Thesis 2025

5 STAR HOTEL

Sanand, Gandhinagar, Gujrat

HARSH BOBADE
(211110248)

SITE DATA

INTRODUCTION:

The proposed site for the 5-star hotel is strategically located within the industrial zone of Sanand, Gujarat, offering both accessibility and potential for high-footfall from business and industrial visitors. The location is well-connected by various modes of transport, albeit with a preference for private or industrial commuting methods due to the distance from major public transit hubs.

Name of the Project: Proposed 5-Star Hotel
Location: GIDC Sanand-II (Plot SM-3N/5), Sanand-II Industrial Estate
District: Ahmedabad, Gujarat
Site Coordinates: 22°59'23.8"N, 72°23'55.0"E
Land Use: Commercial Property
Site Area: 22,548 Sqm (5.56 Acres)
Ground Coverage: 40%
FAR: 1.8
Setback: 4.5%
Building Height: 45.1



SITE ANALYSIS





SWOT

S **Strength** – Strategic Location: Positioned in a major industrial zone, attracting business travelers. Proximity to Key Industries: Close to automotive and manufacturing hubs, ensuring a steady flow of corporate clientele.

W **Weakness** – Limited Residential Appeal: The industrial area may not appeal to leisure travelers. Risks and Pollution: Proximity to factories could affect the ambiance and comfort of guests.

O **Opportunity** – Growing Business Hub: Increasing investment in the area opens opportunities for corporate partnerships and events. Industrial Growth: The expansion of industries in Sanand creates a consistent demand for business accommodations.

T **Threat** – Economic Volatility: Fluctuations in the industrial sector may affect hotel occupancy. Competition from Other Hotels: New hotels in the region could create additional competition.

INFERENCE FROM SITE

CLIMATE-RESPONSIVE ORIENTATION & LAYOUT

The design should prioritize an east-west orientation for the long axis, with the main facades facing north and south. This minimizes harsh solar gain from the east and west. A compact courtyard plan is recommended to create shaded microclimates, while increasing openness during the monsoon to allow for effective cross-ventilation.

VENTILATION & AIRFLOW OPTIMIZATION

To ensure natural airflow, the design must prioritize cross-ventilation in all habitable rooms by aligning openings with prevailing wind directions. Service corridors and thick walls should buffer the east and west sides, enhancing breeze penetration during the monsoon months.

THERMAL MASS & MATERIALITY

Use materials with high thermal mass, such as brick, rammed earth, or insulated AAC blocks, to delay heat transfer. External finishes should be light-colored to reflect heat, while roofs should feature well-insulated, light-colored RCC slabs or green roofs for passive cooling.

SUSTAINABLE OUTDOOR SPACES & MONSOON ADAPTABILITY

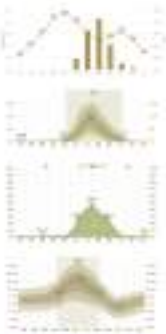
Outdoor spaces such as verandahs, pergolas, and shaded balconies provide essential transitional areas. Plant deciduous trees for seasonal shading and design for proper rainwater drainage and covered walkways. Materials should be chosen to resist high humidity and prevent fungal growth, ensuring durability during the monsoon season.

Site PROXIMITY

- Sardar Vallabhbhai Patel International Airport - **47 km · 1 hr 42 m**
- Chharodi Railway Station - **16 km · 31 min**
- Sanand GT Stand - **11 km · 24 min**
- Ma'th Kuljaxa Primary School - **6.4 km · 15 min**
- Gaja Institute of Health Science Hospital - **19 km · 30 min**

Climate

In Sanand, the wet season is oppressive and mostly cloudy, the dry season is mostly clear, and it is hot year round.



TEMPERATURE
Maximum: 29° C (May)
Minimum: 20° C (January)

RAINFALL
Maximum: 8.6 inch (July)
Minimum: 0.0 inch (January)

HUMIDITY
Maximum: 84% (July)
Minimum: 36% (January)

WIND
Maximum: 17.1 kph (June)
Minimum: 3.2 kph (October)
Prominent Wind direction
West (W) & South-West (SW)

SITE SURROUNDING



SITE

SEM - IX
Trimester 2025-26

5-Star Hotel

TITLE
SITE ANALYSIS

PROJECT TYPE
5 - STAR HOTEL

FACULTY GUIDE
DR. RUJAT SEMI
ASSOCIATE PROFESSOR

SUBMITTED BY
AKSHAT JAIN
21191024

SCALE
1:1000

SHEET NO.
AR01

CONCEPT

CASCADING TERRACES

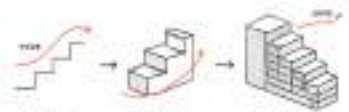
Inspired by the iconic Indian ghats, the hotel design transforms into a series of **cascading urban terraces** that seamlessly integrate nature and luxury. These stepped terraces not only **enhance natural ventilation**, offering a refreshing environment throughout the day, but also create **premium outdoor spaces** that frame stunning views of the sunrise and sunset. The terraces can be transformed into various lounges, infinity pools, yoga decks, and cultural bars, providing guests with **unparalleled experiences**.

[+]

Z-AXIS

PLANTERS

DESIGN METHODOLOGY



STEPS TERRACES INSPIRED BY URBAN GHATS



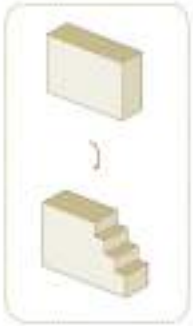
As the form continues to evolve, the terraces become more layered, building upon the concept of horizontal and vertical integration, connecting the natural flow of water cascading down a riverfront. This organic development not only contributes to the building's iconic silhouette but also creates a functional space that offers natural ventilation and views at every level.

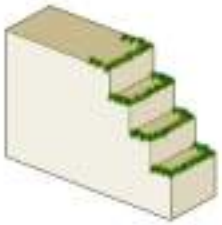
Introducing stepping on each level in a tri-plate enhances aesthetic appeal, allows for varied natural light penetration, and improves airflow, while also creating dynamic visual interest in architectural design.

MATERIAL PALETTE



FORM DEVELOPMENT





The form development begins with a simple rectangular block, which is then transformed into a stepped structure.

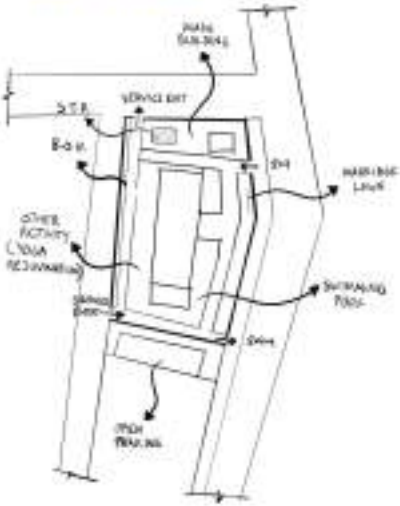
This evolution reflects the cascading terrace concept, inspired by natural forms like flowing water.

In the final stage, each step incorporates greenery, blending architecture with nature. This approach creates functional outdoor spaces while enhancing the building's aesthetic, offering a sustainable and visually appealing design.

BUBBLE DIAGRAM



SITE ZONING



VERTICAL ZONING



AREA STATEMENT



SEM - IX
THESIS-2025

5-Star Hotel

TITLE
CONCEPTUAL DESIGN

PROJECT TYPE
5 - STAR HOTEL

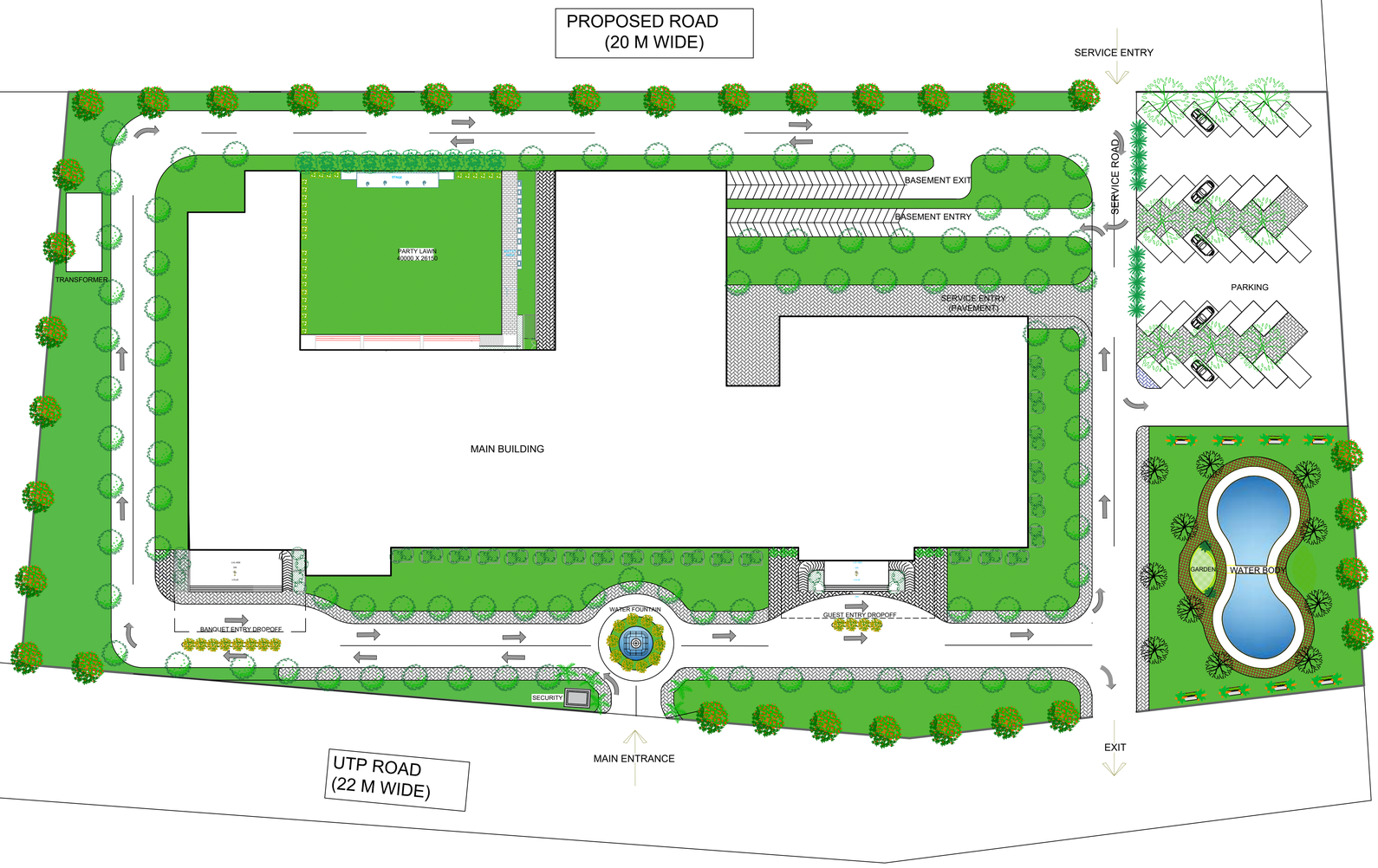
TUTOR/GUIDE
DR. RAJESHREE KAMAT

SUBMITTED BY
HARSH BOBADE

SCALE

DATE

DRAWING NO.
AR03



THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

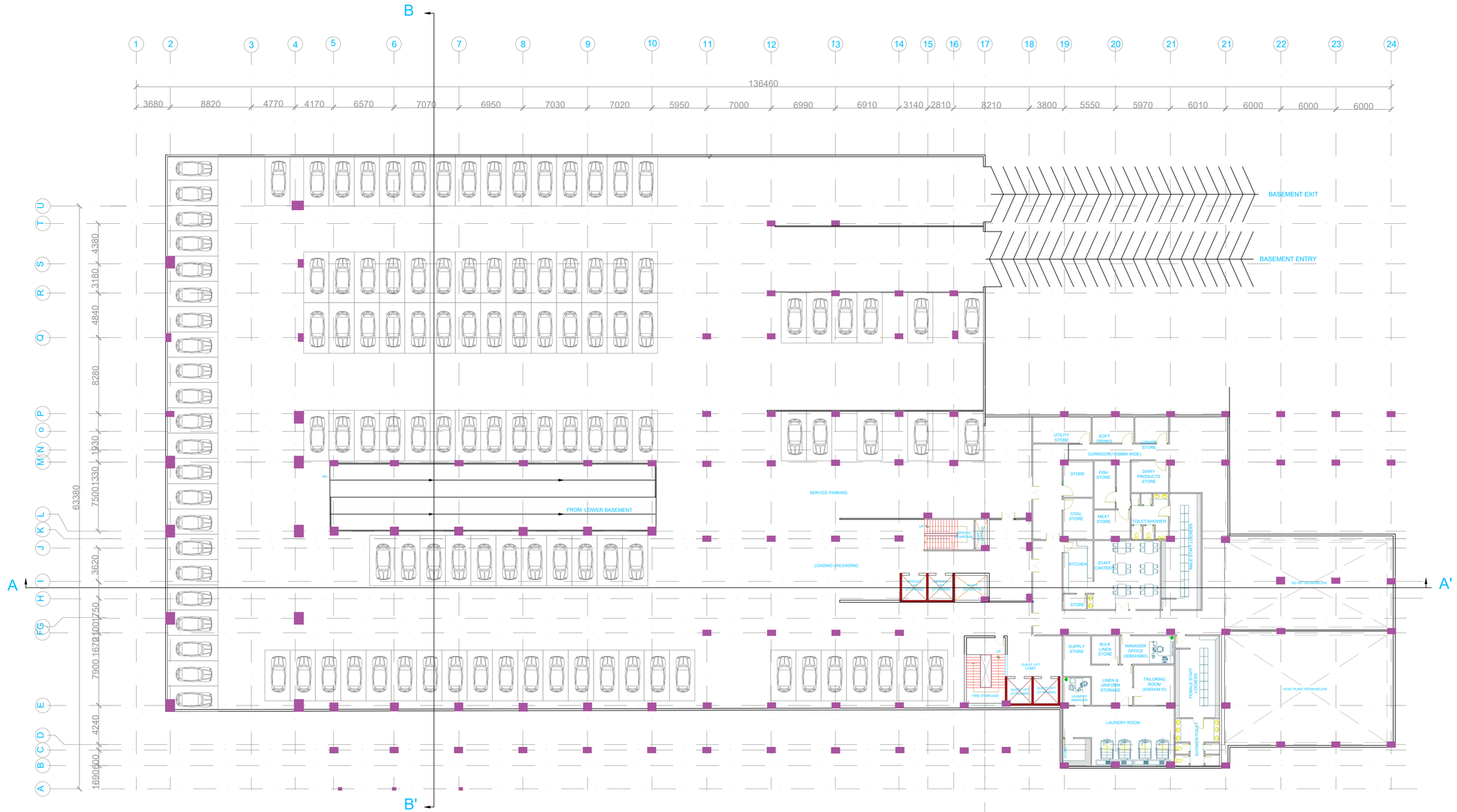
SITE PLAN

GUIDED BY
DR. RAJSHREE KAMAT
MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SHEET NO.

04



BASEMENT 1

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

BASEMENT I

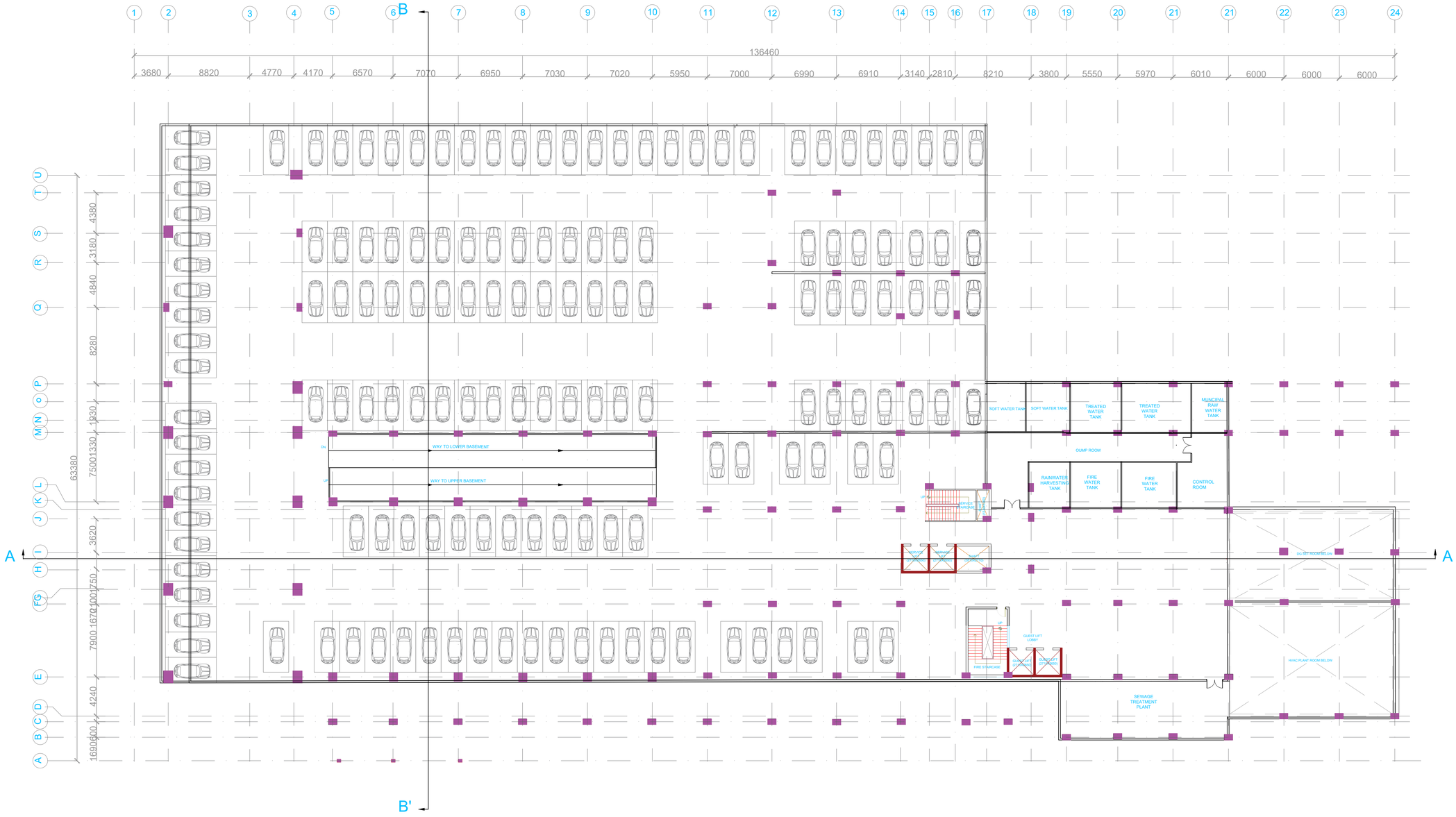
GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SCALE 1:250

SHEET NO.

05



BASEMENT 2

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

BASEMENT II

GUIDED BY
DR. RAJSHREE KAMAT MA'AM

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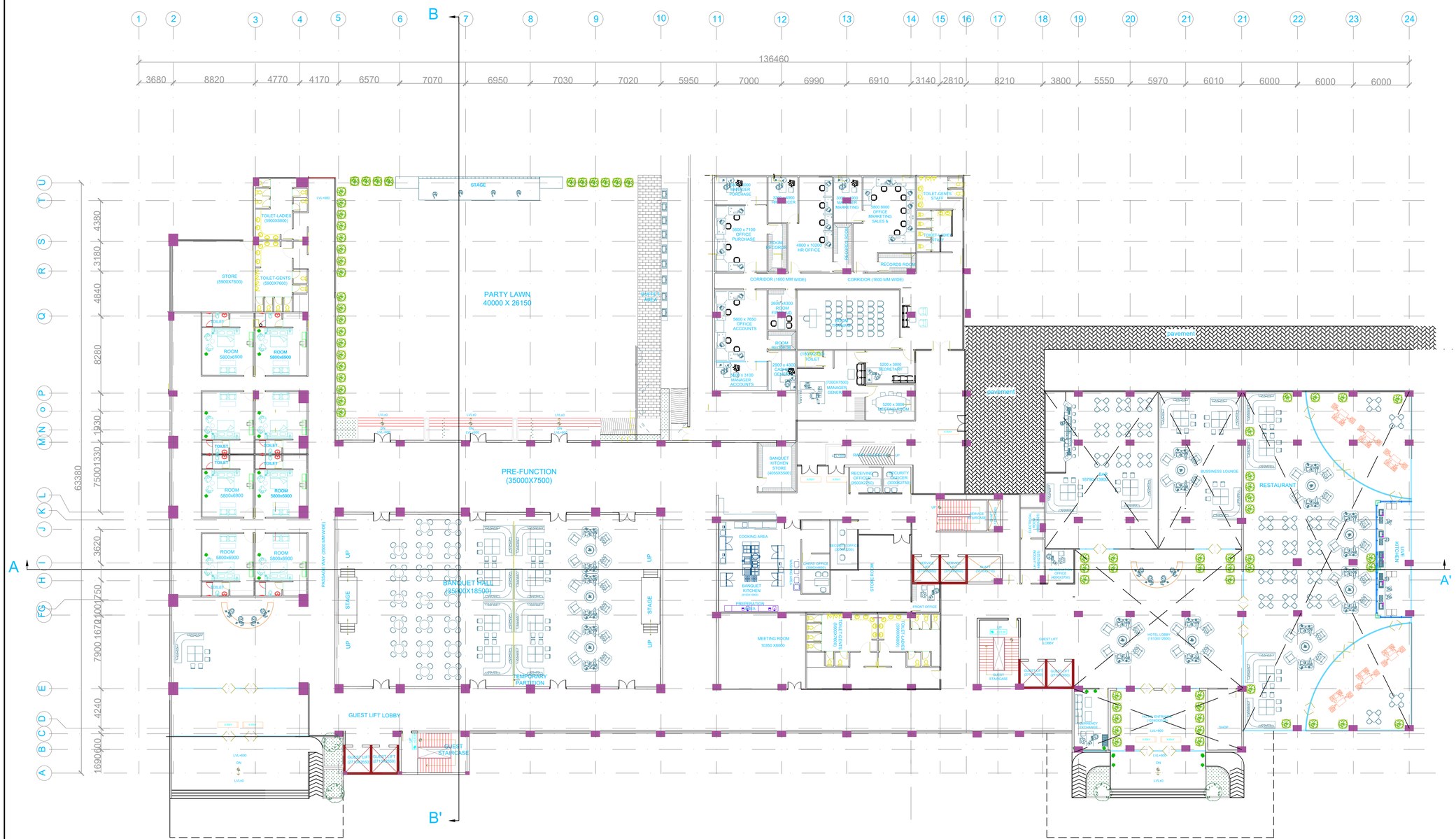
SCALE 1:250

SHEET NO.

06



GROUND FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION

SANAND,GUJRAT

SHEET TITLE

GROUND FLOOR

GUIDED BY

DR. RAJSHREE KAMAT MA'AM

DESIGNED BY

HARSH BOBADE

Sch. No. -211110248

SCALE 1:250

SHEET NO.

07



FIRST FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

FIRST FLOOR

GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SCALE 1:250

SHEET NO.

08



SECOND FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

SECOND FLOOR

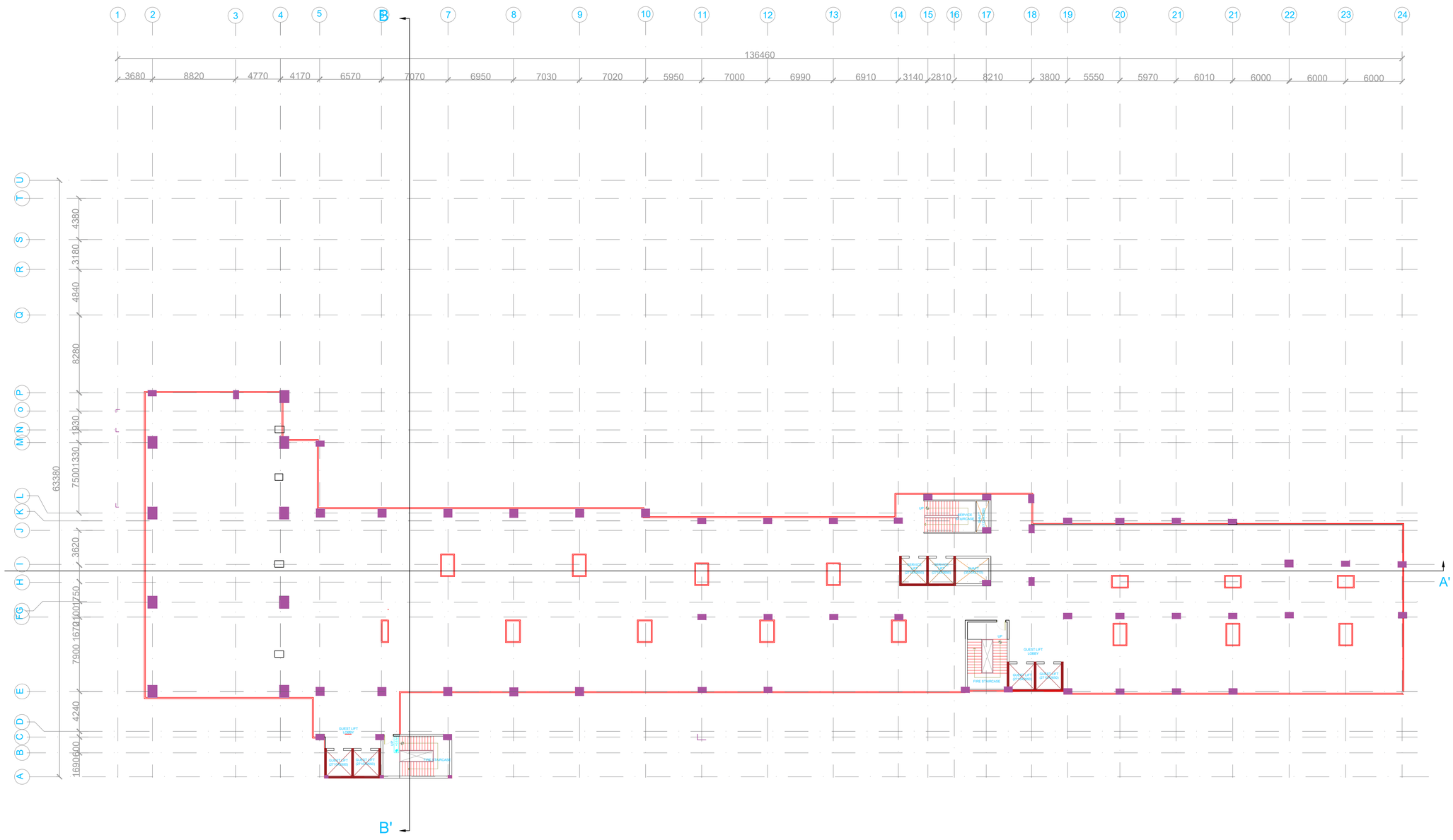
GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SCALE 1:250

SHEET NO.

09



SERVICE FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

SERVICE FLOORS

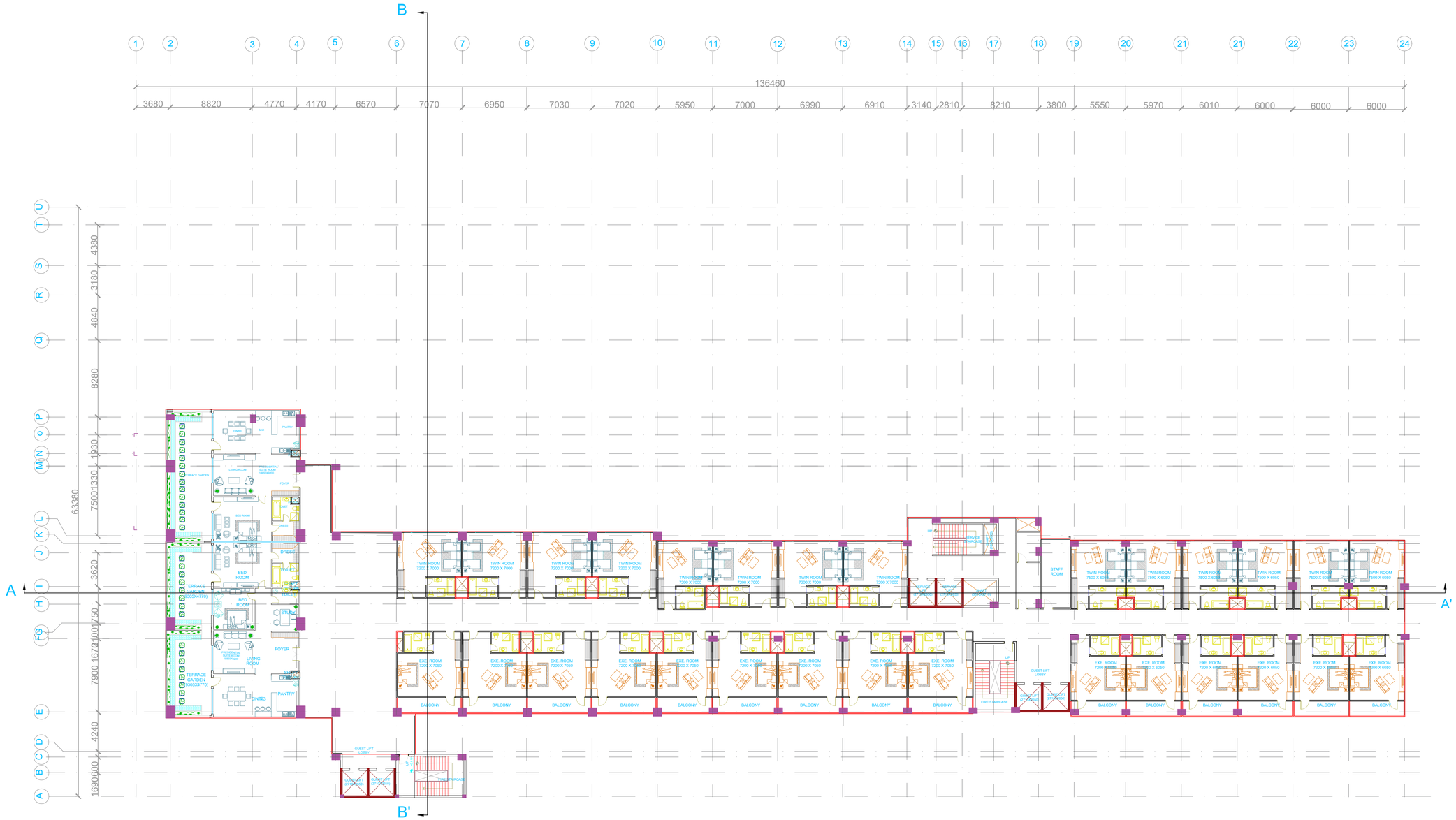
GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SCALE 1:250

SHEET NO.

10



TYPICAL 4,5 FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

TYPICAL FLOORS (4-10)

GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
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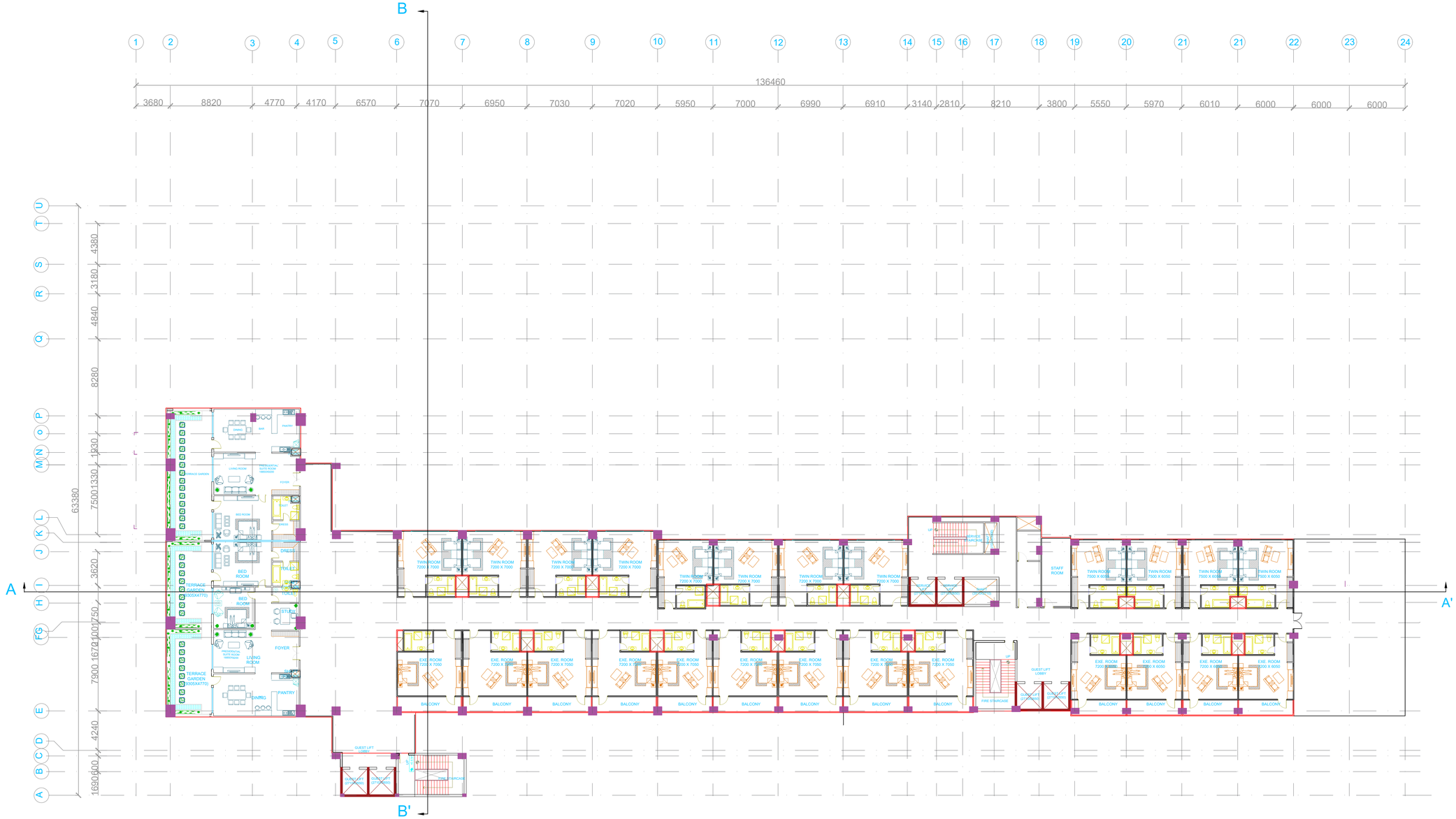
Sch. No. -211110248

SCALE 1:250

SHEET NO.

11



TYPICAL 6,7 FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

TYPICAL FLOORS (4-10)

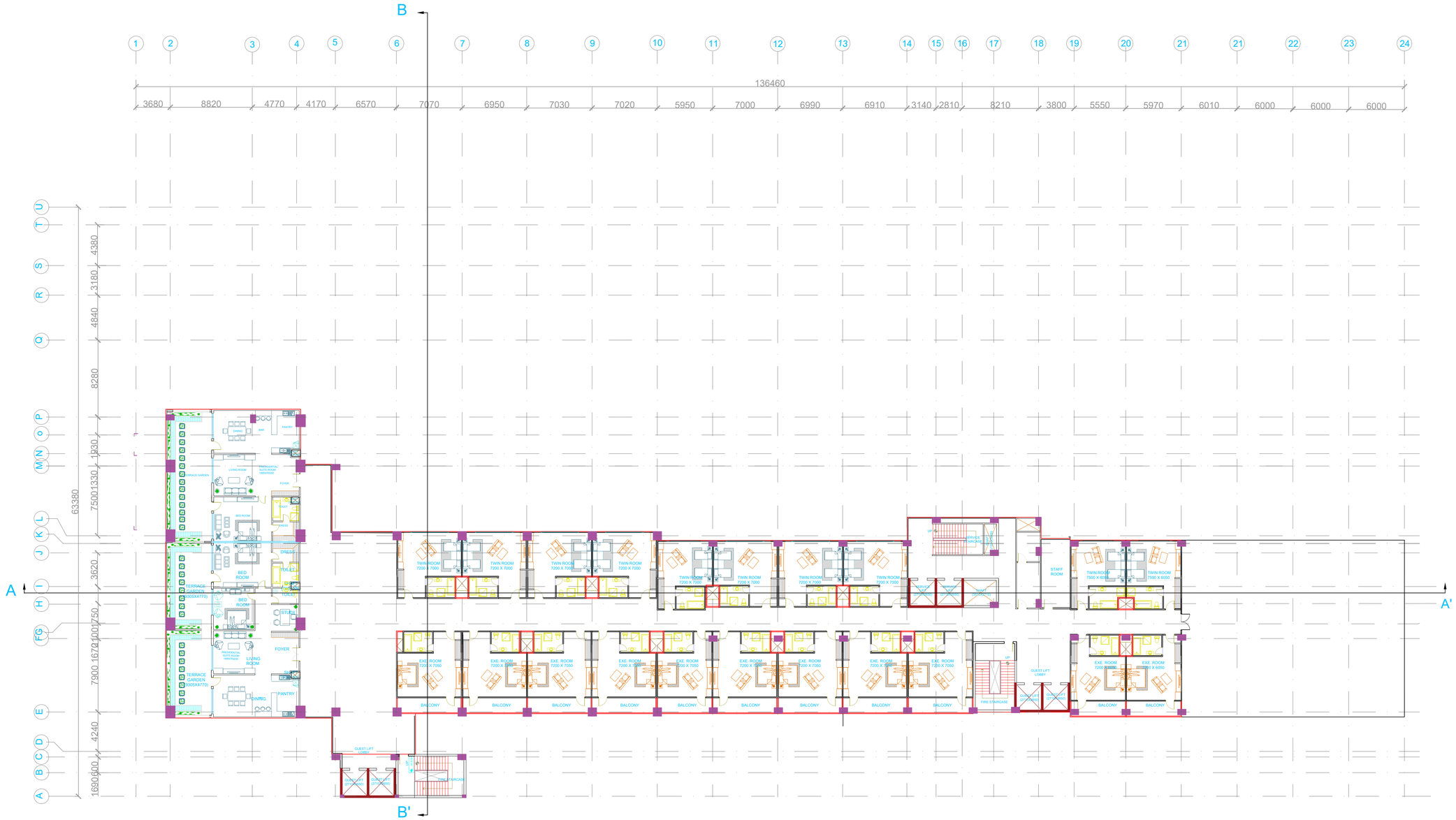
GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SCALE 1:250

SHEET NO.

12



TYPICAL 8,9 FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

TYPICAL FLOORS (4-10)

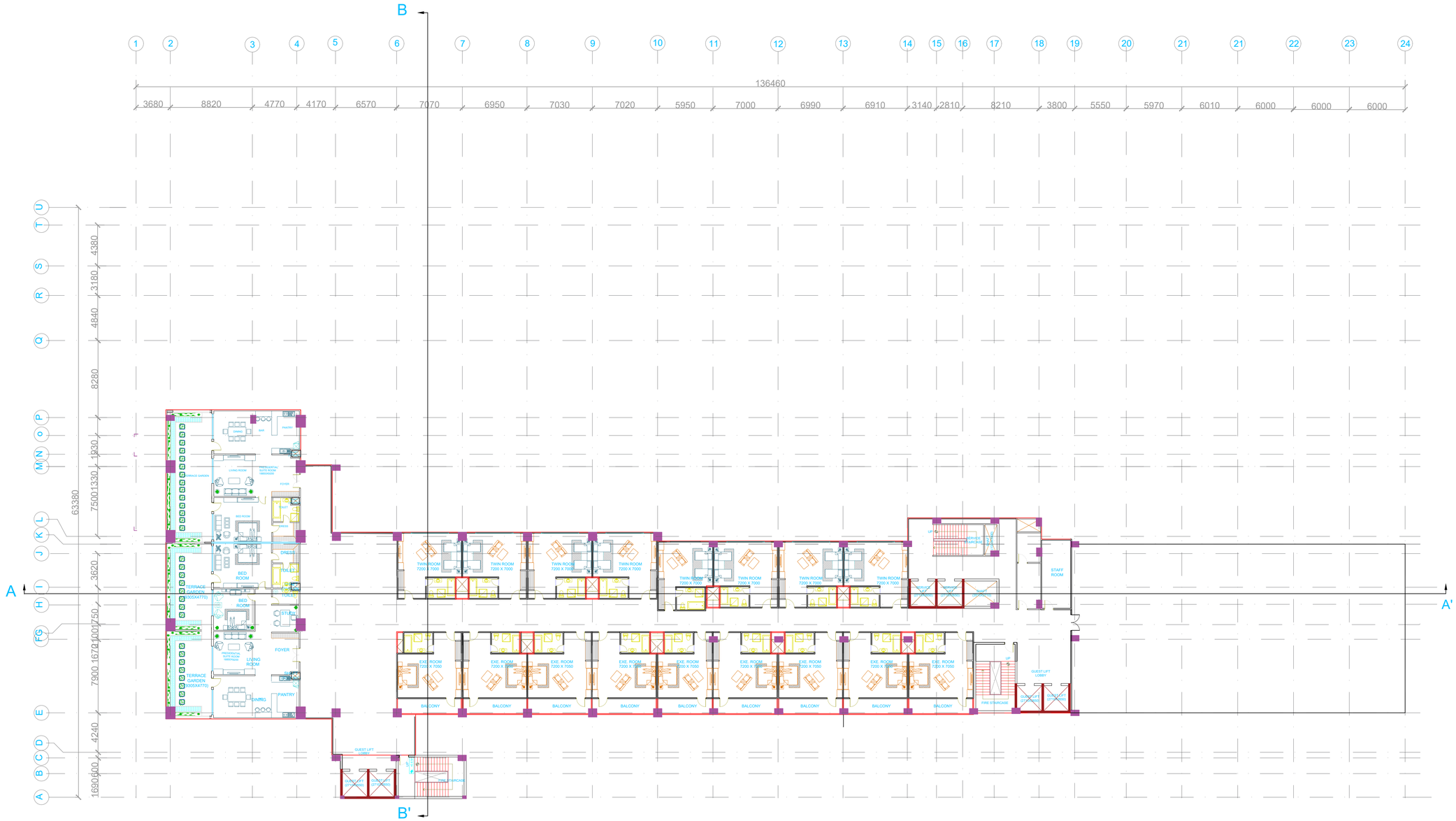
GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SCALE 1:250

SHEET NO.

13



TYPICAL 10,11 FLOOR

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

TYPICAL FLOORS (4-10)

GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

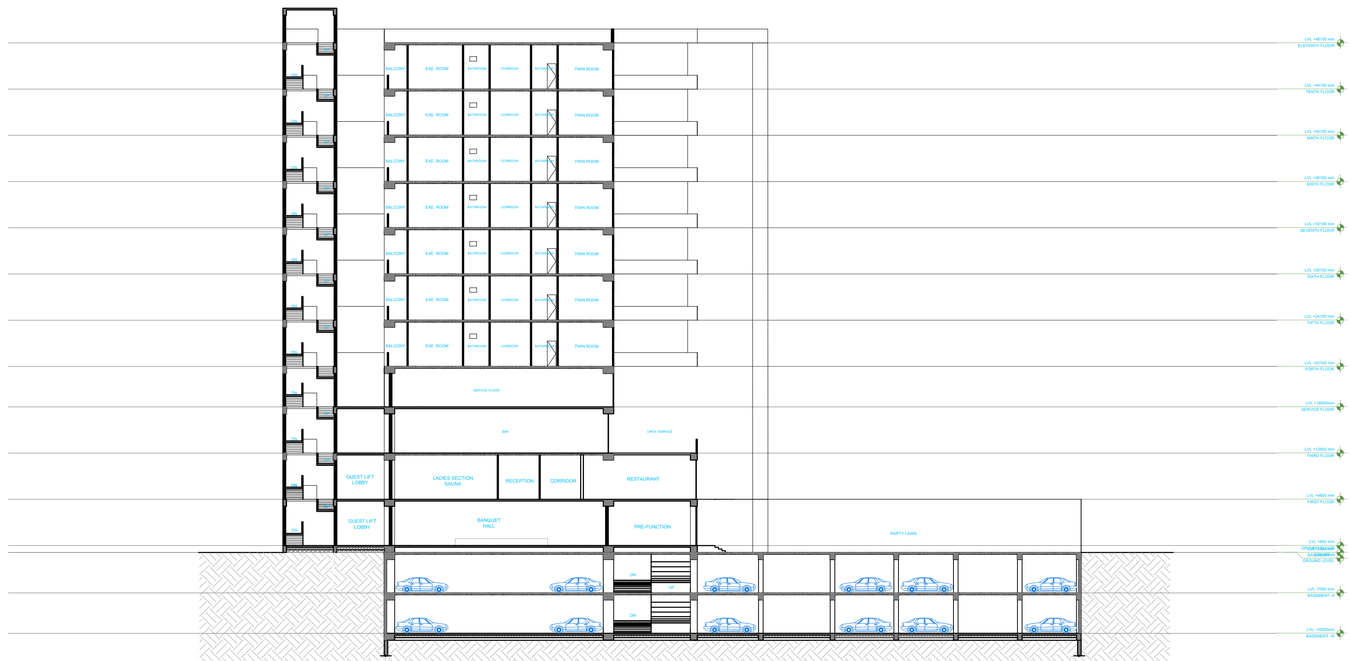
SCALE 1:250

SHEET NO.

14



SECTION



SECTION

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION

SANAND,GUJRAT

SHEET TITLE

SECTION

GUIDED BY

DR. RAJSHREE KAMAT MA'AM

DESIGNED BY

HARSH BOBADE

Sch. No. -211110248

SHEET NO.

15

SITE WATER SUPPLY & SEWAGE PLAN

Scale - 1:400



DAILY WATER REQUIREMENT

User Category	Units / Nos	Water Requirement	Total Water (Litres/day)
Hotel Rooms	198 rooms (2 ppl/room)	275 L	54,450
Total Restaurant Demand	572 seats	100 L/seat	57,200
Banquet Hall	285 persons	100 L/person	28,500
Staff	120 persons	45 L/person	5,400
Housekeeping Allowance	198 rooms	20 L/room	3,960
Landscape Irrigation	5,827 m²	4 L/m²/day	23,310
Pool Make-up Water	–	Fixed	5,000
Kitchen & Utility Allowance	–	Fixed	10,000
Total Water Demand			**187,818 L/day**
Total UGT Volume Provided	Provide 2 UGT of 95 m³ each		**190 m³**

STP CAPACITY CALCULATION

Item	Value
Total Water Demand	187,818 L/day
Sewage Generation %	90%
STP Required (exact)	0.9 × 187,818 = 169,036.2 L/day = 169.04 KLD
Round-off for procurement/operation	**170 KLD STP**

THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

SITE SERVICES (PLUMBING)

GUIDED BY
DR. RAJSHREE KAMAT
MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SHEET NO.

17

SITE ELECTRICAL PLAN

Scale - 1:400

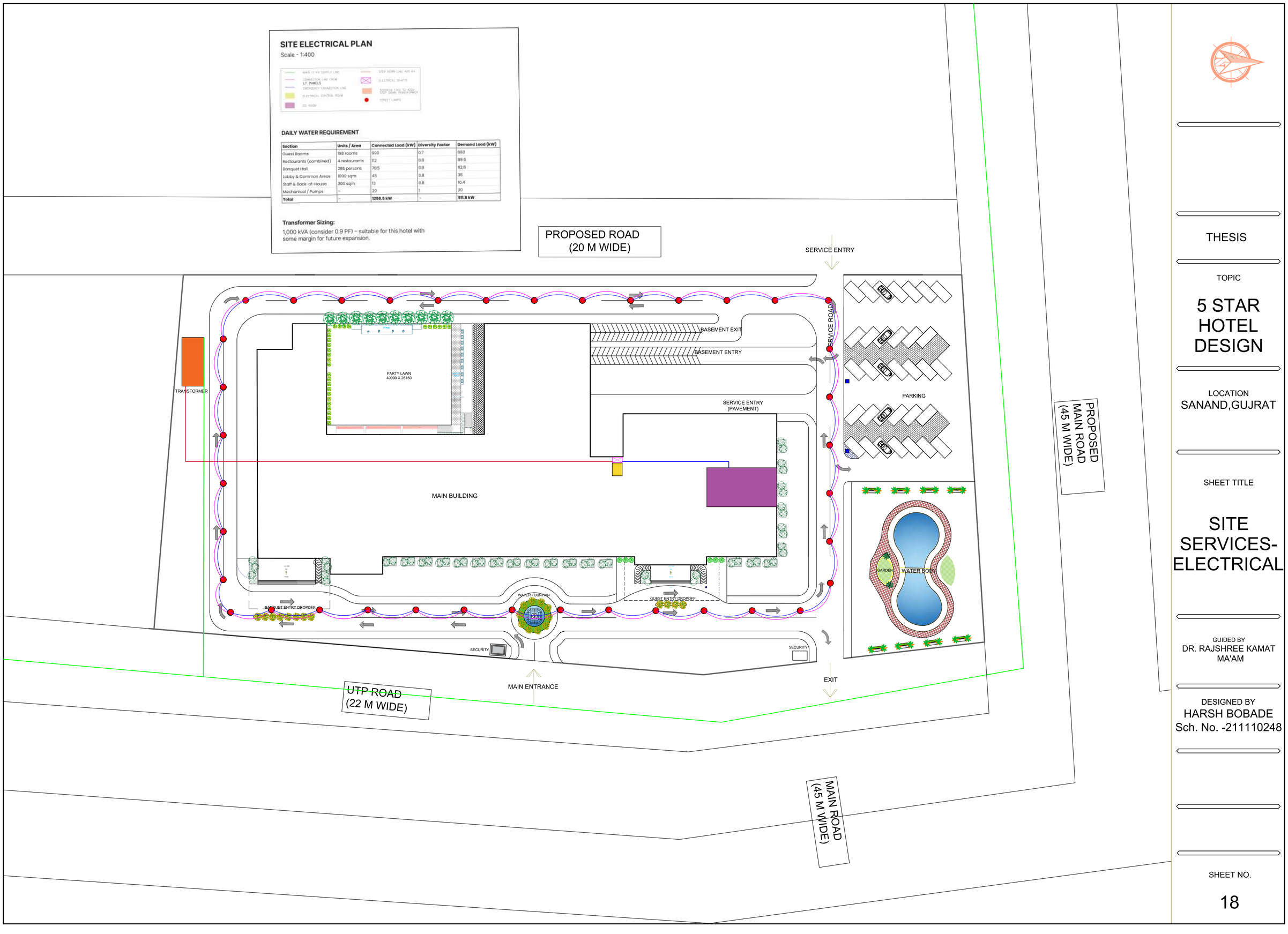
MAIN 11 KV SUPPLY LINE
CONNECTION LINE FROM LT PANELS
EMERGENCY CONNECTION LINE
ELECTRICAL CONTROL ROOM
DG ROOM
STEP DOWN LINE 433 KV
ELECTRICAL SHAFTS
SOCKETS LINE TO 433V STEP DOWN TRANSFORMER
STREET LAMPS

DAILY WATER REQUIREMENT

Section	Units / Area	Connected Load (kW)	Diversity Factor	Demand Load (kW)
Guest Rooms	198 rooms	990	0.7	693
Restaurants (combined)	4 restaurants	112	0.8	89.6
Banquet Hall	285 persons	78.5	0.8	62.8
Lobby & Common Areas	1000 sqm	45	0.8	36
Staff & Back-of-House	300 sqm	13	0.8	10.4
Mechanical / Pumps	–	20	1	20
Total	–	**1258.5 kW**	–	**911.8 kW**

Transformer Sizing:

1,000 kVA (consider 0.9 PF) – suitable for this hotel with some margin for future expansion.



THESIS

TOPIC

5 STAR HOTEL DESIGN

LOCATION
SANAND,GUJRAT

SHEET TITLE

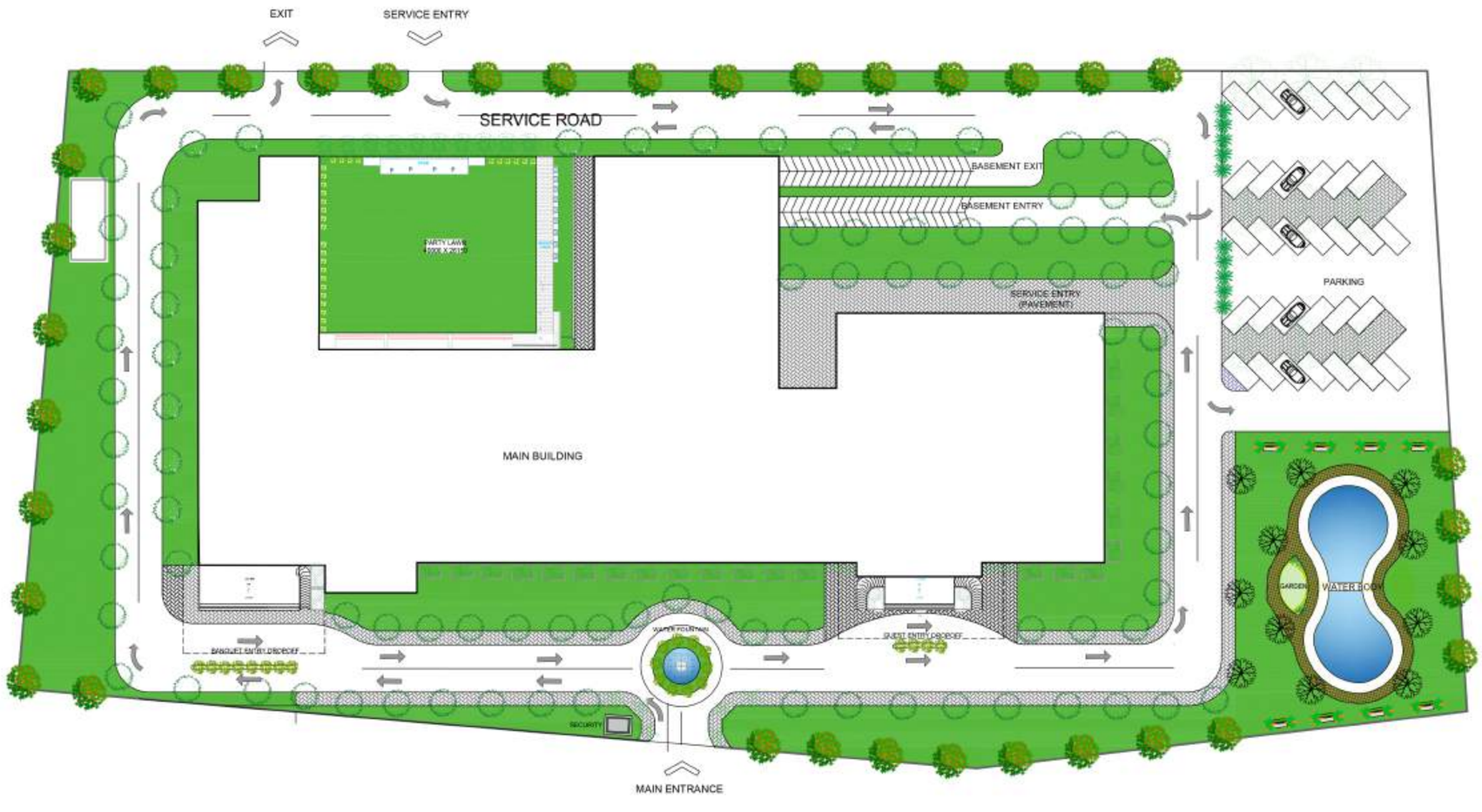
SITE SERVICES-ELECTRICAL

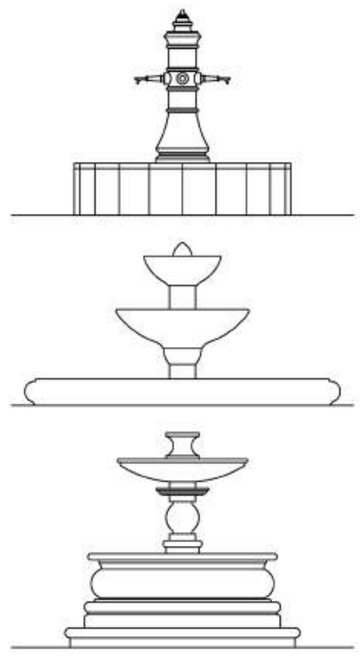
GUIDED BY
DR. RAJSHREE KAMAT MA'AM

DESIGNED BY
HARSH BOBADE
Sch. No. -211110248

SHEET NO.

18





Flowering Trees

S. No.	Local Name	Botanical Name	Description / Reason	Location or Reason	Mature Height × Spread (m)
1	Frangipani (Champa)	Plumeria spp.	Fragrant, sculptural courtyard flowering tree	Courtyard / near water features	3.0 – 6.0 × 3.0 – 5.0
2	Ashoka	Saraca asoca	Formal ornamental flowering avenue tree	Boundary avenue / formal edges	8.0 – 12.0 × 4.0 – 6.0



Exotic Trees & Palms

S. No.	Local Name	Botanical Name	Description / Reason	Location or Reason	Mature Height × Spread (m)
2	Coconut Palm	Cocos nucifera	Tropical resort feel	Poolside / leisure deck	10.0 – 20.0 × 6.0 – 8.0
3	Areca Palm	Dypsis lutescens	Soft privacy screening	Cabanas / semi-private areas	2.0 – 4.0 × 1.5 – 3.0



Native Trees

S. No.	Local Name	Botanical Name	Description / Reason	Location or Reason	Mature Height × Spread (m)
1	Neem	Azadirachta indica	Hardy native shade tree	Parking & pedestrian shade	12.0 – 20.0 × 10.0 – 15.0
2	Bamboo (clumping)	Bambusa spp.	Natural privacy screen	Spa / private seating area	6.0 – 10.0 × 1.5 – 3.0

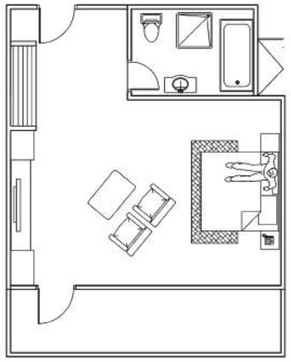
Shrubs & Flowering Plants

S. No.	Local Name	Botanical Name	Description / Reason	Location or Reason	Mature Height × Spread (m)
1	Bougainvillea (dwarf	Bougainvillea spp.	Colorful flowering accent	Pergola walkway / boundary	1.5 – 3.0 × 2.0 – 6.0
2	Mogra / Jasmine	Jasminum sambac	Highly fragrant shrub	Meditation / spa pathway	1.0 – 2.0 × 1.0 – 2.0
3	Ixora (dwarf)	Ixora coccinea	Compact flowering edge plant	Entrance beds / pathways	0.6 – 1.5 × 0.6 – 1.5
4	Croton	Codiaeum variegatum	Bold foliage accent	Feature pockets / seating lawn	1.0 – 2.5 × 1.0 – 2.0
5	Hibiscus	Hibiscus rosa-sinensis	Large tropical blooms	Poolside garden beds	1.5 – 3.0 × 1.0 – 2.0
6	Lantana (dwarf)	Lantana camara	Seasonal flowering carpet	Low edges / slopes	0.3 – 0.6 × 0.5 – 1.0





Executive Room
isometric View



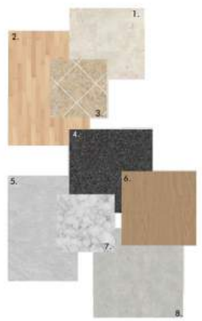






Textures

01. Ceramic Tiles
02. Tiles
03. Granite
04. Cladding Stucco White
05. Fine Wood Panels
06. Carrera Marble
07. Plaster Wall
08. Wooden Veneers



Furnitures

01. Sofa
02. Bed
03. Coffee Table
04. TV Unit
05. Console Table
06. Wardrobe + Dresser

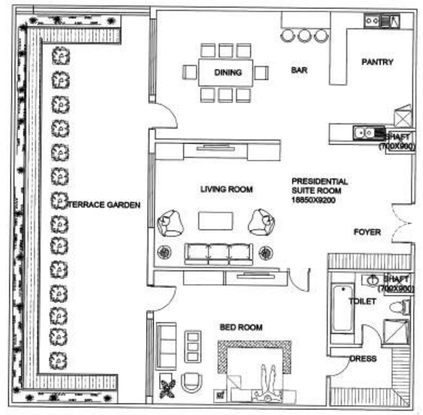
Lighting Fixtures







Senior Suite
isometric view





Textures

01. Ceramic Tiles
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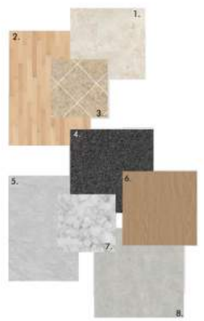

Furnitures

01. Sofa
02. Bed
03. Coffee Table
04. TV Unit
05. Console Table
06. Wardrobe + Dresser
07. Kitchenette
08. Vanity
09. Side Table
10. Bed Bench

Lighting Fixtures











SEM - IX
Thesis-2025

5-Star Hotel

TITLE

INTERIOR DESIGN

PROJECT TYPE

5 - STAR HOTEL

THESIS GUIDE

DR. RAJSHREE KAMAT

DESIGNED BY

HARSH BOBADE
211110248

SITE DETAILS

1. Location - Sanand, Ahmedabad, GJ
2. Site Area - 20,168 sq M
3. Built-up Area - 72,000 sq M
4. FAR - 1.8

NOTE

1. All dimensions are in MM.
2. Scale - 1:350

SCALE



NORTH



DRAWING NO.

AR20