, 534/1, 534/2, 546, 1086, 16, 17/2, 18/1, 19, 71, 72/1, 72/2, 73, 74, 75/1, 75/2, 76, 78, 79, 82, 83, 84, 85, 86, 87, 88, 89, 90, 104, 106, 417, 426, 428, 429, 430, 431, 432, 433/1, 433/2,

434/1, 434/2, 435/1, 435/2, 436/1, 436/2, 437, 438/1, 439, 440, 441, 442, 443, 444, 445, 446, 449, 453, 454, 455, 456, 458/1, 459/2, 460, 462, 107, 113, 115, 116, 131, 420/1, 450, 452, 457, 461, 464/3, 464/1 (Area 88.12 Ha.) at Village Ringni, and Kh.No. 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52, 53, 57, 59, 60, 61, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 75, 76, 83, 85, 86, 87, 90, 99, 110, 151, 152, 153/1, 153/2, 153/3, 153/4, 156, 157, 170/1, 170/2, 171, 172, 173, 174, 175, 177/2, 178, 179, 180, 82, 104, 106, 114, 155, 158/1, 158/2, 160/2, 160/3, 161, 162, 112, 159, 160/1 (Area 61.47 Ha.) at Village Kesda, Tahsil -Sigma, District Balodabazar-Bhatapara (CG) Pin code – 493113.

The detail of land use planning in the project area is provided as follows:

TABLE 3: AREA STATEMENT

S. No.	Land Use	Area (in ha.)	In %
1	Built Up	31.00	20.72
2	Road and Paved including parking	14.39	9.62
3	Green Belt	53.30	35.63
4	Open Area including Pond	50.90	34.03
Total:		**149.59**	**100.00%**

2.3 RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

The project's raw material needs are largely met from local markets within 100–150 km and captive units within 1 km. HR coils form the bulk of demand, while CR coils, strips, and sheets are supplied internally from captive cold rolling and galvanizing units. Fuel (LPG/LNG/PNG) and additives like paint, zinc, and rust preventive oil are sourced locally. Transportation is mainly by road in covered vehicles, with short-distance internal transfers for captive supplies.

2.4 SOLID AND HAZARDOUS WASTE GENERATION

The details of solid and hazardous waste generations is given in **Table 4**.

TABLE 4: SOLID/HAZARDOUS WASTE GENERATION AND ITS DISPOSAL

Sl. No.	WASTE	SCHEDULE	Existing	Proposed (Total)	Disposal Plan
1.	Used or Spent oil	Schedule - I, Cat. No. 5.1	5 KL/Annum	25 KL/Annum	Use as lubricants/Sale to authorized recycler
2.	Process waste residues and sludges	Schedule - I, Cat. No. 21.1	5 MT/Annum	50 MT/Annum	Co-processing in cement kiln
3.	Contaminated cotton rags or other cleaning materials	Schedule - I, Cat. No. 33.2	10 MT/Annum	60 MT/Annum	Co-processing in cement kiln
4.	Spent pickling liquor	Schedule - I, Cat. No. 13.1	500 MT/Annum	37950MT/Annum	Use in acid regeneration plant for recovery of hydrochloric acid and reuse in house process as per SOP issued by CPCB
5.	Chemical sludge from wastewater treatment	Schedule - I, Cat. No. 35.3	800 MT/ Annum	1200 MT/Annum	Co-processing in cement kiln
6.	Empty	Schedule - I,	150	700 MT/Annum	Sale to authorized

Sl. No.	WASTE	SCHEDULE	Existing	Proposed (Total)	Disposal Plan
	barrels/containers /liners contaminated with hazardous chemicals /wastes	Cat. No. 33.1	MT/Annum		recycler/utilizers
7.	Rubber waste	Schedule - III, Part-B, B3040	10 MT/Annum	10 MT/Annum	Sale to registered rubber industries
8.	Iron and steel scrap	Schedule - III, Part-D, B1010	20000 MT/Annum	1,20,000 MT/Annum	Sale to authorized induction furnace units or traders
9.	Wastes or residues containing oil	Schedule - I, Cat. No. 5.2	--	100 MT/Annum	Co-processing in cement kiln
10.	Zinc Dross- Sludge and filter press cake arising out of production of Zinc Sulphate and other Zinc Compounds.	Schedule - I, Cat. 6.1	--	1200 MT/Annum	Sale to authorized recycler/utilizers
11.	Mill Scale	B1230	---	150 MT/Annum	Sale to authorized recycler/utilizers
12.	Sludge from acid recovery unit (Fe2O3)	Schedule - I, Cat. 13.2	----	3600 MT/Annum	Sale to authorized recycler/utilizers
13.	Sludge from MEE Plant (salt)	Schedule - I, Cat 37.3	---	400 MT/Annum	Sale to authorized recycler/utilizers

2.5 WATER REQUIREMENT & SOURCE

The total water requirement, including the existing usage and the proposed expansion, will be **800 KLD** (2,40,000 KLA), with 50 KLD allocated for domestic purposes. The water will be sourced from a **ground water**, and as per the Central Ground Water Authority (CGWA) guidelines, the project site is located in a **"Safe"** category zone, thereby permitting sustainable withdrawal of groundwater. For existing facilities CGWA NOC has been obtained vide CGW NOC No. **CGWA/NOC/IND/REN/1/2024/9648** valid till **22.03.2027**. For expansion will be obtained CGWA NOC before submission of application for Final EIA.

The water is mainly required for cooling. The water will be used in closed cooling circuit where 100% water will be recycled. 100% of waste water is and will be recycled and Zero discharge condition will be maintained.

2.6 POWER REQUIREMENT & SUPPLY

The project is power-intensive, with a total power requirement of **38 MW**, which will be met through the **State Grid via CSPDCL**. Of the total requirement, **17 MW** constitutes the existing sanctioned power.

Additionally, DG sets with an aggregated capacity of **4,360 kVA** (2 × 2,000 kVA and 1 × 360 kVA) have been installed to serve as emergency backup.

2.7 MANPOWER REQUIREMENT

M/s. APL Apollo Building Products Ltd. will provide employment to **551 peoples** as direct employment which includes **51 people** as administrative staff and **500 people** will be appointed for production staff during **operation phase**. Preference will be given to local people, depending upon their qualification and skill. The company will provide employment to **230 peoples** as direct employment which includes **30 people** as Permanent Employees and **200 people** will be appointed for Temporary Employment during **construction phase**.

2.8 FIRE FIGHTING FACILITIES

To manage emergency fire situations within the plant premises, firefighting facilities are installed across various plant units. Furthermore, all plant units, office buildings, laboratories, and other facilities will be equipped with a sufficient number of portable fire extinguishers for initial fire response.

2.9 KEY POLLUTION CONCERNS

The proposed expansion of existing Cold Rolling Mill Capacity from 28,000 TPA to 1,150,000 TPA is associated with potential environmental concerns related to air emissions, solid waste generation, wastewater discharge, noise, and increased traffic. Air emissions are expected from acid fume extraction system, wet scrubber while waste generations such as Sludge from acid recovery unit, Sludge from MEE Plant, Mill Scale, Iron and steel scrap, Rubber waste, Empty barrels/containers/liners, Chemical sludge from wastewater Treatment, spent pickling liquor, Contaminated cotton rags or other cleaning materials and Process waste residues and sludges will be generated. Wastewater from process, cooling, and domestic sources and noise from plant machinery also require appropriate management through adequate pollution control measures.

2.10 PROJECT COST

The total project cost of the project excluding CER is **Rs. 196595.96 Lakhs** (which includes Existing cost - Rs. 84614.61 Lakhs + proposed cost Rs. 111981.35 Lakhs).

3.0 EXISTING ENVIRONMENTAL SCENARIO

3.1 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land were monitored during **pre-monsoon season (1st March, 2025 – 31st May, 2025).**

3.2 METEOROLOGY & AMBIENT AIR QUALITY

The site-specific meteorological data with respect to wind speed and direction was collected and presented in the form of wind roses and the summary of wind pattern is presented in **Table 5.**

TABLE 5: SUMMARY OF THE METEOROLOGICAL DATA GENERATED AT SITE (1ST MARCH, 2025 – 31ST MAY, 2025)

Predominant Wind Direction	Site-Specific Wind Pattern
First Predominant Wind Direction	W (10.73%)
Second Predominant Wind Direction	WSW (9.51%)
Third Predominant Wind Direction	WNW (9.24%)
Calm conditions (%)	0.86
Avg. Wind Speed (m/s)	2.40

The status of ambient air quality within the study area was monitored for **pre-monsoon season (1st March, 2025 – 31st May, 2025)** at 8 locations. All these 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind, cross wind directions and reference point. The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2,), Oxides of Nitrogen (NO_X) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BaP were monitored. The details of Ambient Air Quality Monitoring Results are summarized and given in **Table 6.**

TABLE 6: SUMMARY OF AMBIENT AIR QUALITY RESULTS (PERIOD – 1ST MARCH, 2025 – 31ST MAY, 2025)

Sr. No.	Location		PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	Ozone	NH_3
			µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	µg/m³
1	Project Site	Min	64.5	26.3	11.7	15.1	0.566	9.1	7.5
		Max	78.5	38.1	15.2	22.2	0.721	13.6	12.2
		Avg	72.6	31.7	13.6	18.4	0.635	11.1	9.4
		98th	78.3	37.1	15.2	21.7	0.71	13.4	11.8
2	Ringni	Min	58.5	22.1	9.8	13.3	0.536	6.9	7.1
		Max	76.3	34.4	15.5	20.6	0.677	12.2	9.8
		Avg	67.9	27.2	12.4	16.4	0.618	9.4	8.5
		98th	75.7	32.8	15.1	20.2	0.673	11.8	9.8
3	Jhiria	Min	57.4	21.6	9.4	13.1	0.453	7.1	6.1
		Max	73.8	31.2	14.4	18.6	0.683	12.8	9.8
		Avg	65.8	26.3	11.4	15.8	0.562	10.1	8.3
		98th	73.1	30.8	14	18.5	0.666	12.6	9.8
4	Kamta	Min	60.8	23.5	11.2	14.8	0.559	8.3	7.4
		Max	78.5	33.8	15.5	20.4	0.771	12.3	10.5
		Avg	69.9	28.5	12.8	17.3	0.672	10.5	9.1
		98th	78.3	33.6	15.4	20.1	0.765	12.2	10.3
5	Hathbandh	Min	58.7	21.2	9.5	12.6	0.435	7.7	6.5
		Max	73.5	31.6	13.2	18.6	0.667	11.5	9.8
		Avg	67.4	25.6	11.3	16.1	0.527	9.3	8.5
		98th	73.4	30.6	12.9	18.5	0.634	11.1	9.8
6	Dongaria	Min	62.6	24.2	11.5	15.6	0.556	8.5	7.3
		Max	78.5	34.5	15.6	21.2	0.725	12.4	10.3
		Avg	71.5	29.1	13.1	17.8	0.632	10.4	8.9
		98th	78.4	34	15.4	20.6	0.714	12.4	10.2
7	Kesda	Min	55.3	19.8	8.9	12.4	0.398	6.7	6.7
		Max	72.5	28.7	12.8	18.2	0.598	10.1	9.6
		Avg	63.4	24.8	10.6	15.2	0.487	8.8	8.1
		98th	70.8	28.6	12.4	17.8	0.579	10.1	9.6
8	Bhothidih	Min	55.6	19.2	7.7	12.5	0.289	5.5	5.5
		Max	70.5	28.4	11.4	16.6	0.625	10.5	9.4
		Avg	61.8	23.5	9.7	14.7	0.416	8.1	7.4

Sr. No.	Location		PM_{10}	$PM_{2.5}$	SO_2	NO_2	CO	Ozone	NH_3
			µg/m³	µg/m³	µg/m³	µg/m³	mg/m³	µg/m³	µg/m³
		98th	69.4	28	11.3	16.6	0.619	10.4	9.3
CPCB Standards			**100 (24hr)**	**60 (24hr)**	**80 (24hr)**	**80 (24hr)**	**2 (8hrs)**	**100 (8hr)**	**400 (24hr)**

3.3 AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 09 monitoring locations; those were selected for ambient noise quality monitoring. The monitoring results are summarized in **Table 7.**

TABLE 7: NOISE LEVELS IN THE STUDY AREA

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq_{Day}	Leq_{Night}
Residential Area			
1	Kamta	52.6	42.7
2	Kesda	51.2	40.7
3	Bhothidih	50.6	41.4
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
4	Ringni	58.7	45.5
5	Hathbandh	63.2	51.6
6	Jhiria	57.1	46.8
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
7	Dongaria – High School	47.3	38.6
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
8	Project Site Process Area	68.5	62.7
9	Project Site Main Gate	61.8	56.2
CPCB Standards dB(A)		**75.0**	**70.0**

***Source**: Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur*

3.4 SURFACE AND GROUND WATER RESOURCES & QUALITY

3.4.1 Regional Geology

Site Specific Geology

The study area is underlain by Archean–Proterozoic basement rocks (granite and phyllite with quartz veins) overlain by the Chhattisgarh Supergroup. This supergroup is divided into the Chandrapur Group (Lohardih, Choparadih, Kansapathar formations) and the Raipur Group (six formations in three carbonate–argillite cycles). The lithology is dominated by stromatolitic dolomitic limestone, with shale in the north and minor occurrences of dolostone, laterite, and chert.

***Source: -** Aquifer Mapping and Management of Ground Water Resources, Baloda Bazar District Chhattisgarh 2021-2022*

Geomorphology

The Study area lies mainly over a pediplain surface, which represents a gently undulating erosional plain formed by the coalescence of pediments. This surface has moderate infiltration capacity and supports good groundwater recharge potential. The surrounding areas are characterized by lateritic uplands and pediment zones, indicating older erosional surfaces with limited soil cover and moderate runoff conditions. Valley fills and active flood plains occur along local streams and drainage lines. The presence of scattered ponds and water bodies also contributes to local recharge during the monsoon season and the study area drained by Shivanat River. Drainage pattern of the area is dendritic to sub-dendritic in nature.

3.4.2 Hydrogeology and Aquifer Systems

The area may be divided into two namely phreatic and deeper fractured aquifer. The major aquifers present in the study area is 1. Shale (Tarenga and Gunderdehi), 2. Limestone (Charmuria and Chandi) 3. Sandstone (Chandrapur) and 4. Granite gneiss.

The Pre-Monsoon depth to water level 2.3 to 7.9 m bgl is observed in the study area and post-monsoon depth to water level 0.86 to 6.7 m bgl is observed in major parts of the area. The yield ranges from 5 to 10 litre/sec. As per CGWA Categorization of Assessment Units as per Dynamic Ground Water Resources of India the area comes under Safe category.

Source: *Aquifer Mapping and Management of Ground Water Resources, Baloda Bazar District Chhattisgarh 2021-2022*

3.4.2 Water Quality

Groundwater and surface water quality was assessed by identifying 8 groundwater (Borewell/ hand pump) locations in different villages and 6 surface water samples.

A. Groundwater Quality

The analysis results indicate that the pH ranged 7.18 – 7.84. The TDS was ranging from 320 – 495 mg/l. Total hardness was found to be in the range of 228.14 – 364.82 mg/l. The fluoride concentration was found below limit of quantification i.e., BLQ (LOQ-0.1). The nitrate and sulphate were found in the range of 4.17 – 7.08 mg/l and 15.58 – 39.73 mg/l respectively. The chloride concentration was found in the range of 121.28 – 191.16 mg/l.

The Heavy metals like As, Pb, Ni was found below limit of quantification i.e., BLQ (LOQ-0.01), BLQ(LOQ-0.02), BLQ (LOQ-0.01) respectively and Iron was found in the range of 0.16 to 0.42 mg/l.

B. Surface Water Quality

The analysis results indicate that the pH ranged between 7.06 – 8.23. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 265 – 390 mg/l which is within the permissible limit of 1500 mg/l. The total hardness recorded was in the range of 155.43 - 253.38 mg/l as $CaCO_3$ which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 85.36 – 131.67 mg/l and 13.29 – 28.74 mg/l respectively.

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic

system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

LOCATION WISE WATER QUALITY ASSESSMENT

S. N.	Locations	WQI	Quality	Remark
1.	Project Site	53.01	Good	**Assessment of water quality based on the analyzed physico-chemical parameters indicates that the groundwater quality is good.**
2.	Ringni	54.89	Good	
3.	Jhiria	51.51	Good	
4.	Kamta	63.00	Good	
5.	Hathbandh	54.01	Good	
6.	Dongarira	62.59	Good	
7.	Kesda	51.54	Good	
8.	Bhothidih	67.54	Good	

3.5 LAND USE LAND COVER CLASSIFICATION

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 7th June 2025 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approximate about 21°32'11.46"N to 21°43'48.59"N latitude and 81°42'27.69"E to 81°54'26.80"E longitude and elevation 269 to 308 meters are used as per the project site confined within that area.

The Land Cover classes and their coverage are summarized in **Table 8.**

TABLE 8: LU/LC AND ITS COVERAGE WITHIN 10 KM RADIUS

LU/LC Classification System				
Sl. No.	**Level-I**	**Level-II**	**Area (Sq. Km²)**	**Percentage (%)**
1	Built-up land	Settlement	4.04	1.15
		Industrial Settlement	1.29	0.37
		Road Infrastructure	1.06	0.30
		Railway Line	0.68	0.19
2	Agricultural Land/ Crop Land	Single Crop	152.33	43.23
		Double Crop	136.38	38.70
3	Forest Area	Reserve Forest	7.23	2.05
		Open Jungle	0.58	0.16
4	Scrubs/Wastelands	Open Scrub/Land with Scrub	36.82	10.45
		Wasteland	6.31	1.79
5	Waterbodies	River/Nala/Stream	2.47	0.70
		Pond/Tank/Dam	3.21	0.91
		Total	**352.4**	**100.00**

3.6 SOIL QUALITY

The project site and its terrain consist of flat to moderately steep slopes. The terrain is characterized by forest, agricultural land, land, various settlements, waterbody and open scrub/wasteland. It is also observed that the open scrub area and barren land are dominant in North and North West Portion of the study area. The following observations are as follows:

The bulk density of the soil in the study area ranged between 1.43 – 1.71 g/cm^3 which indicates favorable physical condition for plant growth. The water holding capacity is between 39.73% – 49.59%. Infiltration rate, in the soil is in the range of 6.98 – 14.12 mm/hr. pH of the soil is found to be neutral (6.24 – 8.02) in reaction. Electrical conductivity is in the range of 108.2 – 192.1 µs/cm. The important water-soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 599.16 – 832.18 mg/Kg and 242.28 – 441.12 mg/Kg respectively. Water soluble Chloride (as Cl) is in the range of 353.36 – 528.26 mg/Kg. Organic matter and organic carbon were found in the range of 1.08% – 1.54% and 0.63% – 0.93%.

3.7 BIOLOGICAL ENVIRONMENT

- **Flora Details:**

Floral composition in Study Area: Total 178 plant species were enlisted within the study site out of which habitat wise details are given as follows: Trees: 73, Shrubs: 37, Herbs: 34, Climbers: 16, Grasses & Bamboos: 17, and Parasite: 1 species observed in the study area.

Endemic Plants of the Study Area: Among recorded plant species none were assigned the status of endemic plant of this region.

RET (Rare, Endangered and Threatened species) Status: Among the recorded species, *Dalbergia latifolia* (Shisham) and *Santalum album* (Chandan) listed as Vulnerable (VU). *Tectona grandis* (Teak) is listed as Endangered (EN). *Aegle marmelos* (Bel) is fall under Near Threatened (NT) status, as per the IUCN Red List 2025-2. Of the remaining species, 100 are categorized as Least Concern (LC), 4 as Data Deficient (DD), and 70 as Not Evaluated (NE), based on the latest IUCN assessment (2025-2).

- **Fauna Details:**

As per IUCN RED (2025-2) List

Among the reported animals, *Python molurus* (Indian python) and Varanus bengalensis (Indian Monitor Lizard) are categorized as Near Threatened (NT). Remaining, all the species are categorized as least concern as per IUCN 2025-2.

As per Indian Wild Life (Protection) Amendment Act, 2022 - Schedule-I fauna:

Wild Life (Protection) Amendment Act, 2022, as amended on 20th December 2022, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country. The Wild life (Protection) Amendment Act, 2022 has come into force since 1st April 2023.

Some of the sighted fauna were given protection by the Indian Wild Life (Protection) Amendment Act, 2022 by including them in different Schedule.

- **Mammals:** Indian porcupine (*Hystrix indica*), Common mongoose (*Herpestes edwardsi*), Jungle cat (*Felis chaus*), Indian fox (*Vulpes bengalensis*)

- **Herpetofauna:** Bengal Monitor Lizard (*Varanus bengalensis*), Indian Python *(Python molurus)*, Indian Cobra (*Naja naja*), Russell's Viper (*Daboia russelii*) and Common Rat Snake (*Ptyas mucosa*)
- **Avifauna:** None.

3.8 SOCIO-ECONOMIC ENVIRONMENT

Information on socio-demographic status and the trends of the communities in the 10 km radius was collected through primary social survey and secondary data collection from census 2011, District Census hand book 2011 & GeoIQ 2021. Summary of the socio-economic status of the study area is given in **Table 9.** Details regarding education and infrastructure facilities 2011 are presented in **Table 10**.

TABLE 9 (A): SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN STUDY AREA

Total households	21631
Total population	106577
Male Population	53166
Female population	52967
SC Population	21406
ST Population	10371
Total literates	64267
Total Illiterates	42310
Total workers	50786
Total main workers	34068
Total marginal workers	16718
Total non-workers	55791

***Source**:* Primary census abstract 2011, District Raipur State Chhattisgarh

TABLE 9 (B): PREDICTED POPULATION DETAILS IN STUDY AREA (2021)

Zones	Total Population	Total Male	Total Female
0-2 km	7349	3755	3594
2-5km	26749	14428	12321
5-10km	111541	56800	54741
10 km	145639	74983	70656
In %		**51.49**	**48.51**

***Source**: GeoIQ website* (https://geoiq.io/places/Chhattisgarh/zibvgpcXAF)

TABLE 10: PERCENTAGE DETAILS REGARDING INFRASTRUCTURE FACILITIES WITHIN 10 KM RADIUS STUDY AREA

Infrastructure facilities	Availability (In percentage) As per year 2011, Census District Raipur, Chhattisgrh
Educational Facilities	100
Drinking water	100
Road	70.51
Electricity	100
Communication	97.00

Transportation	85.35
Medical	48.00
Bank & Society	33.33
Drainage	48.00
Recreation	93.02

SALIENT OBSERVATION OF THE SOCIO-ECONOMIC SURVEY

A number of aspects were studied in the villages surveyed for socio- economic studies. Following are the observations found during interviews, focused group discussions and as per the Questionnaire:

1. **Agriculture (Cultivation, Farming)**
   - Paddy is the main crop, yielding 10–12 quintals per acre.
   - Farmers also grow wheat, bajra, maize, and vegetables (tomatoes, brinjals, okra).
   - Agriculture ensures food security and supplementary income.
   - Industrial projects must safeguard air, water, and soil to avoid disrupting farming.
2. **Agricultural Production & Marketing**
   - Farming is mainly subsistence-based, with some produce sold in local markets.
   - Traditional methods dominate, though modern techniques are slowly emerging.
   - Lack of storage causes post-harvest losses; better storage and market linkages are needed.
3. **Skilled and Unskilled Labor**
   - Workforce engaged in steel, rice mills, poultry, and allied industries.
   - Skilled roles: welders, operators, electricians, supervisors.
   - Unskilled roles: handling, packaging, maintenance.
   - Women contribute in food processing units.
   - Local youth prefer industrial jobs for higher wages.
4. **Labor Demand for Proposed Expansion Plant**
   - Construction phase: ~230 workers, 80,950 man-days.
   - Operational phase: ~551 workers, 193,615 man-days annually.
   - Indirect jobs in transport, supply, maintenance, catering, etc.
5. **Economic Benefits – Trade & Commerce**
   - Expansion will boost procurement, logistics, packaging, warehousing.
   - Ancillary businesses (maintenance, catering, retail, accommodation) will grow.
   - Creates multiplier effect on regional economy.
6. **Health Care**
   - Limited healthcare facilities; PHC under-staffed.

- Residents travel to towns for serious treatment.
- Common issues: respiratory illnesses, waterborne diseases, skin infections.
- Need for stronger healthcare infrastructure and preventive programs.

7. **Social Well-being**
   - Linked to jobs, infrastructure, education, and healthcare.
   - Project can improve living standards if benefits are equitably shared.
8. **Education**
   - Primary/middle schools exist but lack facilities (water, sanitation, textbooks, computers).
   - Some villages face teacher shortages and unsafe school buildings.
   - Higher education available in Tilda, but transport is a barrier.
   - Need for infrastructure upgrades, staff, and awareness campaigns.
9. **Infrastructure Building**
   - Project requires roads, bridges, utilities.
   - Improved connectivity will benefit markets, healthcare, and education.
10. **Rural Water Supply**
    - Multiple sources: canals, ponds, nalas, tanks.
    - Ringni faces shortages due to lack of storage.
    - Dongariya reports poor water quality.
    - Need for storage, monitoring, and sustainable supply systems.
11. **Migration from Other States**
    - Migrants from Odisha, Bihar, Jharkhand work in industries and construction.
    - Reflects demand for labor and limited opportunities in home states.
12. **Sanitation**
    - Poor drainage, open drains, foul odors, disease risk.
    - Garbage bins exist but poorly maintained.
    - Need for toilets, solid waste management, and drainage systems.
13. **Road Connectivity**
    - Village roads poorly maintained, narrow, dusty.
    - Rainy season worsens commuting.
    - Project can improve surfacing, widening, and drainage.
14. **Electricity**
    - Supply generally functional but with power cuts.
    - No streetlights, causing safety issues.

- Project can strengthen grid and add street lighting.

15. Banking Facility

- Limited banking services.
- Expansion can encourage financial inclusion and credit access.

16. Transportation

- 80% rely on personal vehicles; public transport minimal.
- Women, elderly, and children face mobility challenges.
- Need for affordable, reliable public transport.

3.8.1 **Awareness and Opinion**

- Villagers aware of project via meetings and discussions.
- Positive outlook: expect jobs, development, no pollution.
- Strong support and high expectations.

3.8.2 **Curiosity and Interest**

- Stakeholders curious about job creation, infrastructure, and economic benefits.
- Willing to engage if provided transparent information.

3.8.3. Suggestions and Expectations

- **Education:** Scholarships, teacher availability, sanitation, clean water.
- **Healthcare:** Mobile units, health camps, doctors at PHCs, preventive awareness.
- **Employment:** Skill development, vocational training, local recruitment.
- **Water:** Piped supply, purification units, rainwater harvesting.
- **Recreation:** Playgrounds, pond beautification, community spaces.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 AIR ENVIRONMENT

The mathematical Model AERMOD was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. In 1991, the U.S. Environmental Protection Agency (EPA) in conjunction with the American Meteorological Society (AMS) formed the AERMOD. AERMOD is a steady-state plume model aimed at short-range (up to 50 km) dispersion from stationary industrial-type sources.

The impact of a source or group of sources on air quality is evaluated using mathematical models. The widely accepted interpretation models simulate the relationships between air pollutant emissions and its impact on air quality. For the present study, this model is used for the prediction of maximum ground level concentrations.

Presentation of Results

The model simulations are done for the air pollutants due to proposed project. The maximum ground level concentrations (GLCs) for particulate matter and gaseous emission of SO_2, NO_x due to proposed expansion project has been carried out using hourly meteorological data. The short-

term modeling results are presented in **Table 11** and for the short-term simulations for point emission sources, the concentrations were estimated around 441 receptors to obtain an optimum description of variations in concentrations over the site in 10 km radius covering 16 directions. The predicted incremental concentrations of above parameters are as follows:

TABLE 11: PREDICTED INCREMENTAL GROUND LEVEL CONCENTRATIONS

Pollutant	Incremental Concentration (µg/m3)	Distance (m)	Direction
PM_{10}	0.75	1000	E
$PM_{2.5}$	0.20		
SO_2	0.43		
NO_x	14.60		

TABLE 12: DETAILS OF AIR POLLUTION CONTROL SYSTEM/ MITIGATION MEASURES

Sl.	Process Unit	Air Emission Management	Design Targets
1	Cold Rolled Steel Product including Pickling	Acid fume extraction system with wet scrubber, Closed pickling tanks with hood, Stack with adequate height, Low NOx burners and proper ventilation	PM < 30 mg/Nm³, NOx < 600 mg/Nm³ and Acid Mist < 35 mg/Nm³.
2	Precision Steel Pipe	Local exhaust ventilation (LEV), Fume extraction system and good housekeeping	PM < 30 mg/Nm³
3	CRFH Pipe	Dust extraction system and ventilation system	PM < 30 mg/Nm³
4	CRCA Coil	Oil mist collectors, LNG - fired furnace with low - NOx burners; optimized combustion and Stack with adequate height	PM < 30 mg/Nm³ and NOx < 600 mg/Nm³
5	Galvanizing / Galvalume Coil	Fume extraction hood, Wet scrubber, low - NOx burners and Stack with adequate height	PM < 30 mg/Nm³ and NOx < 600 mg/Nm³
6	GP Pipe	Fume extraction System	PM < 30 mg/Nm³
7	Corrugated Galvanized Sheets	Fume extraction system, Enclosure & suction hood	PM < 30 mg/Nm³
8	Color Coated Coils / Sheets	VOC capture & treatment (RTO/afterburner); heat recovery system; proper ventilation along with Stack with adequate height	PM ≤ 30 mg/Nm³, NOx < 600 mg/Nm³ and VOC ≤ 50 mg/Nm³.
9	Hollow Section Pipe	Local exhaust ventilation; dust collection	PM < 30 mg/Nm³
10	Hollow Special Steel Pipes	Fume extraction system with good housekeeping	PM < 30 mg/Nm³
11	ETP Sludge Dryer	Cyclone separator & proper enclosure	PM ≤ 30 mg/Nm³

Additional Measures to reduce/control pollution control

- Roads will be frequently sprinkled with water.
- Regular sweeping of road by using vacuum cleaner will be carried out
- Regular maintenance of vehicles and machineries will be carried out in order to control emissions.
- Green belt development will be taken up all along the roads, plant premises etc.
- Protective appliances will be provided to all the workers exposed in dusty atmosphere.
- Avoiding overloading of the trucks.
- Workers will be equipped with all personal protective devices like Gum Boot; hand gloves; Safety helmet; Safety goggles, earplugs at work place.
- By controlling the speed of the truck.

- Proper gradient of roads to reduce cumulative noise.
- Transportation of materials will be limited to day hours only.
- Fugitive dust emissions are likely in the unloading areas, material transfer point, product separation area, etc. Fugitive emissions will be regularly monitored in the plant area as per CPCB stipulations and record of the same shall be maintained.

4.2 NOISE ENVIRONMENT

- Day and night sound pressure levels are often used to describe the community exposure. The nearest human settlement Ringni Village is 0.1 Km in S direction away from project site and resultant noise level at this village are 58.7 dB(A) at day time & 45.5 dB(A) at day night.
- Full body vibration and hand-arm vibration impacts will be felt by operators sitting in heavy machineries and operating vibrating devices, respectively. Necessary precautions in workplace environment shall be exercised to reduce workplace vibration impacts.

Mitigation Measures

- Dense plantation will help to reduce noise pollution in the following ways –
  - The sounds that are produced by the leaves helps muffle the noise.
  - Hedging makes a thick front of the wall and blocks the noise.
  - Thick tree trunks create a sound-absorbing buffer zone.
  - They help in filtering the noise.
  - The research also concluded that a 20 m dense plantation can give a noise reduction of 6 dB (A).
- Equipment will be standard and equipped with silencer. The equipment will be in good working conditions, properly lubricated and maintained to keep noise within permissible limits.
- Most of the equipment's will be placed in closed room
- Equipment's will be placed on acoustic floor to reduce vibration and noise
- High noise zone will be marked, and earplugs will be provided to the workmen near high noise producing equipment.
- Use of PPES awareness program will be provided to all workers.
- Proper shifting arrangement will be made to prevent over exposure to noise and vibration.
- Silent DG sets will be used site.
- Speed limits will be enforced on vehicle.
- Regular noise & vibration

4.3 IMPACT ON WATER ENVIRONMENT

The proposed expansion may have some impact on the water environment. The impact may be on the source of water in the form of depletion of water resources of the area and in the form of deterioration of quality of natural water resources due to discharge of plant effluent. Total water requirement will be 800 KLD (2,40,000 KLA). Total water required for domestic purposes will be 50 KLD. There will be no industrial effluent discharged outside the plant premises due to existing as well as proposed units. Domestic wastewater will be generated treated in STP and treated water will be used for green belt and dust suppression purposes. M/s. APL Apollo Building Products Ltd. will maintain zero discharge condition from the plant all the time throughout the year.

The various control measures that will be adopted are:

Mitigation Measures

- The project will have **200 KLD ETP** including for treat Industrial waste water and STP having a total capacity of 320 KLD (comprising 7 x 45 KLD and 1 x 25 KLD proposed units) for treatment of domestic waste water. Treated Industrial water from ETP will be partly utilized in dust suppression, Fly Ash conditioning and Slag quenching and recycle in the process. Whereas, treated domestic wastewater from STP will be used in green belt. The project site is located in an area classified as '**Safe Zone** as per the guidelines of CGWA, moreover the source of water will be surface water.
- 142 KLD of treated effluent from the ETP will be further treated through a RO plant. The RO permeate (92 KLD) will be reused for greenbelt development, while the RO reject (50 KLD) will be routed along with the RO reject (80 KLD) from the WTP to the MEE.
- The combined 130 KLD feed to the MEE will yield approx. 117 KLD of condensate, which will also be reused for greenbelt irrigation, and 13 KLD of MEE concentrate, which will be handled as per ZLD norms
- The treated sewage (32 KLD) will be reused for greenbelt development within the plant premises.
- Garland drain will be provided to all stockyards area to prevent run-off containing suspended solids by routing the storm water drains through catch pits/sediment traps.
- Any spillage of hazardous waste (used oil/spent oil, ETP Slag, etc.) or contamination will be immediately removed.
- Periodic ground water monitoring at project site as well as nearby villages will be carried out.
- All stock piles will be on pucca flooring to prevent for any ground water contamination.
- **Existing:** RWH Structures has total capacity of 1,79,895 $m^3/year$
- **Proposed:** It is proposed to build 10 Recharge Shafts having capacity of 30,000 $m^3/year$ and 10 Recharge Wells with the capacity of 60,000 $m^3/year$.
- Total recharge capacity (Existing and Proposed) will be 2,69,895 $m^3/year$

4.4 IMPACT ON BIOLOGICAL ENVIRONMENT

Ecology & Biodiversity: Aspect - Impact identification and mitigation measures suggestion for proposed expansion project.

S. No.	Project Aspects / Activities	Residual Impacts	Mitigation Measures Suggested
1.	Transportation, unloading & storage of Material and Movement of vehicle inside plant, Dust and sound generation due to proposed expansion activities	Impact on nearby vegetation and avifauna in a scale of 2 out of 5 due to proposed expansion activity.	Thick greenbelt will be developed along periphery of the project site in order to provide buffer between plant fugitive emission and nearest vegetation.
2.	Gaseous emission from Stack, Movement	Decline in photosynthetic activities,	Air quality modelling outputs study revealed that, the resultant concentrations of particulate matter, Sulphur di-oxide and oxides of nitrogen are well

S. No.	Project Aspects / Activities	Residual Impacts	Mitigation Measures Suggested
	of vehicle inside plant and Raw material & finished product transportation, Product manufacturing	Stomatal index may be minimized, Crop yield may be reduced.	within the prescribed limits. In expansion project is proposed at total 149.59-hectare land out of which it is proposed to develop 35.63% (53.30 ha.) area as greenbelt. In the above 53.30 Hectare land it is proposed to develop a greenbelt by total plantation of 1,33,250 saplings. This will be developed within 3- year (after receipt of EC) whereas survival rate shall be maintained in subsequent years. As on date 77,000 numbers of plants are already planted by the company. Indigenous species for plantation is recommended along the approach road and plantation under CER. Thus, the impact due to proposed expansion project would be minimal as project activity will be carried out within the plant boundary limit with proper control measures.

4.5 IMPACT ON SOCIO-ECONOMIC ENVIRONMENT

Positive Impacts:

Employment

Direct Employment The project is expected to generate significant employment opportunities for both construction and operational phases.

- During Construction: The project will engage approximately 230 personnel, including 30 permanent employees and 200 temporary workers, resulting in a total of 80,950 man-days.
- During Operation: Around 551 personnel will be employed, including 51 permanent and 500 temporary staff, contributing to 193,615 man-days annually.

Overall, the project will provide employment to 781 individuals over both phases, totalling 274,565 man-days, thereby directly benefiting the local workforce and contributing to their livelihood.

Indirect Employment In addition to direct employment, the project is likely to create indirect opportunities through ancillary activities such as supply of raw materials, transportation, maintenance, security, and other support services. Local vendors, transporters, and service providers will benefit, further strengthening the socio-economic profile of the surrounding communities.

The creation of both direct and indirect employment will enhance income generation, improve skill development, and support long-term socio-economic growth in the study area.

Enhanced Local Economy The increase in employment and business opportunities will stimulate the local economy through higher disposable incomes and increased demand for goods and services.

Skill Development Training programs for residents, especially youth, will enhance their employability in specialized roles in the explosive and chemical manufacturing sectors

Infrastructure Development: Improved road connectivity will facilitate smoother access to regional markets and services, enhancing the mobility of residents. Upgraded water supply,

sanitation systems, and housing projects will significantly improve the standard of living for the local population.

Women's Empowerment Engaging women in auxiliary services (e.g., catering, housekeeping, and packaging) and skill-based training initiatives will provide them with income-generation opportunities. And Collaboration with SHGs for micro-business ventures can improve financial independence among women

Negative impacts.

- The proposed project may lead to an increase in vehicular movement and site-related activities, which could generate significant dust emissions. This dust may settle on nearby agricultural lands, potentially affecting crop growth and reducing agricultural productivity. Additionally, water demand for the proposed operations might put pressure on local water sources, which could impact irrigation availability for farming communities. These combined factors may pose risks to the livelihood of local farmers who are directly dependent on agriculture.
- The influx of workers and rapid industrialization may disrupt local social structures and lead to conflicts over resource use and cultural differences. It may also lead to an increase in the cost of living, affecting the local population.

Mitigation Measures

- To mitigate the impact of dust on agriculture, regular watering of roads and the use of dust control measures like chemical suppressants should be implemented. Additionally, planting green buffers along the roadways can help reduce dust dispersion, ensuring minimal interference with crop growth and maintaining agricultural productivity.
- Preference for direct/contractual employment should be given to the locals based on their skills and aptitude. Social development program should be conducted as the part of CSR/ CER.

5.0 ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell (EMC) will be established for the proposed expansion project under the control of by General Manager (Plant Head) with a direct reporting to Board of Directors.

The company has proposed to Capital Cost of Rs. 50 Lakhs and Recurring Cost of Rs. 18 Lakhs towards Environment Monitoring Program. NABL/MoEFCC accredited lab (Third party) will engage to monitor all the environmental components as per CPCB/CECB norms.

6.0 ADDITIONAL STUDIES

6.1 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the proposed project has been estimated for fire, explosion and toxicity and corresponding mitigation measures are suggested in the EIA/EMP report.

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions) that exist in the project site. On the other hand, risk analysis deals with the identification and quantification of risks occurring due to the plant equipment and personnel exposed, due to accident resulting from the hazards in the plant. The occupational and safety

hazards and preventive measures, process hazards and their preventive measures, and storage hazards and preventing measures are provided in details in Chapter 7 of the EIA report.

The main objective of the risk assessment study is to determine damage due to major hazards having damage potential to life and property and provide a scientific basis to assess safety level of the facility. The secondary objective is to identify major risk in manufacturing process, operation, occupation and provide control through assessment and also to prepare on-site, off site plans to control hazards.

The assessment of risk in the proposed project has been estimated for material handling, movement of Trucks/Tippers, Dust hazards, Hazards, shock hazards, etc. and corresponding mitigation measures are suggested in the EIA/EMP report.

6.2 PUBLIC CONSULTATION

The Draft EIA-EMP report for brownfield project is prepared as per the TOR issued by SEIAA (Chhattisgarh) and the report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

After completing the public consultation process, the points raised and commitment of project proponent during the public hearing will be incorporated in the final EIA-EMP report for final submission to Environmental Clearance.

7.0 PROJECT BENEFITS

- M/s. APL Apollo Building Products Ltd. will also support social welfare activities under CSR obligation under companies act.
- A provision of Rs. 560 Lakhs is made under CER.
- The project benefits also entail revenue earnings to national and state exchequer through GST (Estimated Rs. **2167 Crores** Gross GST), road tax, income by registration of trucks & trailers, income tax, corporate tax, etc.
- It is estimated that Total **551** additional people will get direct employment and indirect employment will be approx. **1000 persons**.
- The project is expected to generate a turnover of approximately Rs **12040 Crores,** contributing to the GDP, with an estimated **Rs 2167 Crores** in gross GST payable to the government. Annual salary and wage payments will exceed to **Rs 212.29 Crores**, and payments for power to the state grid will amount to over **Rs 208.97 Crores**. These financial activities will significantly contribute to the growth of the national GDP as well as the local economy.
- Preference will be given to local people, depending upon their qualification and skill. The salary wages payment will be above Rs. **212.29 Crores** per year.

Proposed Social Welfare Arrangement

The proposed expansion project would provide development of area and consequent indirect and direct job opportunities which would finally result in improvement in the quality of life of people in the central region. APL Apollo Building Products Ltd. will carry community welfare activities in the following areas:

- Community development
- Education
- Health& medical care
- Drainage and sanitation
- Roads

The project proponent will comply with its obligation for CSR as per Company's Act too. Corporate Environment Responsibility (CER) value of **Rs. 560** Lakhs will be spent for the social infrastructure development.

8.0 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan comprising following set of mitigation, management, monitoring and institutional measures to be taken during implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels.

- Overall conservation of environment.
- Minimization of natural resources and water.
- Ensure effective operation of all control measures.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.
- Control of waste generation and pollution.

The company will invest about **Rs.16,798 Lakhs,** capital cost for the Environmental Management Plan and spent about **Rs. 295 lakhs**. recurring cost per year for operation and maintenance.

9.0 CONCLUSION

In Accordance with the economic policies of the Government of India and the National Steel Policy, it is projected that India will need to establish a steel production capacity of 300 million tonnes per annum, compared to the current capacity of approximately 125 million tonnes per annum. Aligning with this vision, the Government of Chhattisgarh has introduced its Industrial Policy for 2019–2024, which promotes the development of steel projects utilizing local resources within the state.

The required technology is well-established, with all necessary machinery and skilled manpower readily available within the region. Furthermore, essential infrastructure such as land, water, transport, and labor is sufficiently accessible.

The project adopts environmentally sustainable practices, aiming to control particulate matter emissions to below 30 mg/Nm³, achieve zero liquid discharge, and ensure 100% utilization of solid waste for beneficial purposes. The site is situated in an environmentally safe area, with no critically or severely polluted zones within a 15 km radius.

Approximately 35.63% of the project land will be developed as a greenbelt, and 100% of the rainwater within the project area will be harvested for plant operations and groundwater recharge. Employment opportunities will prioritize local residents, and Corporate Environmental Responsibility (CER) activities will be undertaken based on public feedback. Additionally, Corporate Social Responsibility (CSR) initiatives will align with the priorities set by the district administration and local panchayats.

In conclusion, with the effective implementation of pollution control and mitigation measures, the project is expected to have no significant adverse impact on the environment. Instead, it will contribute to reducing the steel demand-supply gap, foster regional economic development, and provide societal benefits.

10.0 DISCLOSURE OF CONSULTANTS

The environmental studies for the proposed expansion project of M/s. APL Apollo Building Products Ltd. were conducted by M/s. Anacon Laboratories Pvt. Ltd. (ALPL), Nagpur. Established in 1993 as an analytical testing laboratory, ALPL has grown into a leading environmental consultancy firm in Central India, supported by a state-of-the-art testing lab for

environmental and food analysis. The team comprises experienced former government scientists and highly skilled young scientists with expertise in various fields. Recognized by the Ministry of Environment & Forests, New Delhi, ALPL is accredited by the Quality Council of India (QCI) for conducting environmental studies, holding Accreditation Certificate No. NABET/EIA/2326/RA 0304_Rev.01, dated March 13, 2024, valid until September 29, 2026.