

Bid invitation

Information

Description:Tender for Bhopal Rail Plant

Bid invitation number:6300040354

Version: 8

Bid invitation rules

Bid invitation currency: INR

Timezone: INDIA

Submission period: 31.03.2026 13:00:00

Tech Opening date: 31.03.2026 13:30:00

Created On: 06.02.2026 06:06:16

Bid invitation text:

NAME OF THE WORK : : Engineering, Procurement & Construction pertaining to establishment of Rail coach factory including Civil Construction of manufacturing blocks, testing bay, other utility buildings (Non factory buildings), Railway Track sidings, water supply and distribution System, Roads, Drainage and sewerage systems, General Electric works including regular and emergency power supply and distribution system, related installations & services (Fire, Gas, Compressed air, IT, BMS, etc.), MFA (Miscellaneous fixed assets) and other Land & Site development works including grading, levelling works in connection with setting up of a Rail Coach Factory hereinafter referred as BEML RAIL HUB FOR ADVANCE MANUFACTURING (BRAHMA)near Umaria village, Obaidullaganj, District- Raisen, Madhya Pradesh (India) PIN code 464993 on EPC Mode.

Bids should be only on SRM Portal. (Quotations sent by Fax / Email / Quotations on letter heads or in any other mode will not be considered). Conditional offers are liable for rejection.

TENDER CLOSING DATE : 10.03.2026.

Earnest Money Deposit (EMD) :

EMD Amount Rs.13,14,04,465

FIRST PRE BID MEETING : DATE OF First - PRE-BID MEETING IS SCHEDULED ON 18-02-2026 @ 10:30 HOURS.

Date of Second Pre-bid meeting is scheduled on ON 28-02-2026 @ 14:30 HOURS.

Bid invitation

Information

Description:Tender for Bhopal Rail Plant

Bid invitation number:6300040354

Version: 8

Contact Person : For Civil Engineering related issues , Technical specification & Drawings contract : Mr. Nagendra Mishra , Project Manager , Rail plant Bhopal (Mobile- 8310857967)

CIVIL Maintenance Rail plant Bhopal- Mr. Vinodh (Sr. Manager, Rail plant, Bhopal) (Mobile- 8285252187)

QUOTE: LUMPSUM VALUE WITH GST TO BE QUOTED ON SRM COMMERCIAL BID ONLY.

BOQ; Bill of Quantities are as per NIT & BOQ (PDF File) for your reference & to arrive at the Total contract Value including GST. Firm to submit breakup for the same
Signed filled BOQ to be uploaded in SRM PORTAL at 'Notes & price attachments' only, No Price documents as a part of technical bid under "C-folder technical attachments " otherwise bid will be rejected.

For details refer NIT Document

Order shall be finalized as per QCBS Formulation
Completion period- 18 MONTHS from work commencement.

PAYMENT TERMS : As per NIT

Bidders are requested to indicate / select SRM code = L046 (100% payment against certification of user departments) while quoting Bid.

NOTE :

Bidders are advised to check corrigendum if any and up loading the signed with seal corrigendum's are mandatory for Technical Evaluation of the Bid. This Letter + Tender document + Corrigendum if any, will be part of the contract.

Please contact BEML SRM Team for getting user ID & password / clarification during the submission of bid through SRM / guidance on submission of bid in SRM system. Phone : 080-22963269 e-mail ID : admin.srm@beml.co.in, anithak@bemltd.in

For any tender related clarification, please Mr. Atul Thombre, Sr. Manager, Rail plant, Bhopal (9632270759) Mail- atulthombre@bemltd.in

NO PRICE SHOULD BE INDICATED IN TECHNICAL BID.

General Information while uploading Docs in SRM

a. Use Edge Browser with Internet Explorer mode ONLY for SRM portal.

b. SRM Portal Link : <https://bemlepci.bemlindia.in:50001/irj/portal>

Bid invitation

Information

Description:Tender for Bhopal Rail Plant
Bid invitation number:6300040354

Version: 8

c. Mail to admin.srm@beml.co.in / anithak@bemlltd.in for creation of SRM User Credentials After Logging in, search for the tender.

d. Open the tender, click on "Technical Rfx" to download the tender documents.

All necessary training manuals are available in the link for ready reference

<https://www.bemlindia.in/eprocurement/Valid Class 3 Organization Digital Signature with Signing and Encryption certificate is mandatory for submission of bid in SRM e-Procurement System.>

General Note :

(a) Bidders are suggested to upload all documents well in advance before closing date not resorting to last date last minute uploading, which may result in improper / missing of documents uploading.

(b) Bidder has to submit all the requisite documents for qualifying in Technical bid. It is Recommended to cross check all the documents against the list after uploading on SRM to ensure that all the necessary documents are correctly uploaded.

(c) In case any of the required documents are not submitted / uploaded by the bidders/ if clarity in documents are not found, BEML reserves the right to reject the bid. Decision of BEML in this regard will be final and binding.

(d) To have better clarity and easy identification, bidders are advised to upload the documents separately by giving appropriate names, i.e.,

(1) For signed & sealed NIT Acceptance letter –FILE NAME = NIT_AL_Signed & Sealed

(2) For Annual Turnover certificate – FILE NAME = Annual Turnover, etc., Do not club all the documents in one single file.

General Note :

(a) FIRM has to study and understand complete scope of Work and Terms & conditions before quoting the tender.

(b) Subject contract comprises of full and satisfactory completion of the works as per the Bill of Quantities, Terms and conditions.

(c) Scope of work as per NIT to be executed all as per instructions / directions of Contract in-Charge of Civil Maintenance /Electrical Maintenance/Project Manager, Rail plant Bhopal.

Please quote lump-sum charges inclusive of all taxes.

Attachments:

SOIL_REPORT

DRAWINGS

FURNITURE_DETAILS

ANNEXURES_OF_NIT

BOQ

Bid invitation

Information

Description:Tender for Bhopal Rail Plant

Bid invitation number:6300040354

Version: 8

Attachments:

COLOUR_CODES

DESC_OF_FACILITIES

NIT

Corrigendum-1

Corrigendum-2

Digital Signature

Corrigendum-3

Bid invitation details

Item	Product Price Condition	Description	Vendor product number	Delivery date/ performance period	Quantity
1		CIVIL & MEP TENDER FOR BHOPAL RAIL PLANT			1 NO

Item long text:

Details uploaded with corrigendum-3 dated 18.03.2026 is as below:

Corrigendum-3 Document

Final Updated- BOQ (Submitted Previously stands cancelled)

Updated Annexure-C (Submitted Previously stands cancelled)

Updated scope of work (Submitted Previously stands cancelled)

Details of pending drawings

Details uploaded with corrigendum-2 dated 11.03.2026 is as follows:

Response to pre-bid queries

Revised annexure 13A (Submitted in corrigendum-1 stands cancelled)

Revised Annexure-4

Last date for receiving queries from bidders is 18.03.2026

Corrigendum-1 Uploaded

Details uploaded in Corrigendum-1 as follows-

Bid invitation

Information
 Description:Tender for Bhopal Rail Plant
 Bid invitation number:6300040354
 Version: 8

Item	Product Price Condition	Description	Vendor product number	Delivery date/ performance period	Quantity
------	----------------------------	-------------	--------------------------	--------------------------------------	----------

BOQ_Rev_1
 Revised_Furniture_Details
 Revised Annexure 13 & 13A
 Microsoft Teams Link of drawings

Drawings, Furniture details, BOQ and annexure 13 & 13 A uploaded in C-folder attachments is replaced with documents uploaded in Corrigendum-1
 Soil report uploaded in C-folder attachments

Basic Price

INR



(A Govt. of India Mini Ratna Company under Ministry of Defence)

CORRIGENDUM NO. - 3

Dated: 18/03/2026

PROJECT NAME: Engineering, Procurement & Construction pertaining to establishment of Rail coach factory including Civil Construction of manufacturing blocks, testing bay, other utility buildings (Non factory buildings), Railway Track sidings, water supply and distribution System, Roads, Drainage and sewerage systems, General Electric works including regular and emergency power supply and distribution system, related installations & services (Fire, Gas, Compressed air, IT, BMS, etc.), MFA (Miscellaneous fixed assets) and other Land & Site development works including grading, levelling works in connection with setting up of a Rail Coach Factory hereinafter referred as BEML RAIL HUB FOR ADVANCE MANUFACTURING (BRAHMA) near Umaria village, Obaidullaganj, District- Raisen, Madhya Pradesh (India) on EPC Mode

TENDER No.: 6300040354

DATE OF TENDER ISSUED: 10/02/2026

1. This Corrigendum shall form an integral part of the tender to be read in conjunction therewith.
2. All other terms and conditions remain unchanged.

Bidders are advised to acknowledge receipt of this Corrigendum on the Tender Form when submitting a bid.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
1	10	Specific schedule for finishes	52 of 269	Description of Facilities / Buildings and their Broad Specifications

The broad specifications of the following items are supplementary to the above referred clause.

1.0 Wall cladding

Galvanized (Galvalume coating AZ150-150 g/m² Al-Zn alloy coating), Colour Coated (PPGI) profiled sheeting of tensile strength 550 MPA conforming to IS 277 / IS 15961. Minimum 0.6mm TCT (Total Coated Thickness). Trapezoidal / ribbed profile suitable for industrial cladding, minimum crest height: 28 mm, with zinc aluminium alloy of AZ-150(as per AS-1397: 1993). Sheet shall have a hot dip metallic zinc aluminium alloy Coating of zinc (43%), silicon (1.5%) and aluminium (55%) with total mass coating of 150 gms/sqm considering both sides together. Installation using self-drilling, self-tapping fasteners conforming to IS 1367. Fasteners shall be zinc coated with EPDM washers for watertightness. Side laps: Minimum one corrugation overlap. End laps: Minimum 150 mm with sealant bead. Butyl / PU sealant to be provided at all laps to prevent water ingress. Proper alignment to be ensured to maintain uniformity and aesthetic appearance. Ridge flashing, corner flashing, base trim, eave trim and openings flashing shall be of same material and finish.

Note:

1. The sheet shall have silicon modified polymer (SMP) coating of 20-micron thickness on exposed face and back coat pre-coating of 5-7-micron thickness on unexposed face.
1. The colour of galvalume steel sheet shall be approved colour and shade (BEML's Approval is required before sourcing).

2.0 Rock Wool Sandwich Panel Roofing System

Factory-manufactured double skin Rock Wool Sandwich Roofing Panel of Pre-painted galvanized steel sheet (AZ150 & AZ300) of weather resistant coating with rock wool Density of minimum 100 kg/m³ and 80 to 100mm thickness of roofing panel with thermal conductivity: ≤ 0.42 W/sqm, as 2-hours of fire rating as per class A1 as per EN-13501-1 / equivalent. The profile shall be trapezoidal type; the insulated panels will be as per EN 14509 /IS 12436. The core insulation shall conform to IS 8183. The steel facers shall be 0.6 mm (TCT) for both external and internal facers as base substrate.

Fixing & Installation of panels with complete trims, gutters, flashings and other accessories. Panel side laps are designed to ensure continuous insulation with complete weather tight performance achieved through anti capillary groove & sealants. End laps will be provided where ever applicable of min 150/200 mm. Self-drilling fasteners shall be corrosion resistant plated steel with EPDM bonded metal washer or Aluminum pop rivets. Size of the fasteners /rivets shall be as per design.

The roofing insulated Sandwich Panels systems shall be having provisions for installation of solar modular panels and be engineered to provide required fastener by using appropriate flashings along with Butyl sealant wherever applicable. The roofing system shall include all cutting, lapping, making and finishing cutouts, etc. complete. Acoustic Performance shall be suitable for noise reduction from crane operations and testing activities. Ridge cap, eave flashing and valley gutters are to be provided as per requirement of matching profile wherever applicable. All joints to be sealed with Butyl sealant / PU sealant.

3.0 Polyurethane (PUF) sandwich panels

The polyurethane (PUF) sandwich panels factory fabricated as one unit shall consist of high tensile strength, profile galvalume steel sheet on top and high tensile strength, small rib plain galvalume sheet on bottom. The top profile sheet shall have minimum total coated metal thickness (TCT) of 0.5mm having a yield strength of 550 MPA with minimum coating mass of 150 gm/sqm (considering both sides together) as per AZ 150 of AS 1397-1993. The top profiled sheet shall have silicon modified polymer (SMP) coating on exposed face with 20 microns thick finish and inner face provided with back coat pre-coating of 5-7 microns.

The bottom plain (i.e. Liner) sheet shall have minimum total coated metal thickness (TCT) of 0.45 mm having a yields strength of 550 MPA with minimum coating mass of 150 gm/ sqm (considering both sides together) as per AZ 150 of AS- 1397 1993. The bottom plain sheet shall have silicon modified polymer (SMP) coating provided on exposed face with 20 microns thick finish and inner face provided with back coat pre-coating of 5-7 microns. Both the top profiled and the bottom plain (i.e. liner) galvalume steel sheets shall have a hot dip metallic zinc aluminium alloy coating of zinc (43%), silicon (1.5%) and aluminium (55%). The top profiled sheet shall have a maximum pitch of 205mm C/C and a minimum crest depth of 28 mm. The insulation sandwich in between the top and bottom sheets shall be polyurethane foam (PUF) of density 40 ± 5 Kg/m³ approximate having a thickness of 50 mm as per IS: 12436 -1988 or latest revision.

Note:

1. Canteen dining area wherein structural roof is envisaged; roofing shall be of galvalume sheets of above referred specification.
2. PUF insulated panels shall be used for roofing in facilities other than manufacturing and testing blocks, where rock wool insulated panels shall be used for roofing.
3. Wall panelling wherever mentioned or shown in the drawing shall be of galvalume sheet as per referred specification.
4. Panel sizes either in roofing or side cladding to be chosen such that minimum number of joints are created.

4.0 VDF – Flooring

The work shall consist of providing and laying Vacuum Dewatered Flooring (VDF) of 200 mm thick RCC M-25 grade design mix concrete over a properly prepared and compacted sub-base, complete with a polythene separation membrane of minimum 125 microns thickness (overlap 300 mm), placement, vibration, vacuum dewatering, mechanical finishing, joint cutting and curing, in accordance with the drawings and directions of the Engineer-in-Charge. The concrete shall be

designed as per IS 10262 and executed in accordance with IS 456, using aggregates conforming to IS 383 (maximum aggregate size 20 mm, water–cement ratio ≤ 0.50 and slump 100–120 mm before vacuum).

Concrete shall be laid in panels, compacted using mechanical vibrators and vacuum-dewatered using vacuum mats and suction equipment to remove excess water and improve density and strength. The surface shall then be finished with mechanical power floats and power trowels to obtain a smooth, dense, dust-free and abrasion-resistant surface with level tolerance ± 3 mm under a 3 m straight edge, suitable for industrial flooring and forklift traffic. Control joints shall be saw-cut at 4–6 m spacing with a depth of approximately 50–65 mm within 12–24 hours after casting to control shrinkage cracks. The flooring shall be cured by continuous water curing or approved curing compound for a minimum period of 14 days, and the finished floor shall be uniform, dense, level, and free from cracks, segregation, honeycombing or surface defects, capable of sustaining industrial loads, pallet movement and forklift operations. The controlled joints are to be treated with suitable Expandable sealant.

5.0 Epoxy Flooring

The work Shall consists of design, supply, surface preparation, application, testing, and commissioning of a heavy-duty industrial epoxy flooring on the VDF flooring with minimum M-25 concrete grade of manufacturing block. The flooring areas which may be subjected to heavy steel wheel loads, Forklift and crane traffic, Welding and fabrication operations, Oil, grease, hydraulic fluids, and coolants, Impact and abrasion, Wash-down operations etc. The contractor shall provide a complete system including primers, screeds, seal coats, joint treatments, markings, and protection.

The flooring system for the production areas shall consist of a heavy-duty epoxy screed system with a total thickness of 3 mm, and a minimum thickness of 3 mm in bogie assembly zones. The system shall comprise a low-viscosity epoxy primer applied at a coverage rate of 0.3–0.5 kg per square metre, followed by an epoxy mortar screed made of epoxy binder mixed with graded quartz aggregates, applied by trowel to a thickness of 3 mm. A high-build epoxy seal coat or top coat of 300–500 microns thickness shall be applied as the final layer, with anti-slip aggregates broadcast in wet areas.

The concrete substrate shall be of minimum M25 grade of VDF floor, cured for at least 28 days, with moisture content not exceeding 3% and a minimum surface tensile strength of 1.5 MPa. Surface preparation shall include shot blasting to achieve a CSP 3–5 profile, removal of laitance and contaminants, repair of cracks using epoxy injection, and surface levelling prior to application. No flooring work shall commence without the Engineer's approval. Application shall be carried out at an ambient temperature between 10°C and 35°C, with the substrate temperature maintained at least 3°C above the dew point and relative humidity not exceeding 85 percent. Adequate ventilation shall be ensured during installation.

Construction joints shall be filled with semi-rigid epoxy filler, and expansion joints shall be sealed with polyurethane elastomeric sealant. All joints shall be properly reinstated after completion of the flooring work with the prior approval for the applications. The floor shall be colour coded in

production areas, for walkways, for hazard zones. Line markings shall be executed using epoxy paint, and all markings shall be wear resistant with the prior approval for colour and shade.

The flooring shall be capable of withstanding forklift loads, localized axle loads, steel wheel traffic, and impact from dropped components. Quality control shall include moisture testing, pull-off adhesion tests at random locations, thickness verification, visual inspection for pinholes, and slip resistance testing where applicable. All test results shall be properly recorded and submitted. The completed flooring shall be protected from damage during curing. It shall allow foot traffic after 24 hours, light traffic after 48 hours, heavy traffic after 5 to 7 days, and shall achieve full chemical resistance after 7 days.

APPLICABLE STANDARD CODES:

The system shall comply with latest editions of:

- ASTM C881 – Epoxy Resin Systems
- ASTM D4060 – Abrasion Resistance
- ASTM D4541 – Pull-Off Adhesion
- ASTM D695 – Compressive Strength
- ASTM D638 – Tensile Strength
- ACI 302 – Concrete Floors
- ISO 8501 – Surface Preparation

6.0 Plastering & Finishes

For AAC block masonry

Internal plastering / External plastering – shall be carried out on all masonry & concrete surfaces using cement mortar in the proportion 1:5 (1 cement:5 fine sand). With a thickness of 10mm-12mm. All External and internal surfaces shall be thoroughly cleaned and adequately watered prior to plastering. Proper scaffolding shall be provided. The plastered surface shall be finished to a uniform texture as required to achieve true line, level and smooth finishes. surfaces shall be cleaned, hacked where necessary and properly wetted before plastering. The finished surface shall be even, smooth, free from cracks and suitable to receive paint.

Paint: - After completion and proper curing of plaster, approved primer shall be applied followed by following operation.

- External surfaces: one coat of exterior-grade primer and two coats of weather-resistant exterior Premium external acrylic grade with under coat of external wall putty and primer of approved Make, color and shade.
- Internal Surfaces: Premium internal acrylic emulsion grade with under coat of internal wall putty and primer of approved Make, color and shade.
- Paint on steel surfaces: With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/ steel works, Finishing with Acrylic emulsion/ Deluxe multi surface/Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat,

preparation of surface, etc. complete.

All paint shall be free from VOC and Lead free.

7.0 Rolling Shutters:

Providing, supplying, fabricating, fixing, testing, and commissioning industrial rolling shutters of suitable size, type (motorized) and thickness, complete in all respects.

- Curtain / Laths: Interlocking GI laths manufactured from cold-rolled steel sheets conforming to IS 277, with minimum zinc coating Z275. Thickness shall be 0.90 mm to 1.20 mm depending on opening size.
- Guides: Heavy-duty MS angle / channel guides (minimum 65 × 65 × 6 mm) conforming to IS 2062, securely fixed using anchor fasteners as per IS 1367.
- Spring & Shaft Assembly: High-tensile steel shaft with oil-tempered, heat-treated springs, properly balanced and designed for shutter size and weight, conforming to IS 1367.
- Brackets & Hood: MS brackets (minimum 6 mm thick) and GI hood cover (minimum 0.90 mm thick), fabricated from steel conforming to IS 2062 and IS 277.
- Operation: Electrically operated with motor, limit switches, and manual override, as specified.
- Finish: Factory galvanized or powder-coated / painted finish (zinc primer + two coats of enamel / epoxy) of approved shade, conforming to IS 4759.

8.0 SLIDING GATE:

Double leaf heavy-duty electrically operated sliding steel gate of required suitable size with a man entry gate of size 1mx2m (WxH) integrated in one of the leaves of the sliding gate complete with all structural members, rollers, tracks, guide rails, EPDM gasket, hardware, surface treatment and accessories, in accordance with approved drawings and specifications. The gate should be strong, sturdy and easy to operate. EPC contractor has to demonstrate smooth operation of the same.

9.0 MAN-ENTRY GATE (Pedestrian Access Gate)

To provide safe, controlled and restricted access for personnel between production bays the gate shall comply with occupational safety regulations and relevant industrial standards for structural steel. A Single-leaf, double-swing, self-closing, manual-operated gate considering high-frequency usage in industrial environment with clear width and height of 1m X 1.2m from floor level to top rail to comply with standard railing requirements for easy personnel passage and to allow for PPE, tool bags, or stretcher access.

- Material: Galvanized Mild Steel (hot-dip galvanized) or Stainless Steel (AISI 304/316) for high-corrosion areas.
- Swing: Single-direction swing (away from dangerous, towards safe) with self-closing spring hinge/gravity mechanism.
- Frame: Rigid frame, minimum 40x40mm hollow section or 50x25x2.5mm galvanized steel profile.

❖ Safety and Functional Features

- Self-Closing Mechanism: The gate must automatically return to the closed position using spring-loaded hinges or gravity-based mechanisms, tested for 50,000+ cycles.
- Access Control: Biometric/Smart Card reader (RFID) for attendance tracking and restricted access.
- Visibility: Safety yellow powder coating (RAL 1003 or 1004) for high visibility.
- Locking: Provision for a padlock to allow lockout/tagout (LOTO) procedures.

❖ Material and Fabrication

- Steel Sections: Conform to IS 8500 or equivalent EN standard.
- Welding: Continuous MIG welding, free from slag, burrs, and sharp edges.
- Coating/Painting: Hot-dip galvanized to ASTM A123/153, followed by epoxy powder coating to withstand factory environment and resist corrosion.
- Fixing: Heavy-duty, adjustable heavy-duty hinges designed for heavy industrial use.

❖ Installation Requirements

- Foundation: Gate posts shall be mounted on reinforced concrete (M20 grade or higher) with adequate reinforcement, typically extending at least 500-600mm below finished ground level.
- Clearances: Minimum clearance to ensure no fouling with overhead cranes or adjacent machinery (min 65mm from rail top in track areas).

❖ Testing and Inspection for factory acceptance test (FAT) are:

- Visual inspection of welding and coating.
- Functional test of self-closing mechanism (minimum 100 consecutive closures).
- Dimensional inspection & Check for smooth operation and proper locking functionality.
- Testing of electronic interlock/access control system.

❖ Documentation

- Drawings: Approved Shop Drawings (General Arrangement & Detailed).
- Certification: Mill test certificate for steel, coating thickness report, and conformity to safety standards (OSHA/EN).
- Manuals: Operation and Maintenance (O&M) manual, including lubrication schedules for hinges.

10.0 DOORS AND WINDOWS:

1. WPC Door With Frame

Providing and fixing factory-made solid WPC (Wood Polymer Composite) decorative flush door shutter 30–35 mm thick, including WPC frame, complete with PVC laminated or painted finish of approved shade, stainless steel hinges, mortice lock, handles, tower bolts, door closers and all necessary hardware and accessories, suitable for internal areas including washrooms, installed true to line and plumb, in accordance with approved drawings, frame shall also be of WPC to be painted with suitable paint of matching color &

shade with directions of the Engineer-in-Charge.

All doors shall be provided with Stainless steel hardware's of SS 304 grade from approved make. All the doors except for WC area in toilet shall be provided with adjustable automatic Door closure with heavy duty safety spring and built-in lock.

2. Metal Fire Doors

Providing and fixing heavy duty metal fire doors of 2 (two) hours fire resistance rating complete with factory fabricated double skin galvanised steel shutters with fire resistant core, galvanised steel frames with intumescent seals, stainless steel (SS 304) hardware (hinges, lock, handle, door closer, flush bolts, etc.), and RCC pilasters on all sides of the door frame, finishing and fixing as per direction of Engineer-in-Charge. The hardware's to be used shall be of SS 304 grade.

3. Aluminium Sliding Windows

All block masonry wall panels on the ground floor shall be provided with 2-Nos. aluminium sliding window of size 2 m × 1.2 m each comprising of 3 sliding panels out of which 2-shall be of clear float glass panel and one panel will be of mosquito mesh. Likewise, 1st floor shall also be provided with identical type of windows supported with necessary structural frame work each window shall be provided with sunshade of specified width. only 1st floor windows shall be provided with protective MS grills.

Aluminium sliding windows shall be fabricated using extruded aluminium sections of minimum thickness 2mm conforming to relevant aluminium standards, and installed complete with glazing, rollers, locks, and accessories as per approved drawings and directions of the Engineer-in-Charge. The aluminium extruded sections shall generally conform to IS 733 and IS 1285, surface finish shall be polyester powder coating of minimum thickness 50 microns complying with IS 13871.

All the windows to be planned & positioned with heavy duty aluminum window frames for 3-track sliding windows is generally made from aluminium extruded sections of approximately 95mm × 38mm rectangular pipe, with bottom track and side/top track sections designed to support sliding shutters. The shutters are fabricated using aluminium sections of about 40mm×18 mm size with interlocking sections, fitted with nylon-encased stainless-steel rollers, self-locking catch, handles, and required fasteners, complete with 5 mm thick plain glass panels and all necessary fittings.

11.0 FIRE RETARDANT PAINTING

Scope covers providing and applying intumescent fire-retardant paint system on structural steel members to achieve the 2-hours fire resistance rating, including thorough surface preparation, with a shot blasting and cleaned thoroughly before application of Compatible anti-corrosive primer, intermediate and fire-retardant coats to achieve the required dry film thickness of 100 microns on all structural members and continuous fire protection, finishing where required, and all labour, materials, equipment and accessories necessary for a fully functional fire protection

coating, in accordance with manufacturer's technical data sheet and Engineer-in-Charge's directions.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
2	E.12	SIGNAGES	40 of 152	NIT

The broad specification of the following item is a supplementary to the above referred clause.

OVERHEAD INFORMATORY SIGNAGE

Manufacturing, supplying and fixing retro reflective overhead signage boards made up of 2 mm thick aluminium sheet, face to be fully covered with high intensity and encapsulated lens type heat activated retro reflective sheeting conforming to type - III of ASTM-D-4956-01 of combination including subject matter, message (bi-lingual), symbols, letters, borders etc. as per IRC : 67-2001 in silver white with blue colour back ground and with high intensity grade, pasted on substrate by pressure sensitive adhesive backing which shall be activated by applying pressure conforming to class II of ASTM-D-4956-01 and fixing the same to the plate of structural frame work by means of suitable sized aluminium alloys, rivets or bolts & nuts @ 300 mm centre to centre all along the periphery as well as in two vertical rows along with theft resistant measures, including the cost of painting with two or more coats of epoxy paint in grey colour on the back side of aluminium sheet including appropriate priming coat. Rounding off the corners, lowering down the structural frame work from the gantry, fixing and erecting the same in position all complete as per drawings, specification and direction of the engineer-in-charge. (Rectangular area of the sheet only shall be measured for payment).

Signages shall be provided at following facilities/location:

1. Name of the plant at main entrance gate with BEML logo.
2. Name of the gate with Gate Number at all gates with BEML logo.
3. Name of the facilities and capacity (wherever applicable) at the entrance of the facility.
Example: STP-260 KLD, Manufacturing block No-01, Inspection & Testing Bay No-01.etc.
4. Direction boards at prominent places like road junctions / entrance gate etc.
5. Signage for Emergency Assembly Point.

NOTE: Signages shall be part of the facilities being designed and constructed. No separate line item is envisaged for payment purpose.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
3	6	Specific Description of facilities	21 of 269	Description of facility/ Buildings & their broad specification

6.11 GOLIATH YARD

Please refer master layout wherein an approx. area 7800 sqm has been marked as goliath yard. This yard will house a goliath crane of span 8m and a capacity of 60T. The rail track for the movement of goliath crane is to be laid in stretch of 60 m measured from the face of traverser-02 platform. This running track of goliath would be equidistant from the centre of the standard gauge track of equivalent length meant for dispatch of ready metro coaches through road route. This yard shall also be comprising of a full-length combination rail track laid between 2 traversers for transferring the coach from Traverser 01 to Traverser 02. The yard is to be provided with RCC pavement of required grade and thickness to serve as dispatch area of metro coaches through road. The remaining / vacant area between the two traversers is to be developed as green belt area with provision of kerb / edge stone and drainage wherever required. The green belt area is marked on the drawing. The work mentioned above are covered under the line item, "Goliath Cranes Track and Hard Stand" except for green belt area, combination track between the traversers and drainage which are covered under the line item, "Green Belt Development and Landscaping"; the line item, "combination track between the traversers" and the line item, "Storm water drainage system min 0.8 m width & 0.8 m avg. depth", respectively.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
4	2.2	Car Body Inspection & Testing Line Facility	11 of 269	Description of Facilities / Buildings & Their Broad Specifications

The 1st paragraph of the above clause description is superseded by the following:

This inspection cum testing bay is a ground floor structural building with Centre-to-Centre dimension as 758m(L)x 24m(W) with a clear height of 10 m (Eave height). The entire inspection & testing bay is embedded with 2 nos. Combination track (i.e., combination of broad gauge and standard gauge) in the entire length of the bay for the movement of Metro car and other non-Metro car from Fabrication & Assembly line facility to the Car body inspection & testing line facility and from Car body inspection & testing line facility to the dispatch bay. Personnel entry to the inspection bay is provisioned with Access control system through Rolling shutters/Sliding gate integrated with man entry gate (pedestrian access), No EOT crane has been envisaged in this building.

THE INSPECTION PIT

Inspection pit of size 1.5 m(D) x 3.5m (W) below each of the combination tracks (Broad gauge & Standard gauge) of inspection & Testing Bay shall be provided in a length of 200m of Rail track length measured from the Northern End of the bay. The rails used for combination track would be resting on suitable size structural pedestals provided throughout the length of pit at suitable regular distance. These structural pedestals shall be firmly secured to the pit floor by anchoring the base plate to the pit floor by suitable fasteners or welding the base plate to the inserts provided on the pit floor. Suitable concrete encasing to be done for the durability of pedestal base in contact with pit floor. Ramp / step shall be provided in the pit at one end for getting Entry / Exit into the pit, safety railing with intermediate gates along the length to be provided with zebra marking as per the norm. Relative drawing is enclosed in annexure.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
5	2.1	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY: Gr. floor Bay-1-&-3-point No.6	11 of 269	Description of facilities / Building & their Broad Specification

The above clause description is superseded by the following:

THE INSPECTION PIT

2 in No. Combination track (both Broad gauge & standard gauge) of length of 50 m has been earmarked at Northern end of Furnishing Bay for the buffer storage and to transport the Car body to inspection & testing bay via Traverser. A pit of 1.5 m(D) x 3.5m (W) has been envisaged under each track. This has been earmarked for the Car body underframe fittings installation & inspection. The rails used for combination track would be resting on suitable size structural pedestals provided throughout the length of pit at suitable regular distance. These structural pedestals shall be firmly secured to the pit floor by anchoring the base plate to the pit floor by suitable fasteners or welding the base plate to the inserts provided on the pit floor. Suitable concrete encasing to be done for the durability of pedestal base in contact with pit floor. Ramp / step shall be provided in the pit at one end for getting Entry / Exit into the pit, safety railing with intermediate gates along the length to be provided with zebra marking as per the norm. Relative drawing is enclosed in annexure.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
6	2.3	Inter bay Traverser	15 of 269	Description of facilities / Building & their Broad Specification

The above clause description is superseded by following:

2-Nos. Traversers has been envisaged under this project.

- 1-No. 75-Ton capacity Traverser has been planned between Car body manufacturing & Assembly line facility. The traverser will have area of 219mX32 m.
- 1 No. 75-Ton capacity Traverser will have area of 131m X 32m has been planned within the Car body Inspection & testing bay for the transfer of car/coaches from bays to the dispatch bay.

There is 2-Mode of designated dispatch bay. The Vande Bharat & LHB coaches will be dispatch from the Northern side of the inspection & testing bay by means of railway track and Roads.

The Metro & High-speed AI coaches will be dispatch from the eastern side of the inspection & testing bay by means of surface transport. A goliath crane has been proposed for lifting and lowering of the car from the dispatch bay to the trailer. Laying of combination track (BG & SG) between two traversers for ease and smooth movement of goliath crane.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
7	2	Starting Point for functional Design	6 of 269	Description of facilities / Building & their Broad Specification

The description of road provided in above referred clause No. 2.1 Car Body Fabrication & Assembly line facility & 2.2 Car Body Inspection & Testing line facility under Clause 2.0 Starting Point for functional Design is superseded by following:

2. Starting Point for functional Design

Considering the Production requirement for the next 10 years, it has been proposed to develop 1 Nos. Car Body Fabrication & Assembly line facility with a provision for 1 Nos. as Future. Each Manufacturing line will have dimension of 400m X 72 m. A road of 4m (will be finalised) has been proposed in between the Production line for the logistic support and to meeting the Fire safety norms.

Wherever the road width has been mentioned as 8m or 10m or 8-10m in between the blocks / bays, this should be read as 4m. After doing plinth protection, construction of annexe building, laying of storm water drains, construction of manholes and laying of sewer lines and laying of other

utility services (if any) etc. the left-out area between the blocks/ bays shall be paved with heavy duty paver blocks.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
8	9.8	Plumbing & Fixtures	45 of 269	Description of facilities / Building & their Broad Specification

The first bullet points of above clause description are superseded by following:

Each offices / Buildings should be provided with suitable capacity HDPE overhead fresh water tank as per the occupancy level of the building.

Following details shall also be referred in addition to the descriptions that have been provided earlier under the referred clause.

➤ **Applicable Codes & Standards**

Design and execution shall comply with:

- ❖ Bureau of Indian Standards (BIS)
- ❖ IS 1172 – Water supply requirements
- ❖ IS 2065 – Water supply in buildings
- ❖ IS 1742 – Building drainage
- ❖ Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual
- ❖ Local Municipal / Industrial Development Authority norms
- ❖ State Pollution Control Board requirements

➤ **Water Supply System**

Source & Storage

- ❖ Water sources: Municipal supply
- ❖ Underground water tank (RCC)
- ❖ Overhead tank - HDPE
- ❖ Compartmentalized tanks for:
 - Domestic water
 - Fire water reserve
 - Soft/treated water (RO water)- Industrial water

Minimum storage capacity:

- ❖ Domestic: 800 Cum
- ❖ Fire water: 513 Cum
- ❖ Soft/treated water (RO water)- Industrial water: 250 Cum

➤ **Piping Materials**

- ❖ UPVC / CPVC pipes for internal distribution depending upon Cold or Hot water
- ❖ GI (Medium Class) for exposed industrial areas
- ❖ HDPE / DI for underground lines

All fittings shall match pipe class and rating.

➤ **Sanitary & Soil Waste System**

- ✓ **Soil & Waste Pipes**
 - UPVC SWR pipes (Type B or Type C)
 - Heavy duty for industrial toilets
 - HDPE pipes for underground drainage
- ❖ **Traps & Chambers**
 - P/S -traps, floor traps with SS gratings
 - Inspection chambers in brick masonry / RCC
 - Precast RCC manholes for main sewer lines
- ❖ **Sewage Disposal**
 - Sewage Treatment Plant (STP)- MBR technology
 - Treated water reused for gardening

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
9	6.1	Office complex	21 of 269	Description of facilities / Building & their Broad Specification

The below provision is a supplementary to the broad specification provided vide above referred clause of the document Description of facilities & their broad specification

In office complex at each floor except G+4, suitable provision in one of the washrooms be made for the convenient use by physically handicapped personnel in line with National Building Code (NBC) 2016.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
10	8	COMMON DRIVEWAYS / LANDSCAPING AROUND THE FACILITIES	44 of 269	Description of facilities / Building & their Broad Specification

The below specification is supplementary to the broad specification provided vide above referred clause of the document Description of facilities & their broad specification.

Development of Green Belt and Landscaping (37 Acres)

The design shall follow guidelines recommended by the Central Pollution Control Board for industrial green belts. The green belt/ landscaping shall be developed to:

- Act as a buffer zone between industrial activities and surroundings

- Reduce dust, noise and gaseous pollution
- Improve microclimate and aesthetics
- Promote groundwater recharge and biodiversity

Total green belt/ landscaping area: 37 acres (approx. 149734 Sq.m)

Distribution shall generally include:

Location	Recommended Coverage
Plant boundary zone	Dense plantation belt
Internal roads	Avenue plantation
Open spaces	Lawn and ornamental landscape
Water bodies / fountains	Landscaping zone

Minimum 40% of total plant area shall be maintained as green cover where feasible.

Green belt / landscaping shall be developed using a 3-tier vegetation structure:

1. Upper Canopy: Tall Trees shall be planted for a Spacing of 4m × 4m with typical species of Neem, Karanj, Arjun, Banyan, Peepal, Kadamba, Mahua. Which helps in Dust interception, Noise attenuation, Wind barrier.
2. Middle Layer: Medium Trees / Shrubs shall be planted for a Spacing of 3m×3m with typical species of Ashoka, Cassia, Gulmohar, Bottlebrush, Champa. Which helps in Strengthens pollution barrier, Enhances visual aesthetics.
3. Lower Layer: Shrubs and Ground Cover shall be planted for a Spacing of 1m × 1m with typical species of Bougainvillea, Durante, hibiscus, ixora, croton. Which helps in Soil stabilization, Dust trapping, Enhances visual aesthetics.

Plantation Density

Recommended density for industrial green belts:

Type	Plants per hectare
Trees	300 – 500
Shrubs	500 – 800

Total Number of Trees to be planted is 6000 and shrubs to be planted is 9000

Soil Preparation (Rocky Terrain)

Since the project site is rocky and uneven, the following measures shall be adopted:

Excavation of Plantation Pit size: 1 m × 1 m × 1 m

Where rock is encountered pits are made through Mechanical excavation and filling the pits with fertile soil mixture. Each pit shall be filled with soil mixture of Garden soil– 50%, Sand– 20%, Farm Yard Manure– 30%, In subsequently add: Neem cake, Organic compost.

Lawn Development

Lush lawns of grass species like Doob grass, Bermuda grass, Mexican grass or by laying grass sod for turfing etc. shall be prepared by removal of stones and debris then spreading of fertile top soil to the thickness of 150-200mm by levelling & compacting the soil course in selected areas such as:

- Administrative buildings
- Essential open spaces
- Recreational zones
- Area under future development
- Surroundings of the facilities (goliath crane, traverser...etc.)

Irrigation System

Efficient irrigation system shall be installed.

Components

- HDPE / PVC pipelines
- Drip irrigation for trees
- Sprinkler system for lawns
- Control valves and filters.

Treated water from MBR-technology based STP may be used for irrigation after disinfection. Provision to be made for use of treated effluent, RO reject and fresh water as and when needed

Landscaping Features

2 Nos. Decorative Fountains at prominent locations (to be decided in consultation with BEML during detail design stage) are to be provided with following specification:

Providing, constructing, supplying, installing, testing and commissioning of a decorative recirculating water fountain system complete in all respects, comprising construction of circular RCC fountain tank of suitable diameter (approx. 5–6 m) and about 0.6–0.75 m water depth with RCC M25 base slab and side walls including reinforcement, waterproofing treatment, internal cement plaster with waterproof compound and finishing with approved quality ceramic/vitrified tiles including epoxy grouting.

The work shall also include supply and installation of circular pipe ring of 4–5 m diameter made of SS-304/GI pipe (approx. 40–50 mm Dia) mounted on suitable supports, fitted with evenly spaced adjustable brass/SS fountain nozzles oriented inward and inclined upward at about 30°–45° to produce decorative water jets, along with one central geyser fountain nozzle capable of producing a vertical jet of approximately 3–5 m height.

The item shall further include construction of RCC recirculation sump/pit of suitable size with grating cover, installation of suitable capacity centrifugal pump set with motor, suction and delivery piping, valves, strainers, NRV, electrical control panel, cabling, earthing, interconnections, fittings and accessories required for proper operation of the fountain.

Water shall be recirculated to minimize consumption.

Walkways and Pathways

Develop pedestrian walkways using:

- Paver blocks
- Natural stone
- Concrete pathways.

Typical width:

- **1.5 m – 2.0 m**

Seating and Street Furniture

Provide:

- Precast RCC / concrete benches
- Dust bins
- Garden lighting
- Directional signage.

Altogether 50 Number of Benches shall be installed along the pathways at suitable intervals.

Maintenance

The development of green belt to be done immediately before the monsoon to ensure good survival rate the contractor shall maintain the plantation for minimum 12 months, including:

- Watering
- Weeding
- Fertilization
- Pest control
- Replacement of dead plants.

Monitoring

Periodic monitoring shall be done for:

- Plant survival rate
- Growth rate
- Soil moisture condition.

Records shall be maintained for inspection by environmental authorities.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
11	6.10	Car body manufacturing cum storage bay	39 of 269	Description of facilities / Building & their Broad Specification

The description of the above referred clause is superseded by following Description.

The Workshops are the most important facilities in Rolling Stock Manufacturing Plant. The proposed Workshop Building is designed as a functional, efficient, and flexible space that supports hands-on activities, fabrication processes, and training needs for ensuring safety, durability, and user comfort. The architecture emphasizes clarity of circulation, unobstructed work zones, and seamless integration of services, creating an environment that enhances productivity and operational workflow. The overall built form adopts a simple, rectilinear geometry to maximize usable floor space. The structural grid is optimized to create large column-free spans, supporting overhead movement of materials and machinery.

The building envelope consists of durable, low maintenance materials—such as Rolling shutters with a man entry gate (pedestrian access gate), insulated metal panels, galvalume sheet cladding, structural steel framing and high-performance glazing—selected to withstand industrial use and provide long-term resilience. Natural lighting and ventilation are key design drivers. Continuous clerestory windows and high-level translucent sheets (5% of the total wall cladding) & louvers / windows ensure diffused daylight across the workshop floor while reducing dependence on artificial lighting.

Mechanical ventilation systems supplement natural airflow to maintain indoor air quality and temperature control in zones with heat generating equipment. For the comfort of work men working on the shop floor and warehouse, heavy duty industrial BLDC man cooler fans (man coolers) of 30” inch sweep with 6-blades of approved make shall be provided on every alternate column of the respective bays.

The internal planning separates noisy, heavy-duty work areas from cleaner, precision-based tasks. Service cores containing electrical rooms, tool storage, washrooms, and utility shafts are placed along the rear edge, allowing the main hall to remain unobstructed. Safe circulation is maintained through clearly defined pedestrian pathways, dedicated equipment movement aisles, and emergency exits positioned as per NBC guidelines.

Sustainable design principles are incorporated through energy-efficient lighting, rainwater harvesting provisions, solar-ready roofing, and the use of recyclable materials. Exterior landscaping and permeable paving help manage storm-water runoff and reduce heat island effects. Overall, the workshop building is conceived as a robust and adaptable facility that prioritizes user safety, operational efficiency, and long-term performance, while maintaining a clean, contemporary architectural character.

The workshop is designed as 3-bay structure with each bay of width 24m c/c & a length of 400 m c/c. The workshop is further a two storied workshop having functional relations in both the floors. The structure is designed to take heavy loads considering the functionality. Each workshop is attached with office spaces on one side lengthwise along with the fire escape staircases integrated to it.

Manufacturing block shall have 6 Nos. Annexe office buildings, 3 nos. on either side (East & West). Typical layout, plan and elevation drawings of annexe building has been provided vide Corrigendum-1. Each office building which is annexed to manufacturing bay on the outer side of bays along their length shall have G+5 floors with only Ground floor and Top floor opening into the shop floors with approach via Lift (2m X 1.8m of hoist way) (10 Pax Capacity) as well as staircase

till 5th floor where the office has opening into shop floor at First Floor of the manufacturing bay. The total built-up area of each Annexe Building is estimated to be 696m².

The ground floor of the Annexe building shall have adequate space for seating arrangement for shop floor workers. The Ground floor area is meant for 25-30 workers. Out of 3 Annexe buildings annexed to either side of manufacturing block ground floor of one Annexe building shall be exclusively reserved for female employees. This space shall have access from the shop floor and the common passage of adequate width will connect to washroom as well as landing area of staircase and lift well.

The first floor of the Annexe Building shall have provision for accommodating 1 No. of General Manager's (GM) Cabin of adequate area, waiting area for guest and seating arrangement for GM's personal secretary. The GM cabin shall have all the required furniture (as mentioned in the Furniture details) and his personal toilet. A common Men's toilets for the use of Guest with adequate capacity shall also be provided.

The second floor of the Annexe Building shall have provision for a meeting/ conference hall of capacity for accommodating 15-20 people and a pantry room. The 3rd floor of the Annexe Building shall have provision for seating arrangement of 2 Nos. of DGM workstation of adequate space and furniture as specified in the Furniture schedule and toilet facility for both men and women. Likewise, 4th floor of the Annexe Building shall have provision for seating arrangement of 4 Nos. of AGM workstation of adequate space and furniture as specified in the Furniture schedule and toilet facility for both men and women.

The 5th floor of the Annexe Building shall have opening to the Shop floor (first floor) of the Manufacturing Bay and shall have provision for seating arrangement of 8 Nos. of SM workstation of adequate space and furniture as specified in the Furniture schedule and toilet facility for both men and women. The detailed seating plan and internal configuration can be discussed and finalised at the time of detailed design stage. The annexe building is proposed to be provided with Split Air conditioner.

Along the Eastern and Western side of the manufacturing bays 2 Nos. and 3 Nos. of Fire staircases (G+5 floors) enclosures respectively shall also be provided along the length of the manufacturing bay in compliance to the fire safety norms as shown in the layout. These fire staircase enclosures shall only have opening into the shop floors located at ground and First floor of manufacturing block i.e. 5th floor of (G+5 floor fire staircase). The total built-up area of each fire stair case enclosures shall be 174m². Alongside two (one on each side) of these fire staircases, hoist ways in full width of landing & balance length up to the next column, for installation of service lift of 1 Ton capacity are to be created. Exact dimension of hoist way shall be 2.4m X 2.6m.

The façade of outer face of annexe buildings as well as fire staircase enclosures and service lift hoist way shall be identical as that of manufacturing block, so that it merges with the side facia of the block. For construction of partition wall, gypsum dry wall partitions as provisioned in office complex shall be used. For false ceiling, floor finishes, wall finishes, paint finishes, plumbing & sanitation, other MEP works etc. specification as provided that for Office Building Complex shall be followed. However, the frame of the annexe building is to be made up of structural steel. Deck sheet form work can be used for floor casting in the quest of doing the work expeditiously.

Supplying, installation, Testing & commissioning of Passenger lifts and Service lifts as mentioned in the above description of annexe building is also the responsibility of EPC contractor.

Solar panels are also planned on the roof top of manufacturing block to generate renewable energy. Though supply of panels is not in the scope of EPC contractor, suitable provision to be ensured while doing roofing for ease of mounting of solar panels on a later date. The contractor has to discuss this aspect with BEML and finalise the provision before proceeding with roofing work design/construction. During design and construction, the EPC contractor shall make a provision in manufacturing block for easy, safe and convenient access / approach to roof top with weather resistant safety railings around the facility. Permanent lifeline system shall be provided along the designated movement paths on the roof to ensure safe working at height during solar panel installation and during maintenance.

The system shall allow attachment of safety harnesses for multiple users simultaneously.

The lifeline system shall consist of:

- The lifeline should have a safe working load of 15KN, with adequate factor of safety.
- End anchors and intermediate supports, Stainless steel wire rope (minimum 8 mm dia), Energy absorbers / shock absorbers, Turnbuckles and tensioning devices, Anchor fasteners and base plates, Compatible full-body harness connection points.
- All components shall be corrosion-resistant and suitable for outdoor industrial use.
- System shall comply with relevant IS / EN / OSHA standards for fall protection.
- Fixing to roof structure shall not compromise the structural integrity or watertightness of the shed.
- All penetrations through roof sheets shall be minimized, wherever fixing is required, EPDM washers, sealants and flashing shall be provided to prevent leakage.

Structural supports shall be fixed to primary or secondary structural members only, not directly on thin roof sheeting. While designing and constructing the manufacturing block, the contractor shall ensure that adequate and safe access / approach is provided to the roof top for maintenance purpose. Safety railing (corrosion) around the edges of the rope shall be designed and installed. Any damaged roof sheets during execution shall be repaired or replaced at contractor's cost. All steel components shall be hot-dip galvanized (minimum 80 microns coating). Fasteners shall be stainless steel or galvanized high-tensile bolts. Touch-up painting shall be done at all cut edges and welded joints.

NOTE:

The life line facility is to be provided in all structural industrial sheds whose height exceeds 7m.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
12	22.5	Raw water treatment plant	206 of 269	Description of facilities / Building & their Broad Specification

The above clause shall not be applicable as the incoming fresh water quality (Report Annexed) is potable and does not require any treatment as such. However, requirement of chlorination is not ruled out and the EPC contractor may have to provide hypo dosing (sodium hypo chloride) to ensure minimum residual chlorine as per IS 10500. The above referred clause is being replaced by the following:

22.5 RO Plant (Container Based):

A containerised based RO plant of capacity 1 MLD has been proposed for feeding the RO water to the water leak test area for testing of car body shell & the completed car body. A hard stand of 150 Sq. m area has been considered to install the RO plant. Water from the water pump house shall be fed to the RO plant for the RO water generation. The RO water will be supplied via piped network to designated leakage test areas in Car body fabrication & Assembly line facility. For storage of RO water of 250 KL capacity an RCC tank with tiling from inside is also envisaged.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
13	MEC-I/0047-01-40-D1-ZZ-12-DR-N-03001	PFD of water supply facilities	42 of 42	Drawing

The Descriptions of the above referred drawing is superseded by the following.

The makeup cooling water for chiller is revised to 7.5 cum/hr. instead of 0.63 cu. m /hr. as mentioned in earlier revision of PFD. Capacity of hydro pneumatic pumps is revised to 60 cu. m/hr. from earlier capacity of 55 cu. m/hr.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
14	26	List of Approved Make	259 of 269	Description of facilities / Building & their Broad Specification

The below Approved make list is a supplementary to the make list provided vide above referred clause of the document Description of facilities/ Building & their broad specification.

Sl. No	Name of materials	Approved Make
1	Air compressor system	ELGI, Ingersoll rand, Atlas Copco, Kirloskar pneumatic, FS-curtice India.
2	Turnstile gate	Godrej Security, Entero System India Pvt. Ltd., Toshi Automation Solutions, Dormakaba, Cronax Industries.
4	EOT	Cranex, Reva Industries, Unique Industrial Handler, Sparkline Equipment Pvt. Ltd. GRIP Engineers, Anupam Industries limited, Smaco Engineering Pvt. Ltd., Mukund Cranes, Fafeco Engineers Pvt. Ltd.
5	Traverser	Reva Industries, Cranex, GRIP engineers, Electro Mech, Sparkline Equipment Pvt. Ltd, Metco.Pvt.Ltd.
6	Self-levelling primer compound/Bonding	Ardex Endura (India) Pvt. Ltd, Myk Laticrete, Piidilite Industries Limited, Kerakoll India Pvt. Ltd, Fosroc Chemical India, Sika India, BASF, Euro build Construction chemicals and coatings, Bostik, Sunanda Speciality coatings, Kunal Conchem Private Ltd.
7	Vinyl Flooring	Responsive Industries LTD, Gerffloor, Armstrong, Polyflor India Pvt Ltd
8	Rolling Shutter	Popular, Gandhi Automation Pvt Ltd, Falcon, Jacob Engineering
9	Auto Closer Hinges	Blum, Hafele, Ozone overseas Pvt Ltd
10	Patch Fittings	Dorma, Savex, Niki, Ozone, D-line
11	Glazed Doors with patch fittings	Dorma, Ozone overseas Pvt Ltd, India Private Ltd, ASSA ABLOY India Pvt Ltd, Dorset Kaba Security Systems Pvt Ltd
12	Pre-engineered Building system	Kirby, Tata Blue Scope, Lloyd (India) Ltd, Octomec, Apex Buildsys Ltd, Alfa PEB
13	Veneers	Century, Kit ply, Anchor, Green ply, Kenwood, Jacsons
14	Sun control film	Garware, 3M, or equivalent as approved

15	GI Section for Partitions & False Ceiling	Saint Gobain Gyproc or equivalent as approved
16	Aluminium Louvers	Hunter Douglas, Euro Building or equivalent as approved
17	Expansion Joint Filler	Sil Fex of Supreme Industries Ltd. or equivalent as approved
18	Concealed Flush	Geberit, Grohe, Parry ware, Jaquar, Kohler
19	Fixtures for specially abled	Hind ware, Toto, Cera, Roca.
20	Eye wash & shower	Simex, Euronics
21	Water purifier	Eureka Forbes, Kent, Purit.
22	Water Heater	Racold, V-guard, Jaquar
23	Lifts	Johnson/ Kone/ Shindler/ OTIS
24	Current Transformers	Automatic Electric/Kappa/L&T
25	Potential Transformer	Automatic Electric/Kappa/L&T
26	Diesel Engine	Cummins/Perkins /Caterpillar/ Kirloskar/ Baudouin/ Mitsubishi
27	Alternator	Crompton/Stamford/Leroy Somer/Kirloskar/ Mitsubishi/ Siemens
28	Anti Vibration Mountings	As Per Manufacturer Standard Practice
29	Synchronization Panel With AMF	As per OEM Of DG Sets/As Per EI Works
30	MS Angle/Channel/ISMB	Tata/Jindal (Hisar)/Sail
31	PLC	Siemens/L&T/Cummins/Mitsubishi/ Allen Bradly
32	Battery	AMCO/Exide/Prestolite/Amaraja/Luminous
33	Acoustic Enclosure	OEM/OEA of DG set
34	Cable glands double compression with earthing links	COSMOS/ Comet/3D/3M/Trinity Touch/Dowell's
35	Cushy Foot	Dunlop or equivalent
36	Fire retardant paint	AkzoNobel, viper, Promat or equivalent as approved
37	Man cooler	Greenberg, Can-fan Pvt.Ltd, Air zone, Brian engineering
38	PUF sandwich Panel	Alfa/Karthik/ Lloyd/Kirby/ Metecno/ TATA BlueScope
39	Galvalume Roof Sheeting / Galvalume Wall Cladding/ Flashing/ Gutter/ and Downspout	TATA BLUE SCOPE/ JSW/ META COLOUR/ Metecno/ LLOYD INSULATIONS/ INTERARCH

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
15	22.2	Requirement of Water	204 of 269	Description of facilities / Building & their Broad Specification

The above referred clause 22.2 is superseded by following:

22.2 - Requirement of Water

The fresh water requirement of the plant is estimated at 400 cum per day Recirculation systems have been envisaged only in cooling towers & car testing facility & remaining major water consumption in the plant is once through type. The RCC sump is to be designed for the storage capacity stated as under taking due care of free board and dead storage. The drawings enclosed in the tender is not as per the freshly estimated requirement however the same can be referred for visualization of general arrangement of facility.

Break – Up of Water Requirement

Sl. no.	Description	Water Requirement (cum) per day
1	Water consumption for car body leakage testing.	12
2	RO reject water @ 30% of feed water	5.14
3	Cooling water recirculation @ 7.5KL per Hr losses (evaporation + system loss)	90
4	Water requirement washroom and drinking @45l/pax No. of People around 2512(2284+10%)	113
5	Water requirement canteen @ 70 ltr/pax	176
	Total Water Requirement per day	396.14 say 400
(A)	Total water storage required considering a reserve of 2-days	800
(B)	Firefighting water reserve	513
	Total A+B	1313

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
16	22.3	Source of water	204 of 269	Description of facilities / Building & their Broad Specification

The above referred clause 22.3 is superseded by following:

22.3 Source of water

The source of water for the proposed plant will be from the municipal fresh water supply pipeline (i.e. drinking water pipeline from Dahod Dam to Mandideep Industrial Area and nearby colonies, Bhopal city) passing near the plant site, from where fresh water will be supplied. The plant storage reservoir of 1313 Cum will cater to 2 days reserve for production requirement and a reserve of 513 Cum for Firefighting. Water shall be made available to the site at 1 point inside the plot area by municipal corporation from where it is to be taken to the proposed reservoir by the EPC contractor.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
17	20	Sewage Treatment Plant (STP)	185 of 269	Description of facilities / Building & their Broad Specification

The 1st paragraph of the referred clause is superseded by the following:

Design, engineering, construction, supply, installation, testing and commissioning of 290 KLD STP based on MBR technology complete with electro-mechanical works necessary equipment, interconnecting piping network etc.

The tank capacities indicated in the STP plant drawing and process flow diagram are provided for reference only. The EPC contractor has to carry out the design and work out required capacities of various segments/ compartments of the facility for establishing it. The bidder has to take this aspect into consideration and quote accordingly.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
18	23	Compressed Air facility	211 of 269	Description of facilities / Building & their Broad Specification

The table shown under the referred clause is superseded by the following:

SL.No.	Equipment Description	No of units
4.	Oil free screw compressor of capacity 100 CFM with delivery pressure of 12 kg/cm ² (g). mounted on 500 liters horizontal air receiver.	7-Nos. (5W+2S)
5.	Refrigerant air dryer of matching capacity	7-Nos. (5W+2S)

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
19	24	EPSS	219 of 269	Description of facilities / Building & their Broad Specification

The last two paragraphs of the referred clause 24.1 titled “General” is superseded by the following:

To cater to the emergency / critical load requirement, 3 Nos x 750 KVA capacity HSD fired (2W+1S), Diesel Generator sets are envisaged along with associated accessories & panels. Emergency DG sets & accessories will be installed out door near to MRSS. A dedicated covered storage of size 4m X 8m X 3.5m (H) made-up of structural frame work with galvalume roofing and side cladding is to be created in the area earmarked for EPSS for storage of HSD barrels.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
20	5	Payment Schedule	60 of 152	NIT

Following supplementary milestone wise payment schedule against specified facilities have been added to the above existing payment schedule of NIT.

Payment Schedule

BOUNDARY WALL		
SL No.	Item Description	Percentage
1	Design & Engineering	2%
2	Foundation	18%
3	RCC column up to Plinth top	10%
4	RCC column up to cap beam bottom	10%
5	Masonry wall	18%
6	RCC Cap Beam	5%
7	Supply & Erection of MS Grill	15%
8	Providing & fixing of Gate	2%
9	External Plastering	6%
10	Internal Plastering	6%
11	Painting & finishing including site cleaning & Handover	8%

SUMP/ RESERVOIR/ TANK		
SL No.	Item Description	Percentage
1	Design & Engineering	2%
2	Excavation PCC bed & casting of base slab	25%
3	Construction of RCC walls, supporting columns including compartments up to half height	12%
4	Construction of RCC walls, supporting columns including compartments up to full height	13%
5	Slab casting	24%
6	Internal plastering/ rendering, floor finishing including fillets	4%
7	External plastering/rendering, pipe connection (inlet/outlet/overflow/scour), valves & chamber	4%
8	Water proofing treatment & water tightness testing	8%
9	Finishing works (manholes, ladders, railings, vent pipes, painting) commissioning & handover	8%

STRUCTURAL INDUSTRIAL SHED		
Sl.No.	Item Description	Percentage
1	Design & Engineering	3%
2	Sub structure works up to Plinth including back filling & compaction	15%
3	Structural steel fabrication	25%
4	Erection up to Roof bottom level	5%
5	Erection of Trusses, Purlins and structural Alignment	5%
6	PUF insulated roofing industry ridge/flashing/gutters	10%
7	Masonry up to 3.0m including plastering	10%
8	Galvalume sheeting	5%
9	Foundations for plant & equipment and flooring.	15%
10	Ramp, rolling shutter, window fixing, painting & finishing, external development & Handover	7%

Canteen Building		
SL No.	Item Description	Percentage
1	Design & Engineering	3%
2	Foundations & Substructure	15%
3	RCC up to Roof Level	10%
4	Structural steel fabrication for roofing	7%
5	Casting of Roof	7%
6	Erection of roof trusses & purlins	5%
7	Roof sheeting	5%
8	Masonry Work including plastering	13%
9	False ceiling & MEP services	12%
10	Finishing* including water proofing	15%
11	External development works	2%
12	Completion, Handover** & stability certificate including furniture	6%

* - Finishing also includes flooring.

** - This will also include supply and installation of elevator / lift of specified capacity handing over milestone shall also include supply and installation of elevator / lift of specified capacity wherever required.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
21	2.2	CAR BODY INSPECTION & TESTING LINE FACILITY:	11 of 269	Description of facilities / Building & their Broad Specification

The below list of testing equipment is added as supplementary to the above referred clause.

Car Body Inspection & Testing Line Equipment List			
Sl. No.	Equipment	UOM	Quantity
1	750 V DC power supply Stinger box	No.	1
2	25 kV AC power supply (OHE System)	No.	1
3	Car Weighing Equipment	No.	1
4	Universal Brake System Test Benches	No.	1
5	Megger Tester	No.	1
6	Hipot Tester (HV Test)	No.	4
7	Kinematic Envelope gauge	No.	1
8	Digital Multimeters (DMMs)	No.	4
9	Automotive Oscilloscopes	No.	2
10	Circuit Testers/Test Lights (LED/Probe-based)	No.	2
11	All-in-One CCTV Testers	No.	1
12	Programmable DC Supplies	No.	1
13	Regenerative AC Loads/Supplies	No.	1
14	Dielectric and Insulation Testing Facility	No.	1
15	Vehicle Control Circuit Test Facility	No.	1
16	Brake Pneumatics Testing Facility	No.	1

The supply, install, testing and commissioning of the above-mentioned testing equipment will also be the scope of the EPC contractor.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
22	2.0	Master Layout – BRAHMA Layout	5 of 42	Drawings – Corrigendum - 3

The above referred drawing is superseded by the updated drawing, annexed in this Corrigendum.

Sl. No	Reference Clause No	Clause Name	Page No.	Document Name
23		BoQ	1-2	BoQ – Corrigendum - 3

The above referred BoQ is superseded by the updated BoQ, annexed in this Corrigendum.



ANNEXURES



WATER QUALITY REPORT



WATER QUALITY REPORT

Result							
Sr. No.	Characteristics/Unit	Test Methods	IS-10500:2012 REAFFIRMED IN 2023		Results		
			Desirable Limit	Permissible Limit	1	2	3
(1)	(2)	(3)	(4)	(5)			
1	Colour in CU	IS 3025 Part 4: 2021	5	15	BDL		
2	Taste	IS 3025 Part 8: 2023	Agreeable	Unagreeable	Agr.		
3	Odour	IS 3025 Part 5: 2018	Agreeable	Unagreeable	Agr.		
4	pH Value at 25°C	IS 3025 Part 11: 2022	6.5 to 8.5	6.5 to 8.5	7.98		
5	Chloride as Cl mg/l	IS 3025 Part 32: 2019	250	1000	18		
6	Total Alkalinity as CaCO ₃ mg/l	IS 3025 Part 23: 2023	200	600	112		
7	Calcium as Ca ⁺⁺ mg/l	IS 3025 Part 40: 2024	75	200	32		
8	Magnesium as Mg ⁺⁺ mg/l	APHA 24TH edition, 3500 Mg : 2023	30	100	12.48		
9	Turbidity in NTU	IS 3025 Part 10: 2023	1	5	BDL		
10	Total Hardness as CaCO ₃ mg/l	IS 3025 Part 21:2023	200	600	132		
11	TDS mg/l	IS 3025 Part 16:2023	500	2000	138		

* End of the report *

Sr. No.	Characteristics/Unit	Test Methods	IS-10500:2012 REAFFIRMED IN 2023		Results			
			Desirable Limit	Permissible Limit	1	2	3	
(1)	(2)	(3)	(4)	(5)				
1	Free Residual Chlorine in ppm	IS 3025 Part 26	0.2	1	0.5	-	-	
2	Total coliform per 100 ml	APHA 24th edition, 9211 B			NIL	-	-	
3	E coli or (TTC) per 100 ml	IS 1622			NIL	-	-	
			NIL for treated water and water in distribution system.					

UPDATED BOQ

BILL OF QUANTITIES**BEML LIMITED, BHOPAL****Tender No. 6300040354**

Sub: Engineering, Procurement & Construction pertaining to establishment of Rail coach factory including Civil Construction of manufacturing blocks, testing bay, other utility buildings (Non factory buildings), Railway Track sidings, water supply and distribution System, Roads, Drainage and sewerage systems, General Electric works including regular and emergency power supply and distribution system, related installations & services (Fire, Gas, Compressed air, IT, BMS, etc.), MFA (Miscellaneous fixed assets) and other Land & Site development works including grading, levelling works in connection with setting up of a Rail Coach Factory hereinafter referred as BEML RAIL HUB FOR ADVANCE MANUFACTURING (BRAHMA)near Umaria village, Obaidullaganj, District- Raisen, Madhya Pradesh (India) PIN code 464993 on EPC Mode

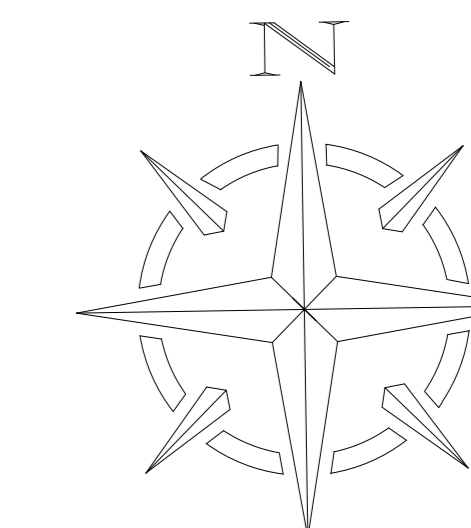
SN	Item Description	Unit	Qty	Rate/Unit(Rs.)	Amount (Rs.)
	Execution of the work pertaining to establishment of Rail coach manufacturing facility mode on EPC Mode as per scope detailed				
1	Earthwork in formation -				
1.1	Cutting	CuM	802660.00		
1.2	Filling	CuM	822490.00		
2	RCC Road (Carriage width-7 m)with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	4400.00		
3	RCC Road (Carriage width-4 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	2044.00		
4	RCC Road (Carriage width-3.5 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	2350.00		
5	Storm water drainage system min 0.8 m width & 0.8 m avg. depth	M	4472.00		
6	Sewerage system excluding (STP)	M	3920.00		
7	RCC Service Trench(1.5 m wide with 1 m depth)	M	9800.00		
8	Greenbelt Development and Land Scaping	Acres	37.00		
	Other External Development works				
9	Gate Complex for Truck entry & exit	Job	2.00		
10	Gate Complex for railway siding	Job	1.00		
11	Main Gate Complex with security office(G+1)	Job	1.00		
12	Laying of Stabling and dispatch Railway Track				
12.1	With OHE	KM	3.20		
12.2	Without OHE	KM	0.80		
13	Car Body Manufacturing cum Warehouse Block – Manufacturing line will have dimension of 400m X 72 m (c/c of support) including fire stair cases	Job	1.00		
14	Offices Annexed to Manufacturing Block(G+5) of Steel Structure with build up Area-696 sqm each	Job	6.00		
15	Car body inspection and testing line facility - 01 No. Inspection & Testing line will have dimension of 758 m X 24 m (c/c of support).	Job	1.00		
16	Raw Material Storage Yard - Hard Stand of 50mx40m with compound wall along with an office of plinth area - 27.44 sq.m. (which is inside hardstand area)	Job	1.00		
17	Water Supply & Fire water pump house including sump - single-storey industrial form with adequate internal clear heights for pump installation, maintenance, and overhead piping, size - 30x28 Mtr (Inclusive of Sump area)	Job	1.00		
18	Main Receiving Sub Station – MRSS with RCC/partially steel structure, 40 m X12.5 m	Job	1.00		
19	Emergency Power Supply System with covered storage shed of size- (4m x 8 m x 3.5 m) of structural steel for storage of HSD barrels - Total area - 30 mx30 m	Job	1.00		
20	Centralised Gas bank Shed open from sides with RCC platform of size 40 M x 16 M	Job	1.00		
21	Safety Office - Single floor RCC building of size 14.4m x 25.2 m	Job	1.00		
22	RO Plant with tiled RCC tank of capacity 250 KL for storage of RO water, Hard stand size - 15mx10m	Job	1.00		
23	Chiller Plant Building of RCC Structure,size 46.6mx16m	Job	1.00		
24	Fire station of RCC structure, size 32.4mx10.8m	Job	1.00		
25	Sewage Treatment Plant of RCC/Steel structure,size 15mx13.5m	Job	1.00		
26	Traverser Foundation – 02 Nos				

SN	Item Description	Unit	Qty	Rate/Unit(Rs.)	Amount (Rs.)
26.1	Hard stand - 219m x 32m- 01 No.	Job	1.00		
26.2	Hard stand - 131m x 32m -01 No.	Job	1.00		
27	Combination Track in between two traversers	M	326.00		
28	Goliath yard (7800 sqm)	Job	1.00		
29	Office complex (RCC frame building G+5) with ground floor size of building as 75.6m x 18.9 m	Job	1.00		
30	Canteen Building of size 64.8m x 56.4 m	Job	1.00		
31	Medical Centre (RCC Framed single storeyed building) - size 28.8 m x 10.8m	Job	1.00		
32	Multi-level parking (RCC frame building, G+2). of size - 61.6m x 64.4m	Job	1.00		
33	Rest Room for Parking area - The size of the building shall 7.6m x 13.6 m.	Job	1.00		
34	Hard Stand parking for Truck, Trailor and Trolleys	Job	1.00		
35	Rain Water harvesting	Job	1.00		
	Miscellaneous fixed Assets (MFA)				
36	Material Handling Equipment				
36.1	DG EOT Crane- 25/5 T	No.	4.00		
36.2	DG EOT Crane- 10/2 T	No.	4.00		
36.3	SG Under slung Crane 2T	No.	1.00		
36.4	Double Girder Goliath Cranewith Lifting Beam - 60 T	No.	1.00		
36.5	Interplant Traverser (75 t)	No.	2.00		
	MEP				
37	HVAC System for Canteen, admin building, safety office, Medical Centre	Job	1.00		
38	Air cooled VRF type Air conditioner (40 TR) for Main security complex	Job	1.00		
39	Split Air Conditioner for Annexe- Building to Manufacturing block- (1.5 Ton Capacity of 5 star rating)	No.	50.00		
40	Screw Compressors – 12 Bar Capacity	No.	7.00		
41	Fire Detection and Alarm System	Job	1.00		
42	Fire Fighting systems	Job	1.00		
43	Water Supply Facilities	Job	1.00		
44	RO Plant facility	Job	1.00		
45	Compressed air facilities	Job	1.00		
46	STP (MBR Technology)	Job	1.00		
47	DG Set 750 KVA	No.	3.00		
48	Weigh Bridge (100 Ft, 70 Ton) including civil work as per details provided by OEM	No.	1.00		
49	Plant Electrics	Job	1.00		
50	Instrumentation & Process Control	Job	1.00		
51	Car Body Inspection & Testing Line Equipment (As per Testing Equipment updated list of details enclosed in description of facilities)	Job	1.00		
52	Gas Bank and supply system	Job	1.00		
53	Furniture for the plant (As per furniture updated details enclosed)	Job	1.00		
	If a line item contains multiple distinctive segments (sub facilities), the bidder shall provide the breakup as per the distinctive segments (sub facilities) along with their quantities and prices, The total price should match as provided by the bidder against the line item.				

Total Amount in words. Rs.

UPDATE DRAWINGS

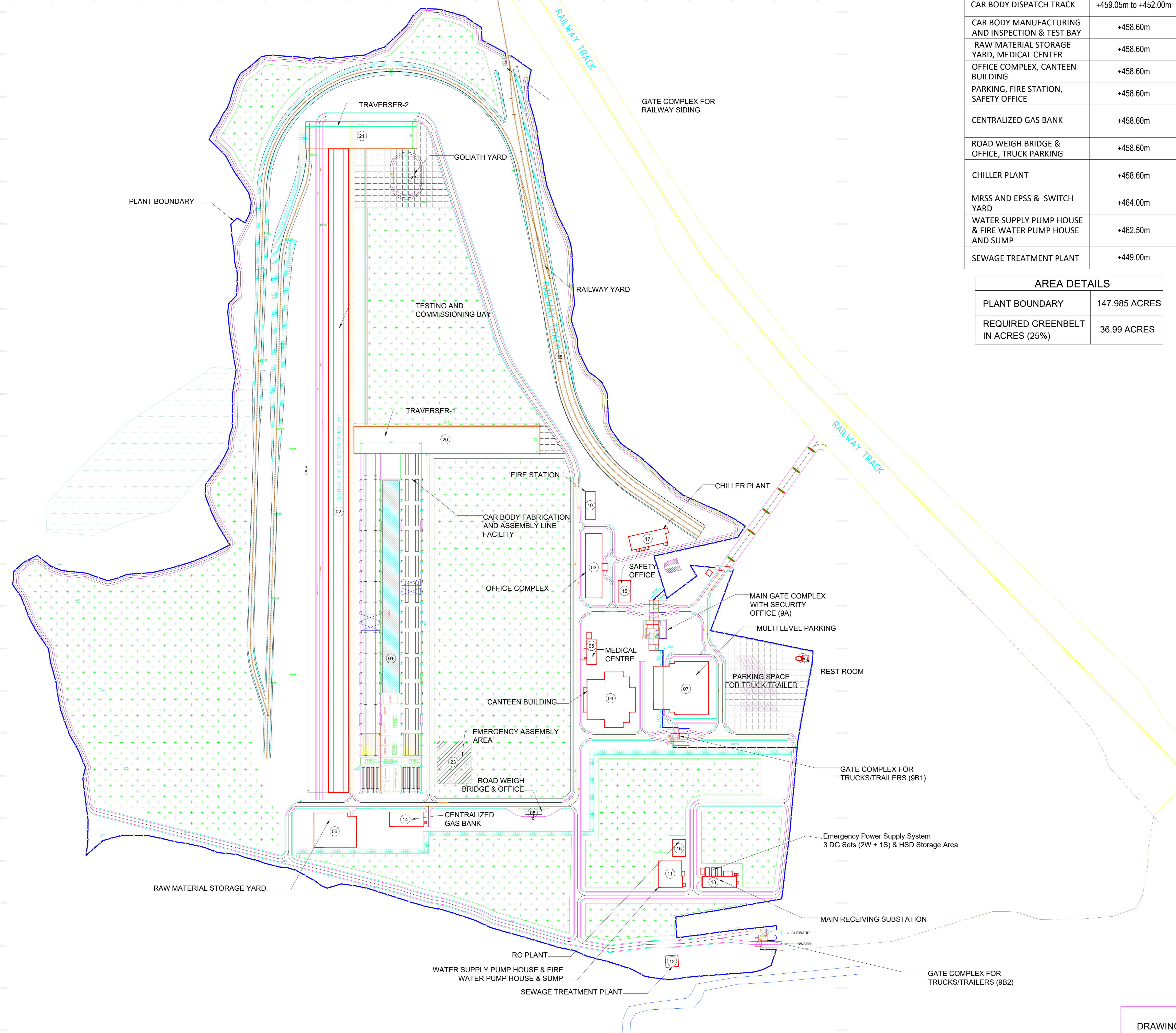




AREA	LEVELS
	FINISHED GROUND LEVEL (FGL) / TERRACE LEVEL (TL)
RAIL WAY YARD, FORMATION LINE	+452.00m
CAR BODY DISPATCH TRACK	+459.05m to +452.00m
CAR BODY MANUFACTURING AND INSPECTION & TEST BAY	+458.60m
RAW MATERIAL STORAGE YARD, MEDICAL CENTER	+458.60m
OFFICE COMPLEX, CANTEEN BUILDING	+458.60m
PARKING, FIRE STATION, SAFETY OFFICE	+458.60m
CENTRALIZED GAS BANK	+458.60m
ROAD WEIGH BRIDGE & OFFICE, TRUCK PARKING	+458.60m
CHILLER PLANT	+458.60m
MRSS AND EPSS & SWITCH YARD	+464.00m
WATER SUPPLY PUMP HOUSE & FIRE WATER PUMP HOUSE AND SUMP	+462.50m
SEWAGE TREATMENT PLANT	+449.00m

AREA DETAILS	
PLANT BOUNDARY	147.985 ACRES
REQUIRED GREENBELT IN ACRES (25%)	36.99 ACRES

LIST OF MAJOR UNITS	
1	CAR BODY FABRICATION AND ASSEMBLY LINE FACILITY
2	CAR BODY INSPECTION & TESTING LINE FACILITY
3	OFFICE COMPLEX
4	CANTEEN BUILDING
5	MEDICAL CENTRE
6	RAW MATERIAL STORAGE YARD
7	MULTI LEVEL PARKING
8	ROAD WEIGH BRIDGE & OFFICE
9A	MAIN GATE COMPLEX WITH SECURITY OFFICE
9B1 & 9B2	GATE COMPLEX FOR TRUCKS/TRAILERS
9C	GATE COMPLEX FOR RAILWAY SIDING
10	FIRE STATION
11	WATER SUPPLY PUMP HOUSE & FIRE WATER PUMP HOUSE & SUMP
12	SEWAGE TREATMENT PLANT
13	MAIN RECEIVING SUBSTATION EMERGENCY POWER SUPPLY SYSTEM & HSD STORAGE
14	CENTRALISED GAS BANK
15	SAFETY OFFICE
16	RO PLANT
17	CHILLER PLANT
18	RAILWAY YARD
19	REST ROOM WITH PARKING FOR TRUCKS
20	TRAVERSER-1
21	TRAVERSER-2
22	GOLIATH YARD
23	EMERGENCY ASSEMBLY AREA

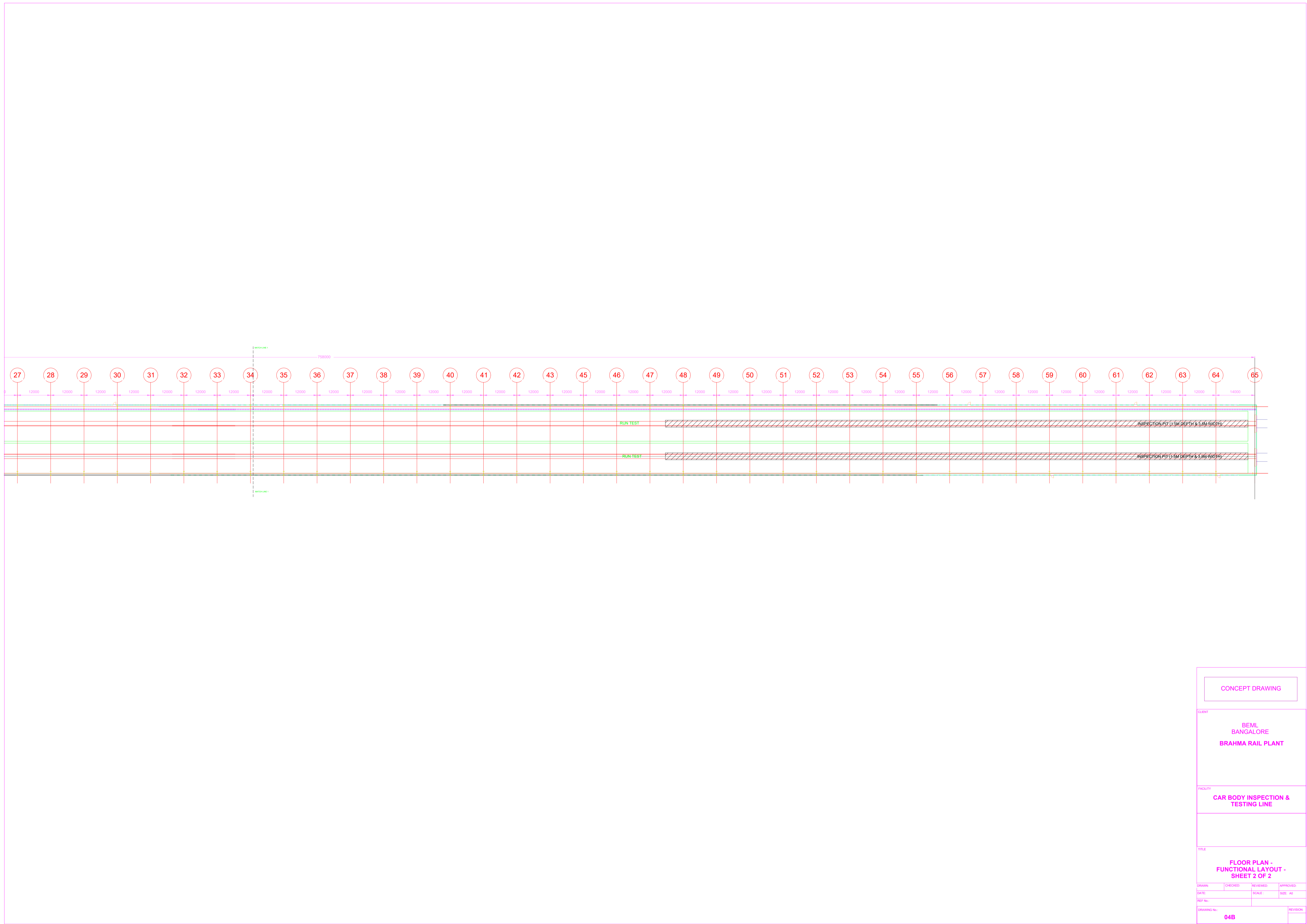


LEGEND	
	PROPOSED ROAD
	SHOP DRIVE WAY
	PROPOSED UNITS/FACILITIES
	FUTURE UNITS/FACILITIES
	TRAVERSER
	PROPOSED RAILWAY TRACK
	EXISTING POND
	GREEN BELT (57.02 Acres)
	PLANT BOUNDARY
	FORMATION SLOPE
	HARDSTAND

AS ON 13.03.2026

DRAWING TITLE	MASTER LAYOUT - BRAHMA RAIL PLANT
DRAWING NO.	02





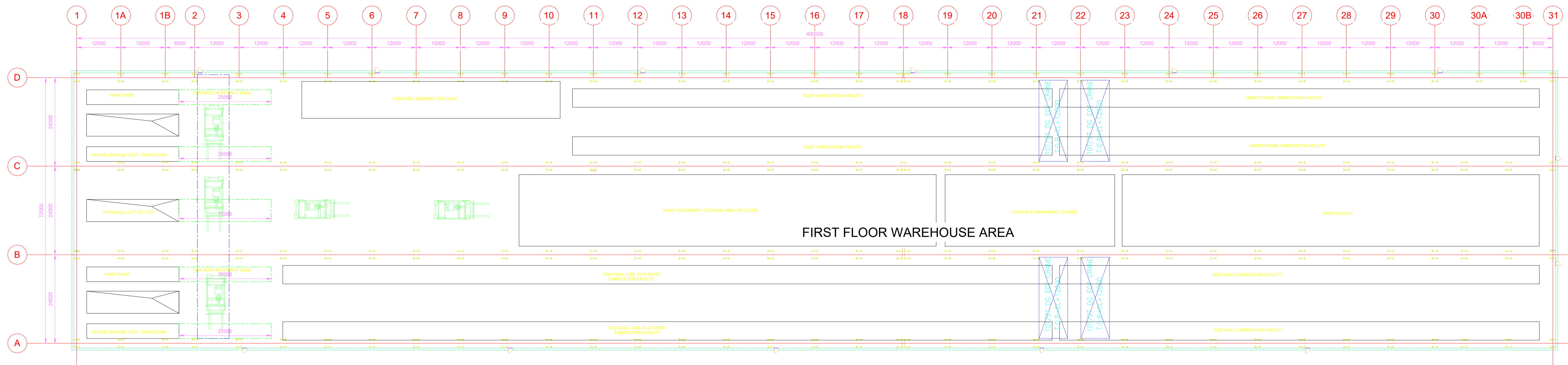
CONCEPT DRAWING

CLIENT
**BEML
 BANGALORE
 BRAHMA RAIL PLANT**

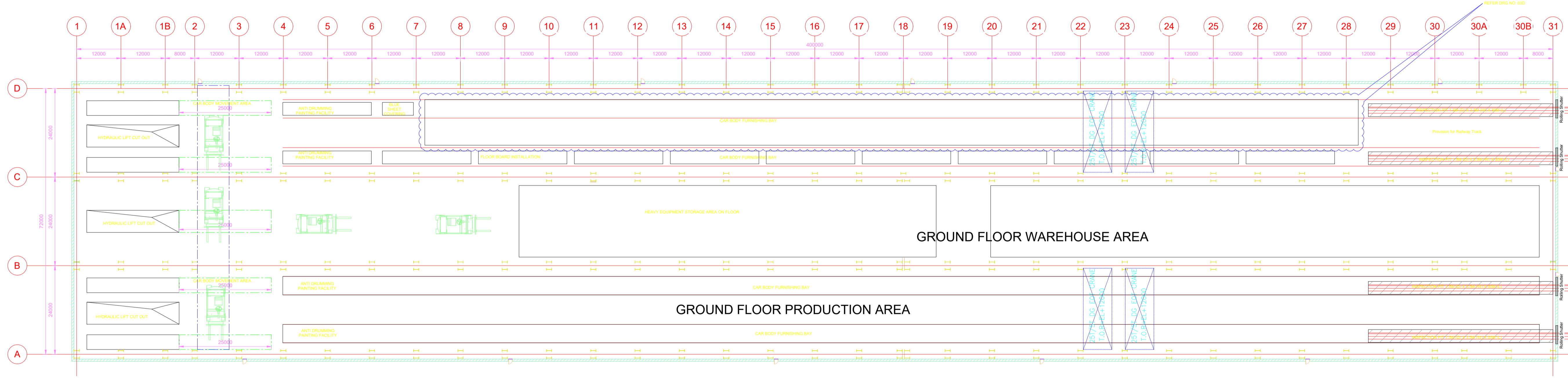
FACILITY
**CAR BODY INSPECTION &
 TESTING LINE**

TITLE
**FLOOR PLAN -
 FUNCTIONAL LAYOUT -
 SHEET 2 OF 2**

DRAWN	CHECKED	REVIEWED	APPROVED
DATE	SCALE	SIZE	A0
REF No.			
DRAWING No.	04B		REVISION



FIRST FLOOR PLAN_ VANDE BHARAT /LHB - CAR BODY FABRICATION & ASSEMBLY BAY



GROUND FLOOR PLAN_ VANDE BHARAT /LHB - CAR BODY FURNISHING BAY

CONCEPT DRAWING			
CLIENT BEML BANGALORE BRAHMA RAIL PLANT			
FACILITY CAR BODY FABRICATION AND ASSEMBLY FACILITY			
TITLE FLOOR PLAN - FUNCTIONAL LAYOUT - 3			
DRAWN	CHECKED	REVIEWED	APPROVED
DATE	SCALE	SIZE: A0	
REF No:			
DRAWING No:	03C		REVISION

I. Major building/structure/facilities/infrastructure covered under the scope are as follows:

Scope of work at Page no. 40 to 43 of 152 of NIT is updated scope of work

Scope should be read in conjunction with relevant drawing and relevant details of broad specifications for better clarity.

Sl. No.	Item	Phase – 1
Particulars	Time Frame	Start date to 17 Months & 9 days
A. Land & Site Development		
1	Earthwork in formation	
1A	Cutting	802660 CuM
1B	Filling	822490 CuM
2A	RCC Road (Carriage width-7 m)with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	4400 mtr
2B	RCC Road (Carriage width-4 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	2044 mtr
2C	RCC Road (Carriage width-3.5 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	2350 mtr
3	Storm water drainage system min 0.8 m width & 0.8 m av depth	4472 meter
4	Sewerage system excluding STP	3920 meter
5	RCC service trench	9800 meter
6	Greenbelt Development and Land Scaping	37 acres
B. Other External Development works		
7	Gate Complex for Truck entry & exit	2-Job
8	Gate Complex for railway siding	1-Job
9	Main Gate Complex with security office(G+1)	1-Job
10	Laying of Stabling and dispatch Railway Track (4 km) with OHE	1-Job
	With OHE	3.20 KM
	Without OHE	0.8 KM
C. Civil & Structural Works		
C.1. Civil Works		
1	Car Body manufacturing cum storage Block (72 m x400 m) including fire staircases	1-Job

2	Offices Annexed to Manufacturing Block(G+5) of Steel Structure	6-Job
3	Car body inspection and testing line facility Inspection & Testing line will have dimension of 758 m X 24 m (c/c of support).	1-Job
4	Raw material storage yard	1-Job
5	Water supply & Fire water pump house including sump	1-Job
6	Main Receiving Sub Station – MRSS	1-Job
7	Emergency Power Supply System with covered storage shed of size- (4m x 8 m x 3.5 m) of structural steel for storage of HSD barrels - Total area - 30 mx30 m	1-Job
8	Centralised Gas bank Shed	1-Job
9	Safety Office	1-Job
10	RO Plant with tiled RCC tank of capacity 250 KL for storage of RO water,	1-Job
11	Chiller Plant Building	1-Job
12	Fire station	1-Job
13	Sewage Treatment Plant (STP)	1-Job
14	Traverser Foundation Hard stand - 219m x 32m	1-Job
15	Traverser Foundation Hard stand - 131m x 32m	1-Job
16	Goliath yard (Size- 7800 Sqm)	1-Job
17	Combination track of 326 m length in between two traversers	1-Job
18	Office complex (G+5)	1-Job
19	Canteen Building Single Storey	1-Job
20	Medical Centre	1-Job
21	Multi-level parking (G+2)	1-Job
22	Rest Room for Parking area -.	1-Job
23	Hard Stand parking for Truck, Traylor and Trolleys	1-Job
24	Rain Water harvesting	1-Job
D. Material Handling Equipment		
1	Interplant Traverser (75 t)	2-Nos.
2	Double Girder Goliath Crane with Lifting Beam	1-Nos.
3	DG EOT Crane -25/5T	4-Nos.
4	DG EOT Crane -10/2T	4-Nos.
5	Single girder under Slung 02 Ton Crane for Water Pump House	1-Nos.
E. MFA (Miscellaneous fixed Assets)		

1	Plant Electrics	1-Job
2	Instrumentation and Process control	1-Job
3	HVAC System for Canteen, admin building, safety office, Medical Centre	1-Job
4	Air cooled VRF type Air conditioner (40 ton) for Main security complex	1-Job
5	Split Air Conditioner for Annexe-Building to Manufacturing block (1.5 Ton Capacity of 5 star rating)	50 Nos.
6	Fire Detection and Alarm System	1-Job
7	Compressed air facility	1- Job
8	Screw Compressors – 12 Bar Capacity	7-Nos.
9	Fire Fighting System	1-Job
10	Water Supply Facilities	1-Job
11	RO Facility	1-Job
12	STP (MBR technology)	1-Job
13	DG Set 750 KVA	3-Nos.
14	Car Body Inspection & Testing Line Equipment (As per Testing Equipment updated list of details enclosed in description of facilities)	1-Job
15	Gas Bank and Supply System	1-Job
16	Weigh Bridge – 100 Ft (70 T weight measuring capacity)	1-Job
17	Furniture for the plant (As per furniture details enclosed)	1-Job

Compliance to Bill of Quantity (BOQ)

Engineering, Procurement & Construction pertaining to establishment of Rail coach factory including Civil Construction of manufacturing blocks, testing bay, other utility buildings (Non factory buildings), Railway Track sidings, water supply and distribution System, Roads, Drainage and sewerage systems, General Electric works including regular and emergency power supply and distribution system, related installations & services (Fire, Gas, Compressed air, IT, BMS, etc.), MFA (Miscellaneous fixed assets) and other Land & Site development works including grading, levelling works in connection with setting up of a Rail Coach Factory near Umaria village, Obaidullaganj, Disrict- Raisen, Madhya Pradesh (India) on EPC Mode

S N	Item Description	Unit	Qty	COMPL IANCE / VENDO R's REMAR K
	Execution of the work pertaining to establishment of Rail coach manufacturing facility mode on EPC Mode as per scope detailed			
1	Earthwork in formation -			
1.1	Cutting	CuM	802660.00	
1.2	Filling	CuM	822490.00	
2	RCC Road (Carriage width-7 m)with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	4400.00	
3	RCC Road (Carriage width-4 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	2044.00	
4	RCC Road (Carriage width-3.5 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg.depth	M	2350.00	
5	Storm water drainage system min 0.8 m width & 0.8 m avg. depth	M	4472.00	
6	Sewerage system excluding (STP)	M	3920.00	
7	RCC Service Trench(1.5 m wide with 1 m depth)	M	9800.00	
8	Greenbelt Development and Land Scaping	Acres	37.00	
	Other External Development works			
9	Gate Complex for Truck entry & exit	Job	2.00	
10	Gate Complex for railway siding	Job	1.00	
11	Main Gate Complex with security office(G+1)	Job	1.00	
12	Laying of Stabling and dispatch Railway Track			
12.1	With OHE	KM	3.20	
12.2	Without OHE	KM	0.80	
13	Car Body Manufacturing cum Warehouse Block – Manufacturing line will have dimension of 400m X 72 m (c/c of support) including fire stair cases	Job	1.00	
14	Offices Annexed to Manufacturing Block(G+5) of Steel Structure with build up Area-696 sqm each	Job	6.00	
15	Car body inspection and testing line facility - 01 No. Inspection & Testing line will have dimension of 758 m X 24 m (c/c of support).	Job	1.00	
16	Raw Material Storage Yard - Hard Stand of 50mx40m with compound wall along with an office of plinth area - 27.44 sq.m. (which is inside hardstand area)	Job	1.00	

17	Water Supply & Fire water pump house including sump - single-storey industrial form with adequate internal clear heights for pump installation, maintenance, and overhead piping, size - 30x28 Mtr (Inclusive of Sump area)	Job	1.00	
18	Main Receiving Sub Station – MRSS with RCC/partially steel structure, 40 m X12.5 m	Job	1.00	
19	Emergency Power Supply System with covered storage shed of size- (4m x 8 m x 3.5 m) of structural steel for storage of HSD barrels - Total area - 30 mx30 m	Job	1.00	
20	Centralised Gas bank Shed open from sides with RCC platform of size 40 M x 16 M	Job	1.00	
21	Safety Office - Single floor RCC building of size 14.4m x 25.2 m	Job	1.00	
22	RO Plant with tiled RCC tank of capacity 250 KL for storage of RO water, Hard stand size - 15mx10m	Job	1.00	
23	Chiller Plant Building of RCC Structure, size 46.6mx16m	Job	1.00	
24	Fire station of RCC structure, size 32.4mx10.8m	Job	1.00	
25	Sewage Treatment Plant of RCC/Steel structure, size 15mx13.5m	Job	1.00	
26	Traverser Foundation	NO.	2.00	
26.1	Hard stand - 219m x 32m	Job	1.00	
26.2	Hard stand - 131m x 32m	Job	1.00	
27	Combination Track in between two traversers	M	326.00	
28	Goliath yard (7800 Sqm)	Job	1.00	
29	Office complex (RCC frame building G+5) with ground floor size of building as 75.6m x 18.9 m	Job	1.00	
30	Canteen Building of size 64.8m x 56.4 m	Job	1.00	
31	Medical Centre (RCC Framed single storeyed building) - size 28.8 m x 10.8m	Job	1.00	
32	Multi-level parking (RCC frame building, G+2). of size - 61.6m x 64.4m	Job	1.00	
33	Rest Room for Parking area - The size of the building shall 7.6m x 13.6 m.	Job	1.00	
34	Hard Stand parking for Truck, Traylor and Trolleys	Job	1.00	
35	Rain Water harvesting	Job	1.00	
	Miscellaneous fixed Assets (MFA)			
36	Material Handling Equipment			
36.1	DG EOT Crane- 25/5 T	No.	4.00	
36.2	DG EOT Crane- 10/2 T	No.	4.00	
36.3	SG Under slung Crane 2T	No.	1.00	
36.4	Double Girder Goliath Crane with Lifting Beam - 60 T	No.	1.00	
36.5	Interplant Traverser (75 t)	No.	2.00	
	MEP			
37	HVAC System for Canteen, admin building, safety office, Medical Centre	Job	1.00	
38	Air cooled VRF type Air conditioner (40 TR) for Main security complex	Job	1.00	
39	Split Air Conditioner for Annexe- Building to Manufacturing block- (1.5 Ton Capacity of 5 star rating)	No.	50.00	
40	Screw Compressors – 12 Bar Capacity	No.	7.00	
41	Fire Detection and Alarm System	Job	1.00	
42	Fire Fighting systems	Job	1.00	

43	Water Supply Facilities	Job	1.00	
44	RO Plant facility	Job	1.00	
45	Compressed air facilities	Job	1.00	
46	STP (MBR Technology)	Job	1.00	
47	DG Set 750 KVA	No.	3.00	
48	Weigh Bridge (100 Ft, 70 Ton) including civil work as per details provided by OEM	No.	1.00	
49	Plant Electrics	Job	1.00	
50	Instrumentation & Process Control	Job	1.00	
51	Car Body Inspection & Testing Line Equipment (As per Testing Equipment updated list of details enclosed in description of facilities)	Job	1.00	
52	Gas Bank and supply system	Job	1.00	
53	Furniture for the plant (As per furniture details enclosed)	Job	1.00	
	If a line item contains multiple distinctive segments (sub facilities), the bidder shall provide the breakup as per the distinctive segments (sub facilities) along with their quantities and prices, The total price should match as provided by the bidder against the line item.			

BILL OF QUANTITIES**BEML LIMITED, BHOPAL****Tender No. 6300040354**

Sub: Engineering, Procurement & Construction pertaining to establishment of Rail coach factory including Civil Construction of manufacturing blocks, testing bay, other utility buildings (Non factory buildings), Railway Track sidings, water supply and distribution System, Roads, Drainage and sewerage systems, General Electric works including regular and emergency power supply and distribution system, related installations & services (Fire, Gas, Compressed air, IT, BMS, etc.), MFA (Miscellaneous fixed assets) and other Land & Site development works including grading, levelling works in connection with setting up of a Rail Coach Factory hereinafter referred as BEML RAIL HUB FOR ADVANCE MANUFACTURING (BRAHMA)near Umaria village, Obaidullaganj, District- Raisen, Madhya Pradesh (India) PIN code 464993 on EPC Mode

SN	Item Description	Unit	Qty	Rate/Unit(Rs.)	Amount (Rs.)
	Execution of the work pertaining to establishment of Rail coach manufacturing facility mode on EPC Mode as per scope detailed				
1	Earthwork in formation -				
1.1	Cutting	CuM	802660.00		
1.2	Filling	CuM	822490.00		
2	RCC Road (Carriage width-7 m)with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	4400.00		
3	RCC Road (Carriage width-4 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	2044.00		
4	RCC Road (Carriage width-3.5 m) with both side 1 m wide berm & either side drain of min 0.8 m width & 0.8 m avg. depth	M	2350.00		
5	Storm water drainage system min 0.8 m width & 0.8 m avg. depth	M	4472.00		
6	Sewerage system excluding (STP)	M	3920.00		
7	RCC Service Trench(1.5 m wide with 1 m depth)	M	9800.00		
8	Greenbelt Development and Land Scaping	Acres	37.00		
	Other External Development works				
9	Gate Complex for Truck entry & exit	Job	2.00		
10	Gate Complex for railway siding	Job	1.00		
11	Main Gate Complex with security office(G+1)	Job	1.00		
12	Laying of Stabling and dispatch Railway Track				
12.1	With OHE	KM	3.20		
12.2	Without OHE	KM	0.80		
13	Car Body Manufacturing cum Warehouse Block – Manufacturing line will have dimension of 400m X 72 m (c/c of support) including fire stair cases	Job	1.00		
14	Offices Annexed to Manufacturing Block(G+5) of Steel Structure with build up Area-696 sqm each	Job	6.00		
15	Car body inspection and testing line facility - 01 No. Inspection & Testing line will have dimension of 758 m X 24 m (c/c of support).	Job	1.00		
16	Raw Material Storage Yard - Hard Stand of 50mx40m with compound wall along with an office of plinth area - 27.44 sq.m. (which is inside hardstand area)	Job	1.00		
17	Water Supply & Fire water pump house including sump - single-storey industrial form with adequate internal clear heights for pump installation, maintenance, and overhead piping, size - 30x28 Mtr (Inclusive of Sump area)	Job	1.00		
18	Main Receiving Sub Station – MRSS with RCC/partially steel structure, 40 m X12.5 m	Job	1.00		
19	Emergency Power Supply System with covered storage shed of size- (4m x 8 m x 3.5 m) of structural steel for storage of HSD barrels - Total area - 30 mx30 m	Job	1.00		
20	Centralised Gas bank Shed open from sides with RCC platform of size 40 M x 16 M	Job	1.00		
21	Safety Office - Single floor RCC building of size 14.4m x 25.2 m	Job	1.00		
22	RO Plant with tiled RCC tank of capacity 250 KL for storage of RO water, Hard stand size - 15mx10m	Job	1.00		
23	Chiller Plant Building of RCC Structure, size 46.6mx16m	Job	1.00		
24	Fire station of RCC structure, size 32.4mx10.8m	Job	1.00		
25	Sewage Treatment Plant of RCC/Steel structure, size 15mx13.5m	Job	1.00		
26	Traverser Foundation – 02 Nos				

SN	Item Description	Unit	Qty	Rate/Unit(Rs.)	Amount (Rs.)
26.1	Hard stand - 219m x 32m- 01 No.	Job	1.00		
26.2	Hard stand - 131m x 32m -01 No.	Job	1.00		
27	Combination Track in between two traversers	M	326.00		
28	Goliath yard (7800 Sqm)	Job	1.00		
29	Office complex (RCC frame building G+5) with ground floor size of building as 75.6m x 18.9 m	Job	1.00		
30	Canteen Building of size 64.8m x 56.4 m	Job	1.00		
31	Medical Centre (RCC Framed single storeyed building) - size 28.8 m x 10.8m	Job	1.00		
32	Multi-level parking (RCC frame building, G+2). of size - 61.6m x 64.4m	Job	1.00		
33	Rest Room for Parking area - The size of the building shall 7.6m x 13.6 m.	Job	1.00		
34	Hard Stand parking for Truck, Trailor and Trolleys	Job	1.00		
35	Rain Water harvesting	Job	1.00		
	Miscellaneous fixed Assets (MFA)				
36	Material Handling Equipment				
36.1	DG EOT Crane- 25/5 T	No.	4.00		
36.2	DG EOT Crane- 10/2 T	No.	4.00		
36.3	SG Under slung Crane 2T	No.	1.00		
36.4	Double Girder Goliath Cranewith Lifting Beam - 60 T	No.	1.00		
36.5	Interplant Traverser (75 t)	No.	2.00		
	MEP				
37	HVAC System for Canteen, admin building, safety office, Medical Centre	Job	1.00		
38	Air cooled VRF type Air conditioner (40 TR) for Main security complex	Job	1.00		
39	Split Air Conditioner for Annexe- Building to Manufacturing block- (1.5 Ton Capacity of 5 star rating)	No.	50.00		
40	Screw Compressors – 12 Bar Capacity	No.	7.00		
41	Fire Detection and Alarm System	Job	1.00		
42	Fire Fighting systems	Job	1.00		
43	Water Supply Facilities	Job	1.00		
44	RO Plant facility	Job	1.00		
45	Compressed air facilities	Job	1.00		
46	STP (MBR Technology)	Job	1.00		
47	DG Set 750 KVA	No.	3.00		
48	Weigh Bridge (100 Ft, 70 Ton) including civil work as per details provided by OEM	No.	1.00		
49	Plant Electrics	Job	1.00		
50	Instrumentation & Process Control	Job	1.00		
51	Car Body Inspection & Testing Line Equipment (As per Testing Equipment updated list of details enclosed in description of facilities)	Job	1.00		
52	Gas Bank and supply system	Job	1.00		
53	Furniture for the plant (As per furniture updated details enclosed)	Job	1.00		
	If a line item contains multiple distinctive segments (sub facilities), the bidder shall provide the breakup as per the distinctive segments (sub facilities) along with their quantities and prices, The total price should match as provided by the bidder against the line item.	Total Value in Rs inclusive of GST			

Total Amount in words. Rs.

OVERALL MASTER LIST OF DRAWINGS - BRAHMA RAIL PLANT, UMARIA VILLAGE, MADHYA PRADESH

Sl.No.	Drawing No.	Name of the Building/ Facility	Drawing Title
ARCHITECTURAL DRAWINGS			
1	01A	TOPOGRAPHIC SURVEY WITH GRID CONTOUR DRAWING	TOPOGRAPHIC SURVEY WITH GRID CONTOUR DRAWING - SHEET 1 OF 2
2	01B	TOPOGRAPHIC SURVEY WITH GRID CONTOUR DRAWING	TOPOGRAPHIC SURVEY WITH GRID CONTOUR DRAWING - SHEET 2 OF 2
3	02	MASTER LAYOUT - BRAHMA RAIL PLANT	MASTER LAYOUT - BRAHMA RAIL PLANT
4	03A	CAR BODY FABRICATION AND ASSEMBLY FACILITY	FLOOR PLAN - FUNCTIONAL LAYOUT - 1
5	03B	CAR BODY FABRICATION AND ASSEMBLY FACILITY	FLOOR PLAN - FUNCTIONAL LAYOUT - 2
6	03C	CAR BODY FABRICATION AND ASSEMBLY FACILITY	FLOOR PLAN - FUNCTIONAL LAYOUT - 3
7	03D	CAR BODY FABRICATION AND ASSEMBLY FACILITY	FLOOR PLAN - FUNCTIONAL LAYOUT - 4
8	03E	CAR BODY FABRICATION AND ASSEMBLY FACILITY	SECTIONS
9	03F	CAR BODY FABRICATION AND ASSEMBLY FACILITY WITH ANNEX BUILDING	FLOOR PLAN (DRAFT)
10	03G	CAR BODY FABRICATION AND ASSEMBLY FACILITY WITH ANNEX BUILDING	ANNEX SPACE GROUND FLOOR PLAN, TYPICAL FLOOR PLAN AND SECTIONS (DRAFT)
11	03H	CAR BODY FABRICATION AND ASSEMBLY FACILITY WITH ANNEX BUILDING	TYPICAL FLOOR PLAN OF FIRE STAIRCASE (DRAFT)
12	04A	CAR BODY INSPECTION AND TESTING FACILITY	FLOOR PLAN - FUNCTIONAL LAYOUT - SHEET 1 OF 2
13	04B	CAR BODY INSPECTION AND TESTING FACILITY	FLOOR PLAN - FUNCTIONAL LAYOUT - SHEET 2 OF 2
14	04C	CAR BODY INSPECTION AND TESTING FACILITY	ELEVATION
15	MEC-I0047-01-48-D1-XX-04-DR-A-01100	OFFICE COMPLEX	GROUND FLOOR PLAN AND FIRST FLOOR PLAN
16	MEC-I0047-01-48-D1-XX-04-DR-A-01101	OFFICE COMPLEX	SECOND FLOOR PLAN AND THIRD FLOOR PLAN
17	MEC-I0047-01-48-D1-XX-04-DR-A-01102	OFFICE COMPLEX	FOURTH FLOOR PLAN AND FIFTH FLOOR PLAN
18	MEC-I0047-01-48-D1-XX-04-DR-A-01200	OFFICE COMPLEX	SECTION AND ELEVATION
19	MEC-I0047-01-48-D1-XX-04-DR-A-01201	OFFICE COMPLEX	SECTION AND VIEWS
20	MEC-I0047-01-48-D1-XX-5A & 5B-DR-A-01100	CANTEEN BUILDING	GROUND FLOOR PLAN AND SECTION
21	MEC-I0047-01-48-D1-XX-5A & 5B-DR-A-01101	CANTEEN BUILDING	VIEWS - 3D RENDERS
22	MEC-I0047-01-48-D1-XX-06-DR-A-01100	MEDICAL CENTRE	GROUND FLOOR PLAN AND SECTIONS
23	MEC-I0047-01-48-D1-XX-8A&8B-DR-A-01100	MULTILEVEL CAR PARKING	GROUND FLOOR PLAN
24	MEC-I0047-01-48-D1-XX-8A&8B-DR-A-01101	MULTILEVEL CAR PARKING	FIRST FLOOR PLAN
25	MEC-I0047-01-48-D1-XX-8A&8B-DR-A-01102	MULTILEVEL CAR PARKING	SECOND FLOOR PLAN
26	MEC-I0047-01-48-D1-XX-8A&8B-DR-A-01200	MULTILEVEL CAR PARKING	SECTION & VIEWS
27	MEC-I0047-01-48-D1-XX-10A-DR-A-01100	MAIN GATE COMPLEX WITH SECURITY OFFICE	GROUND FLOOR PLAN AND FIRST FLOOR PLAN
28	MEC-I0047-01-48-D1-XX-10A-DR-A-01200	MAIN GATE COMPLEX WITH SECURITY OFFICE	SECTION, FRONT ELEVATION & VIEWS
29	MEC-I0047-01-48-D1-XX-10B-DR-A-01100	GATE COMPLEX FOR TRUCK ENTRY / EXIT	GROUND FLOOR PLAN, SECTION, ELEVATION & VIEWS
30	MEC-I0047-01-48-D3-XX-10C-DR-A-01100	GATE COMPLEX FOR RAILWAY SIDING	LOOR PLANS, SECTION, ELEVATION AND 3-D RENDER
31	MEC-I0047-01-48-D1-XX-17-DR-A-01100	SAFETY OFFICE	GROUND FLOOR PLAN, SECTION & 3D RENDER
32	MEC-I0047-01-48-D1-XX-19-DR-A-01100	CHILLER PLANT	GROUND FLOOR PLAN & SECTIONS
33	MEC-I0047-01-48-D1-XX-11-DR-A-01100	FIRE STATION	GROUND FLOOR PLAN AND SECTIONS
34	MEC-I0047-01-48-D1-XX-16-DR-A-01100	CENTRALISED GAS BANK	GROUND FLOOR PLAN , SECTION, ELEVATION & VIEW
35	MEC-I0047-01-48-D1-XX-14-DR-A-01100	MRSS BUILDING	GROUND FLOOR PLAN, SECTIONS AND VIEW
36	MEC-I0047-01-48-D1-XX-07-DR-A-01100	RAW MATERIAL STORAGE YARD	SITE PLAN, OFFICE FLOOR PLAN, SECTION & 3D RENDER
37	MEC-I0047-01-48-D1-XX-13-DR-A-01100	100 KLD MBR BASED STP BUILDING	GROUND FLOOR PLAN , SECTION & VIEW
38	MEC-I0047-01-48-D1-XX-21-DR-A-01100	TOILET BLOCK AND RESTROOM AT PARKING AREA	GROUND FLOOR PLAN,ELEVATION, SECTIONS AND VIEW
39	MEC-I0047-01-48-D1-XX-12-DR-A-01100	WATER AND FIRE PUMP HOUSE BUILDING	GROUND FLOOR PLAN ,ELEVATIONS, SECTION & VIEW
ELECTRICAL DRAWINGS			
40	MEC-I/0047-01-E1-D1-ZZ-ZZZ-DR-E-07220	CAR BODY FABRICATION AND ASSEMBLY FACILITY	SINGLE LINE DIAGRAM - KEY POWER DISTRIBUTION SCHEME *
INSTRUMENTATION & PROCESS CONTROL DRAWINGS			
41	MEC-I/0047-01-E5-D1-XX-01-DR-I-00001	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY	SCHEMATIC FDA SYSTEM*
42	MEC-I/0047-01-E5-D1-XX-01-DR-I-00002	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY	SCHEMATIC LAN SYSTEM*

OVERALL MASTER LIST OF DRAWINGS - BRAHMA RAIL PLANT, UMARIA VILLAGE, MADHYA PRADESH

Sl.No.	Drawing No.	Name of the Building/ Facility	Drawing Title
COMPRESSED AIR			
43	MEC-/I0047-01-40-D1-ZZ-15-DR-N-03002	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY	PFD OF COMPRESSED AIR FACILITY *
GAS BANK			
44	MEC-/I0047-01-40-D1-ZZ-16-DR-N-03004	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY	PFD OF INDUSTRIAL GASES*
HVAC			
45	MEC-/I0047-01-40-D1-ZZ-ZZZ-DR-H-05001	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY	CHILLED WATER SYSTEM P&ID*
FIRE FIGHTING SYSTEM			
46	MEC-I0047-01-14-D1-ZZ-ZZZ-DR-N-04100	FIRE FIGHTING SYSTEM	FIRE WATER PIPELINE NETWORK *
47	MC-I0047-01-14-D1-ZZ-ZZZ-DR-N-04001	FIRE FIGHTING SYSTEM	P&I DIAGRAM FIRE WATER PUMPING SYSTEM *
48	MC-I0047-01-14-D1-ZZ-ZZZ-DR-N-04002	FIRE FIGHTING SYSTEM	P&I DIAGRAM OF AUTOMATIC SPRINKLER SYSTEM *
WATER SUPPLY SYSTEM			
49	MEC-/I0047-01-40-D1-ZZ-12-DR-N-03001	CAR BODY FABRICATION & ASSEMBLY LINE FACILITY	PFD OF WATER SUPPLY FACILITIES *

*The above drawings provided in Tender Document are only at conceptual level. EPC Contractor has to assess as per the description of facilities and quote accordingly. Awarded EPC contractor has to propose and optimize design at the detail design stage and get approval from the BEML.