



Sub : Scope of Work for carrying out Structural Health Assessment of Shipyard House, Safdarjang Enclave, New Delhi-110029.

1. PREAMBLE

1.1. Mazagon Dock Shipbuilders Limited (MDL) is a "Navaratna" Central Public Sector Undertaking working under the administrative control of Ministry of Defence, Department of Defence Production, Government of India, primarily engaged in the construction, repair, and refit of Warships and Submarines for the Indian Navy.

1.2. MDL intends to carry out Structural Health Assessment of Shipyard House, Safdarjang Enclave, New Delhi-110029 from the MCD or any other corporation registered structural consultants. The complete assessment including testing and submission of reports as per BOQ shall be completed in **01 month** from the date of placement of PO excluding mobilization period.

1.3. **Standards & Codes:** The works shall comply with the followings:

a. CPWD Maintenance Manual specifically the chapters on "Repair and Rehabilitation of Structures."

b. IS 15988:2013: Seismic Evaluation and Retrofitting of Existing Buildings.

c. IS 13311 (Parts 1 & 2): Methods of Non-destructive testing of concrete.

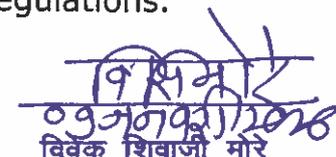
d. Standard Specifications: The consultant must use MCD-approved or NABL-accredited laboratories for any material testing, IS Codes, NBC 2016 and other applicable statutory codes and regulations.

1.4. Layout & Area details : As per enclosed plan.

2. GENERAL SCOPE OF WORK :

The scope of work shall include the following:


गौतम राजपूत
GAUTAM RAJPUT
सिनिअर अभियंता (तकनीकी सेवारे)
SENIOR ENGINEER (TECHNICAL SERVICES)
माझगाव डॉक शिपबिल्डर्स लिमिटेड
MAZAGON DOCK SHIPBUILDERS LIMITED


विवेक शिवाजी मोरे
VIVEK SHIVAJI MORE
उप महाप्रबंधक (तकनीकी सेवारे)
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माझगाव डॉक शिपबिल्डर्स लिमिटेड
MAZAGON DOCK SHIPBUILDERS LIMITED

Sl. No.	Description of work
<u>a. Visual Survey:</u>	Visual inspection for surface damages and damage classification. The visual inspection shall cover all areas of various distress patterns, such as corrosion, moisture, and leakage, including structural and non-structural issues and issues related to the durability of the structure. Visual inspection would be documented in the form of worksheets, photographic records, and distress marked over drawings. Simple visual survey tools and instruments like cameras with flashlights, chisels, hammers, etc. will be used during the survey complete as per direction of the Er. In-charge.
<u>b. Structural Drawings Preparation:</u>	Preparation of structural drawings with complete RCC details, section sizes of all members, and steel percentage along with the column-beam layout. A few pieces of information will be based on the assumption that wherever a scanning machine cannot be run, there are limitations with the machine. Only through localized destructive tests (like chiseling or coring in small patches) we can get accurate information complete as per direction of the Er. In-charge.
<u>c. Rebound Hammer test for concrete:</u>	Uniformity of concrete in terms of surface hardness as per IS ASTM C 805-02, BS 6089:1981, BS 1881: Part 202, BS-EN:13791, and NIDM reference guidelines or IS 516 Part 5 section 4 2020 complete as per direction of the Er. In-charge.
<u>d. Ultrasonic Pulse Velocity Test for concrete:</u>	For ascertaining the quality of concrete, uniformity of concrete in terms of soundness and density of concrete as per ASTM: C597-83, BS 6089: 1981, BS 1881: Part 203, BSN: 13791, IS 516 Part 5 Section 1 2018 complete as per direction of Er. In-charge.
<u>e. Core Extraction, Sampling, and Testing:</u>	Extracting the concrete core samples following the codal provisions and evaluating the properties (fck value, grade of concrete) in the laboratory from the core samples selected. IS 456:2000; IS 516 Part 4

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 VIVEK SHIVAJI MORE *2020*
 उप महाप्रबंधक (तकनीकी सेवाएँ)
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 माझगांव डॉक शिपबिल्डर्स लिमिटेड
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गावतम राजपुत *09/11/2020*
 GAUTAM RAJPUT
 वरिष्ठ अभियंता (तकनीकी सेवाएँ)
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	2018; IS 1199:2002; ASTM C-42, without encountering any steel reinforcement from the RCC members covered under the study at specified locations by the site in charge with portable power-driven core cutting equipment complete as per direction of Er. In-charge.
<u>f. Half-Cell Potential Test :</u>	Measuring the half-cell/surface potentials at selected locations on RCC members of the structures covered under the study to understand the extent of reinforcement corrosion in terms of probable risk of corrosion of steel bars as per ASTM C876, IS 516 Part 5, section 2, 2021. The rate shall include surface preparation and moistening concrete surface, complete as per direction of engineer In-charge.
<u>g. Carbonation or alkalinity test with cover test:</u>	Measurement of carbonation depth or alkalinity of concrete by phenolphthalein spray test at selected locations (drilled powder sample or concrete core sample as per site condition) on RCC members of the structures covered under the study to see the depth of carbonation as per IS 516 Part 5 section 3 2021, BS EN 14630:2006, and BS EN 13295:2004. Cover depth is also measured at the same location to know the ratio of carbonation depth to cover depth to check whether the structure is in an incubation period or a deterioration period or to know the alkalinity of the concrete complete as per direction of Er. In-charge.
<u>h. pH Value (to check alkanity of concrete):</u>	As per relevant B.S. 5328, ACI 201.2R-92 and ACI-318-99, IS 456:2000, BS 8110 complete as per direction of Er. In-charge
<u>i. Water Soluble Chloride Content % (by of mass of concrete):</u>	To check the risk of corrosion due to present chloride % as per IS: 14959 (Part 2)-2001, B.S. 5328 Part 1, ACI 201.2R-92, BS 1881 Part 124:1988, BS 8110, IS 456:2000 complete as per direction of Er. In-charge.

Gautam
09/10/2025
गौतम राजपूत

GAUTAM RAJPUT

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Vivek
09/10/2028
विवेक शिवाजी मोरे

VIVEK SHIVAJI MORE

उप महाप्रबंधक (तकनीकी सेवाएँ)
DGM (TECHNICAL SERVICES) Page 3 of 4
भाइगांव डॉक शिपबिल्डर्स लिमिटेड
MAZAGON DOCK SHIPBUILDERS LIMITED

<u>J. Report submission with Interpretation and Recommendation:</u>	Preparing and submitting comprehensive report consisting of findings from visual inspection, test data, interpretation of results, conclusions and final recommendations along with sketch indicating the location of the test complete as per direction of Er. In-charge.
<u>* k. BOQ - Repair and DPR :- (Only in the event of recommendation of the consultant on carrying out Repair, Retrofitting, Rehabilitation etc. (as the case may be and as per the esteemed opinion of the consultant).</u>	Agency shall prepare and submit 4 sets of Audit Report which include clear cut recommendation on either demolition of the existing building or inclusion of all diagnosis results, interpretations, conclusion, site photographs, BOQ and conceptual scheme for Repair/Rehabilitation/Retro-fitting works (feasible, viable, economical options as the case may be and as pe the esteemed opinion) along with Rate Analysis, material specification, execution drawing for Repair/Rehabilitation/Retro-fitting of structure(as the case may be) along with technical Specifications complete as per direction of Er. In-charge.

4. Quality Control:

- a. All materials must conform to **IS Codes** and **CPWD specifications**.

5. Deliverables:

- a. Time Schedule (Bar Chart/PERT) within **7 days** of Work Order.
- b. Detailed **Structural As-Built drawing** (including Column Layout, Beam & Slab details etc.) for submission.
- c. Detailed Structural Analysis of existing building & load bearing capacity evaluation .
- d. 4 sets of Audit Report.

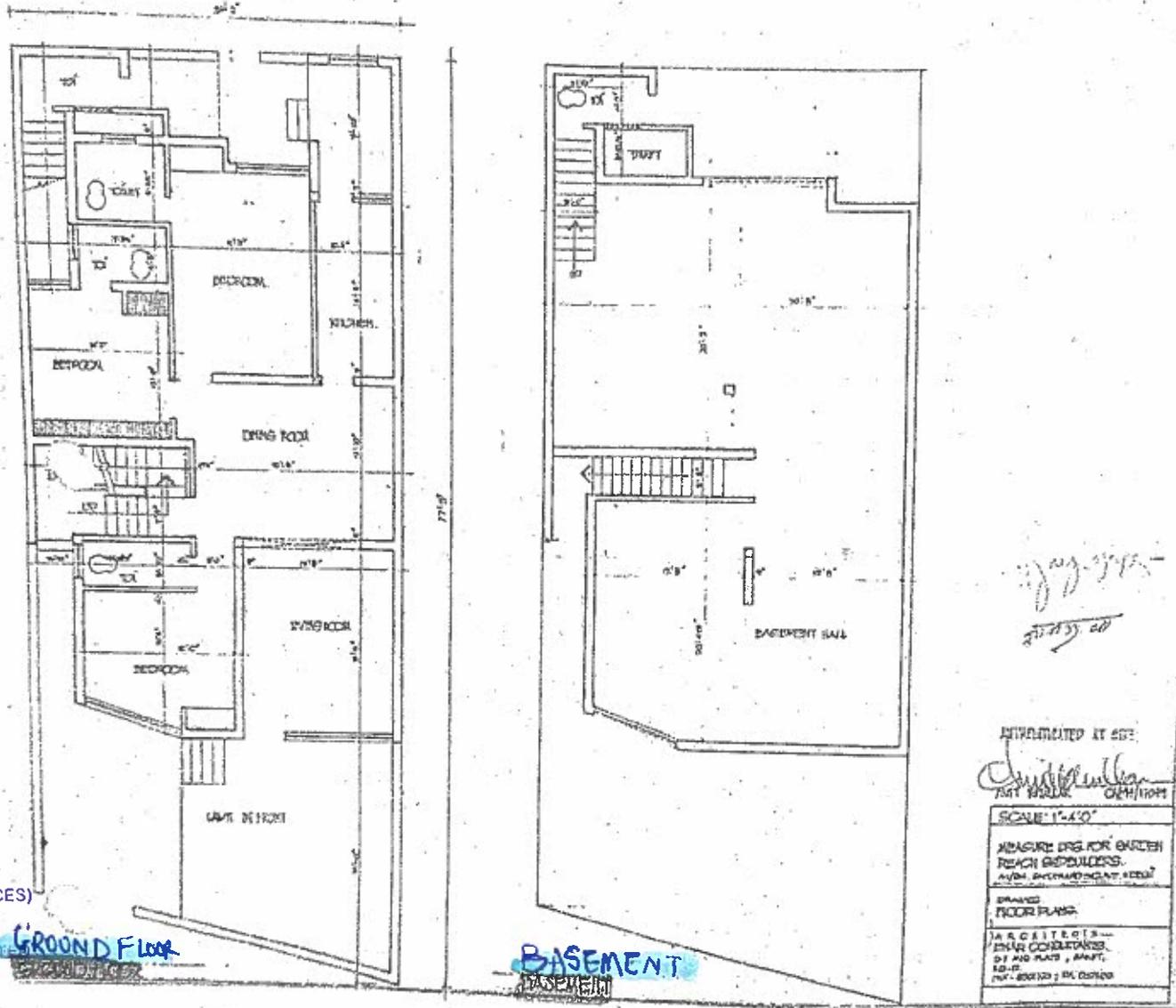
7. Warranty/Guarantee/Certification:

- a. Structural Stability Report : Stability certificate along with the final report.


 09/10/2026
 गौतम राजपूत
GAUTAM RAJPUT
 वरिष्ठ अभियंता (तकनीकी सेवाएँ)
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A1/314 SAIDARJUNG ENCLAVE
NEW DELHI



Gautam
13/01/2026
गौतम राजपूत
GAUTAM RAJPUT
वरिष्ठ अभियंता (तकनीकी सेवाएँ)
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MAZAGON DOCK SHIPBUILDERS LTD.

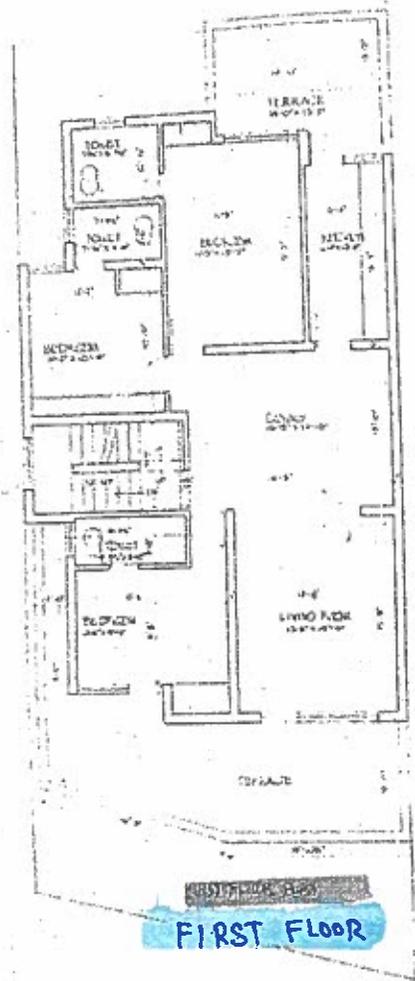
GROUND FLOOR

BASEMENT

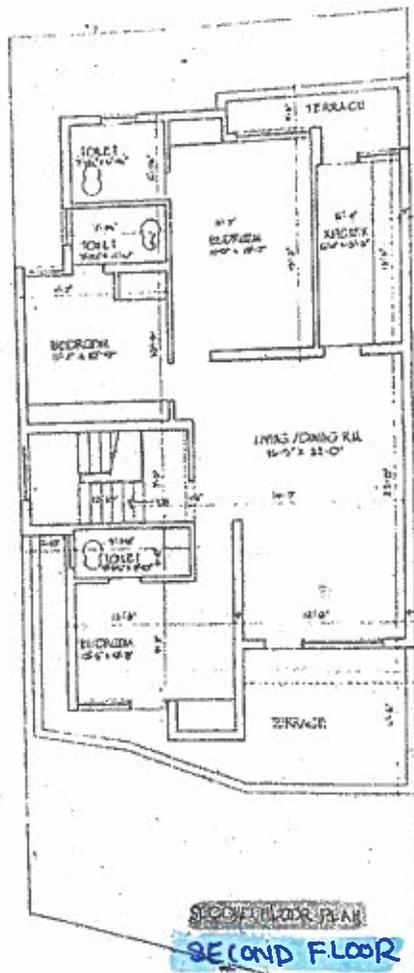
PREPARED AT 55°
Vivek Shivaji More
VIVEK SHIVAJI MORE
SCALE: 1:40
MEASURE DRS FOR GARDEN
REACH SHIPBUILDERS
DGM (TECHNICAL SERVICES)
DRAWING
FLOOR PLANS
1A & CATEGORIES
ENR CONSTATS
DT 100 PLANS, 100 FT
ED-11
NO. 200/100 ; PL 001/100

Vivek Shivaji More
13 जनवरी 2026
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A1/314 SARDARJANG KINCHAK
NEW DELHI



FIRST FLOOR



SECOND FLOOR

Gautam
13/01/2016

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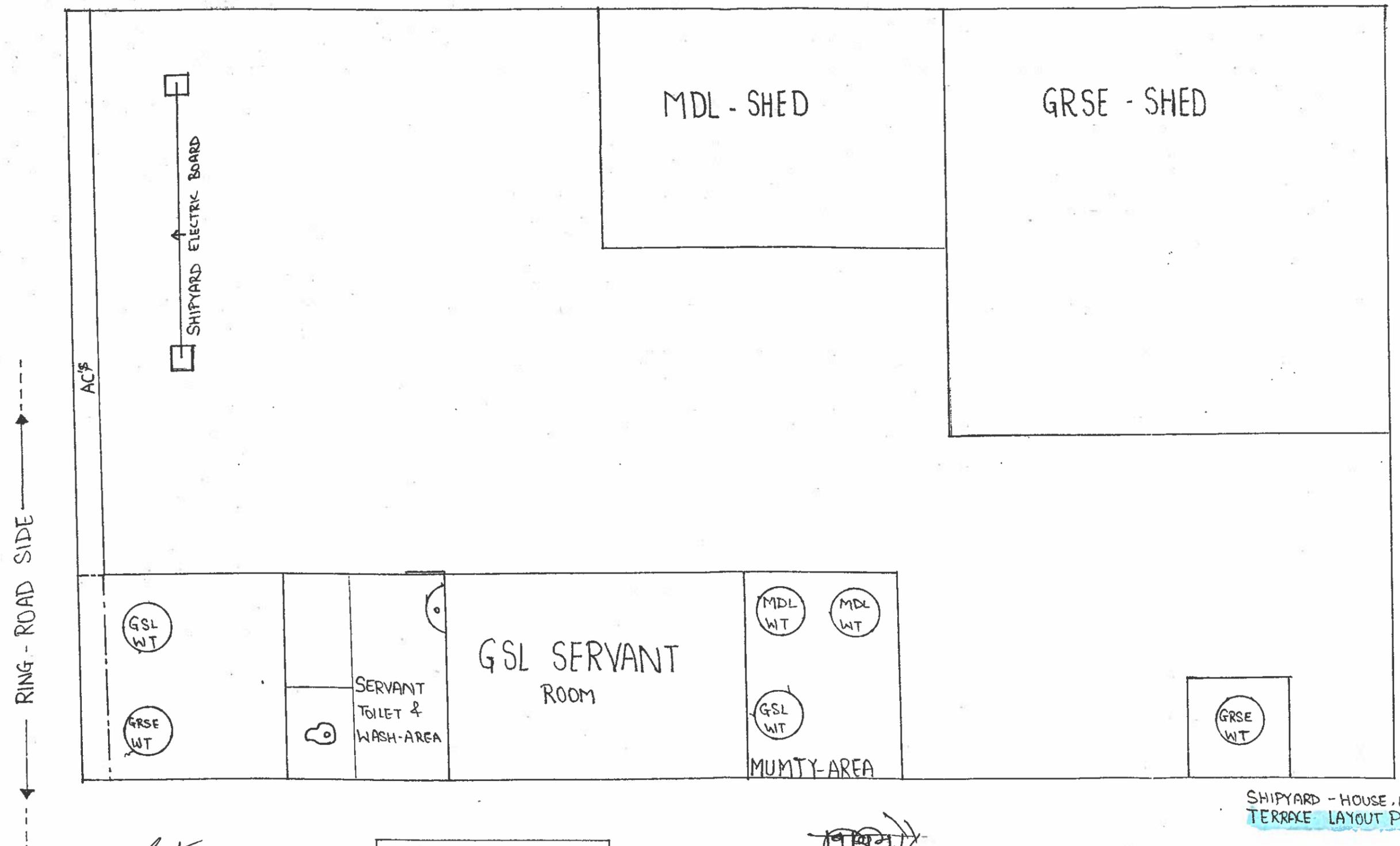
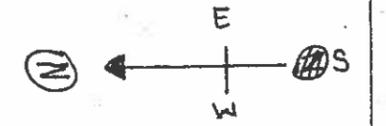
SCALE: 1/4"=1'
PROJECT HAS
REQUIRE DRAWING OF SET
FOR GARDEN/ACCH AND ETC
AT A/114, SARDARJANG
DRAWING TITLE
FLOOR PLANS
BRIDGE DRAWING
ARCHITECTS
DEAR CONSULTANTS
D-1 IND PLANT NAGAR
NEW DELHI - 11007
PHONE-6201887, FAX-6201800
SHEET NO. 1

APPROVED AT SITE
[Signature]
NET MEER CHD-14/11/2015

[Signature]
13/01/2016

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SHIPYARD HOUSE, TERRACE LAYOUT PLAN

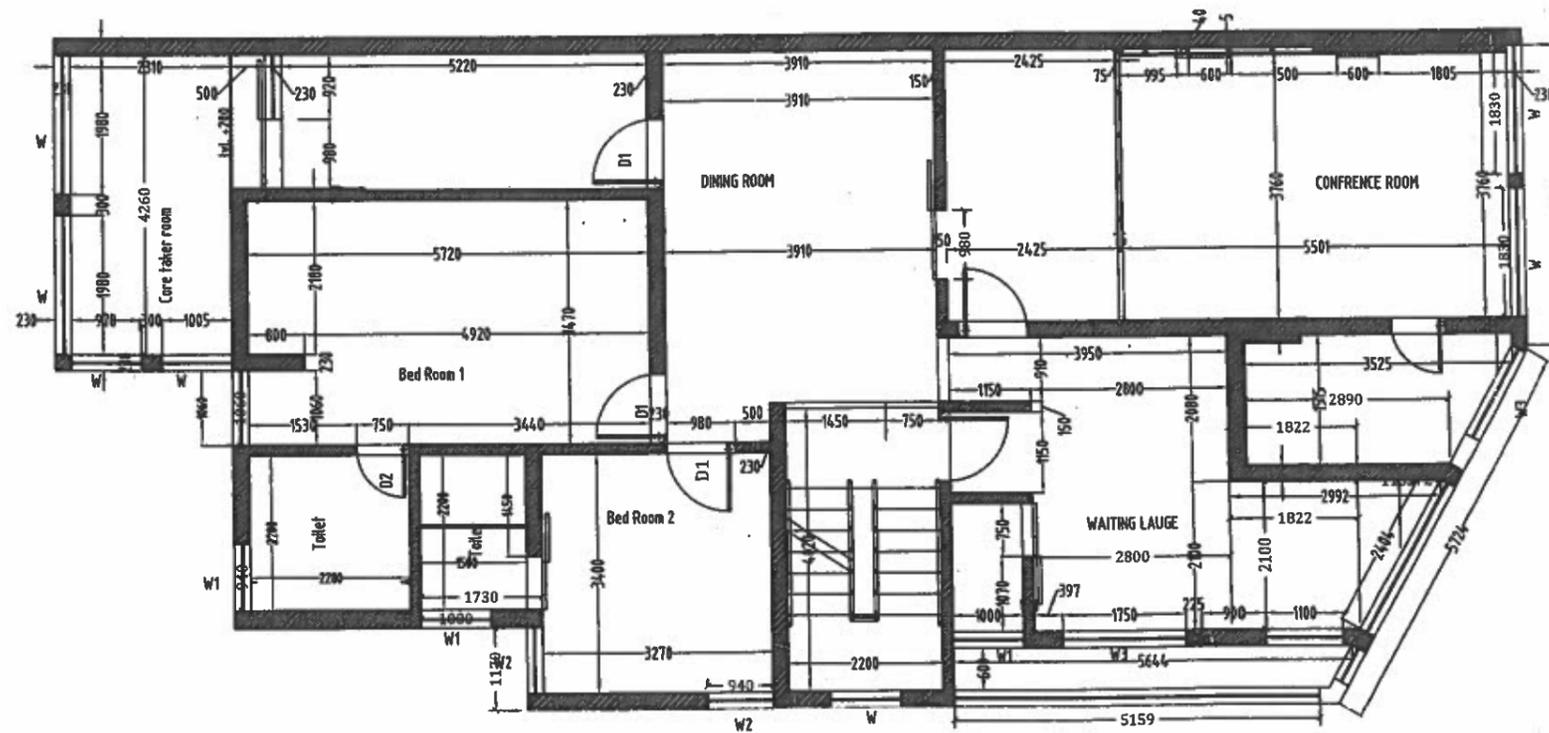


SHIPYARD - HOUSE, NEW-DELHI
TERRACE LAYOUT PLAN

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26/8/25
गौतम राजपूत
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MAZAGON DOCK SHIPBUILDERS LIMITED

NBCC-TOWER SIDE

Vivek Shivaji
26/08/2025
विवेक शिवाजी
VIVEK SHIVAJI
इस पदवीके (अभि) सेवार्थ
DGM (TECHNICAL) (अभि) सेवार्थ
माझगाँव डॉक शिपबिल्डर्स लिमिटेड
MAZAGON DOCK SHIPBUILDERS LIMITED



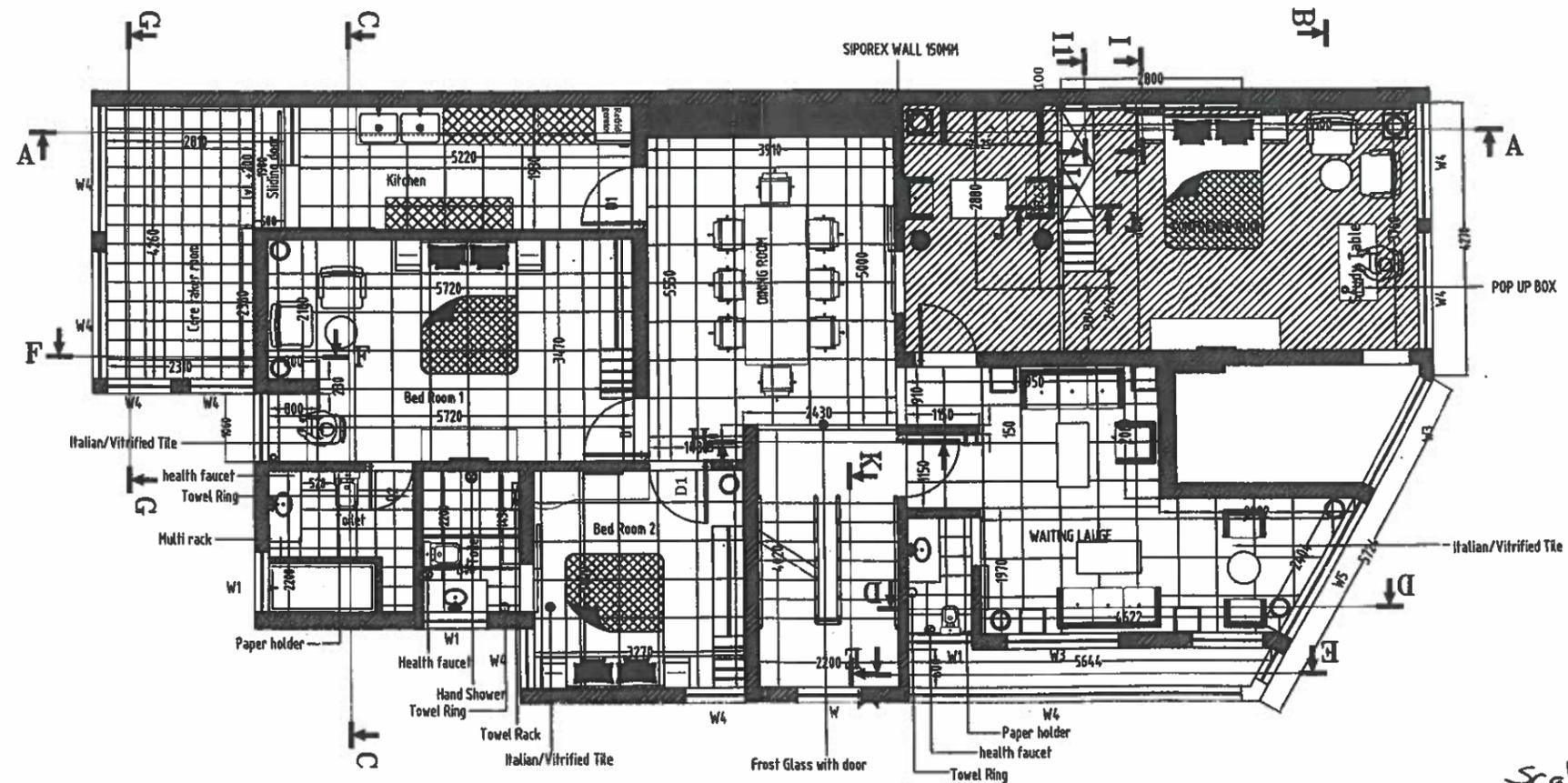
Scale 1:100

TITLE: DIMENSION LAYOUT	DATE: 10-05-2016
PROJECT: MDL	CHECKED: ABHISHEK AGRAWAL
PROJECT CONTRACTOR K.K.AGRAWAL & ASSOCIATES (P) LTD. B-305 OXFORD CHAMBERS SAKI-VIHAR ROAD ANDHERI (EAST) MUMBAI-400 072, INDIA. Tel: +91-22- 285 70 304 Telefax: +91-22-285 76 132 E- mail: aa@kkaapl.com	DRAWN: AK. HUSAIN
	DRG No: 4

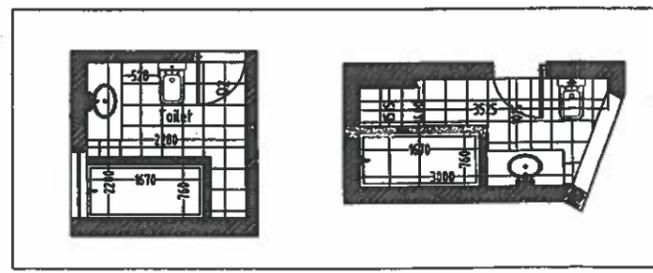
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13/05/2016

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13/05/2016
गौतम राजपूत
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वरिष्ठ अभियंता (तकनीकी सेवारे)
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MAZAGON DOCK SHIPBUILDERS LIMITED



Scale 1:100



TITLE: Interior Plan	DATE: 10-05-2016
PROJECT: MDL	CHECKED: ABHISHEK AGRAWAL
	DRAWN: AK. HUSAIN
	DRG No: 1
PROJECT CONTRACTOR K.K.AGRAWAL & ASSOCIATES (P) LTD. B-305 OXFORD CHAMBERS SAKI-VIHAR ROAD ANDHERI (EAST) MUMBAI-400 072, INDIA. Tel: +91- 22- 285 70 304 Telefax: +91-22-285 76 132 E- mail: aa@kkaapl.com	

19/5/2016
13/05/2016
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MAZAGON DOCK SHIPBUILDERS LIM

3/01/2016
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