Test Report

ILC/TC/2680/18-19

Format: F-5.10/T

Table 1: Safe Bearing Capacity

Ground level for Bore No.1 (LIG), Kanadia Site is 102.670

Depth Below GL in Mtrs.	Ultimate Bearing Capacity, (T/m²)	Safe Bearing Capacity, (T/m²)		
0.0 to 3.0 mtrs	67.8	27.1		
3.0 to 4.5 mtrs	81.3	32.5		
4.5 to 6.0 mtrs	89.0	35.6		
6.0 to 7.5 mtrs	94.8	37.9		
7.5 to 9.0 mtrs	101.5	40.6		
9.0 to 10.5 mtrs	106.3	42.5		
10.5 to 12.0 mtrs	111.8	44.7		
12.0 to 13.5 mtrs	118.3	47.3		
13.5 to 15.0 mtrs	126.0	50.4		

6.0 Recommendations:

- 6.1 The Rock/Soil is suitable for footing purpose.
- 6.2 Safe bearing capacity of soil / rock at a different depth mention above for foundation. Settlement shall be within permissible limits.

General Note:

- 1. Factor of Safety considered is 2.5 for foundation.
- 2. The foundation shall in no mean rest on Filled up Soil or Black Cotton Soil.
- 3. If in the course of excavation, sub soil strata differs from the bore log strata same shall be reported for necessary steps.

Authorized Signatory Pritesh Mahajan (Technical Manager)

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Annexure I

- 7.0 Sampling:
- 7.1.1 Disturbed Soil Samples: Disturbed samples were collected during the boring and also from the split spoon sampler. The samples recovered were logged, labeled and placed in polythene bags and sent to laboratory for testing. The samples collected up to 15.0 mtrs depth.
- 7.2 Laboratory Test Procedures:
- -7.2.1 Field Dry Density & Field Moisture Content: Field dry density and Field moisture content were carried out in accordance with I.S. 2720 Part-2 1983. The field density is found out by following equation. The value of F.D.D. & F.M.C. is shown in summary table -3.

Field Density (bulk) = Weight of soil mass / Volume of soil mass

And Field Dry Density = Bulk Density/ (1 + w), Where w is field moisture content.

7.2.2 Atterberg's Limit: Liquid limit and Plastic limits are carried out for the determination of different characteristic of soil. The tests performed in accordance with I.S.2720 Part - 5-1985 by using Mechanical Liquid Limit Apparatus. About 120 g of the soil sample passing 425-micron IS Sieve shall be mixed thoroughly with distilled water in the evaporating dish or on the flat glass plate to form a uniform paste. The paste shall have a consistency that will require 30 to 35 drops of the cup to cause the required closure of the standard groove.

Liquid limit and plastic limit of soils are both depend up on the amount and type of clay in a soil and form the basis for the soil classification system for cohesive soils based on the Plasticity index.





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For Plastic Limit, a soil sample weighing at least 20 gm of the soil sample passing 425 micron IS sieve is thoroughly mixed with water such that it can be easily molded with fingers. A ball is formed with about 8 gm of this soil and is rolled between the fingers and the glass plate with just sufficient pressure to roll the mass into a thread of uniform diameter of 3 mm throughout its length. The soil is kneaded to a uniform mass and rolled again. The process is continued until the thread crumbles. The pieces of crumbled soil thread are collected for moisture content determination and reported as plastic limit. Values of LL, PL & PI are shown in summary table.

- 7.2.3 Particle Size Distribution (IS: 2720 Part IV): The sieve analysis is carried out in accordance with IS. The results are shown in the summary table.
- 7.2.4 Specific Gravity (IS: 2720 Part III): In order to determine specific gravity of soil particles these tests were conducted on Selected samples in 50 ml volumetric density bottle using procedure described in IS. The value of Specific Gravity is shown in summary table.
- 7.2.5 Direct Shear Test (IS: 2720 Part XIII): Direct shear test is carried out using shear box with the specimens (60mm x 60mm). Specimen with plain grid plate at the bottom of the specimen and plain grid plate at the top of the specimen is fitted into position in the shear box housing and assembly placed on the load frame. The serrations of the grid plates are kept at the right angle to the direction of shear. Loading pad is placed on top grid plate. The required normal stress is applied and the rate of



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Test Report

ILC/TC/2680/18-19 Format: F-5. IO/T longitudinal displacement / shear stress application so adjusted that no drainage can occur in the sample during the test (1.25mm/min). The upper part of the shear box is raised such that a gap of about 1mm is left between the two parts of the box. Test is conducted by applying horizontal shear load to failure or to 20 percent longitudinal displacement whichever occurs first. Test is repeated on identical specimens. The shear parameters obtained from the shear stress Vs normal stress plot. Direct Shear Test is conducted on remolded samples at FDD & FMC.

7.2.6 Free Swell test (IS: 2720 (Part - XL): In order to determine the swelling characteristics of the soil, differential free swell test is carried out. An oven dried soil sample, 10 gm passing through 425 micron is poured in two 100 ml graduated cylinder. One cylinder was filled with distilled water and in kerosene up to 100 ml mark. After the removal of entrapped air, sample was allowed sufficient time to attain equilibrium state of volume. The final volume of soil in each cylinder was recorded.

Free Swell Index (FSI)

FSI % = Soil volume in water – Soil volume in kerosene

Soil volume in kerosene

X 100





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Format: F-5. 10/T

Shear by Triaxial as per IS: 2720 (Part XII)-1981:

The test should be conducted in environment in which ambient temperature is constant. All valves are assumed to be closed and it is also assumed that the pedestal at the base of triaxial cell is covered with water. Gently slide one de-aired coarse porous stone on to the top of the pedestal and blow off any excess water from the pedestal. Place a filter paper disc on the stone and then place the soil sample on the disc. Place the second de-aired disc and the coarse porous stone on top of the sample and the loading cap on top of the second porous stone. Ensure that the sample, the stones, the discs, and the loading cap are all concentrically placed on the pedestal.

	Compressive Strength	Point Load Strength	Rating
Exceptionally Strong	>250	>8	15
Very Strong	100-250	4-8	12
Strong	50-100	2-4	7
Average	25-50	1-2	4
Weak	10-25	Use of uni axial	2
Very Weak	2-10	compressive strength is preferred	1
Extremely Weak	<2		O



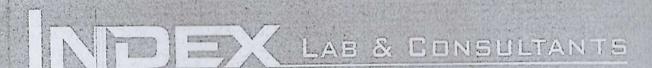


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Format: F-5_10/T

Table - 2 BORE LOG (As per I.S. 1892: 1979)

Dopth in Mtr. From EGL	Description of Strata	Soil Legend	Nature of Sample	SPT Value/RR- RQD
0.0 to 3.0 Mtr	Rock		RR/RQD	35cm/Nil
3.0 to 4.5 mtrs	Rock		RR/RQD	60cm/Nil
4.5 to 6.0 mtrs	Rock		RR/RQD	74cm/Nil
6.0 to 7.5 mtrs	Rock		RR/RQD	82cm/30cm
7.5 to 9.0 mtrs	Rock		RR/RQD	94cm/48cm
9.0 to 10.5 mtrs	Rock		RR/RQD	105cm/62cm
10.5 to 12.0 mtrs	Rock		RR/RQD	126cm/74cm
12.0 to 13.5 mtrs	Rock	Y Maren Carrier	RR/ RQD	132cm/82cm
13.5 to 15.0 mtrs	Rock		RR/RQD	138cm/93cm





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Test Report

ILC / TC / 2680/18-19

Format: F-5.10/T

SBC of Rock as per IS: 12070 - 1987

	Depth Mtr.	Water Absorption	Dry Density	Net SBC T/m²
	0.0 to 3.0 mtrs	1.48	2.57	27.1
	3.0 to 4.5 mtrs	1.26	2.60	32-5
Bore No.1	4.5 to 6.0 mtrs	1.00	2.66	35_6
	6.0 to 7.5 mtrs	0.74	2.73	37_9
	7.5 to 9.0 mtrs	0.68	2.80	40-6
	9.0 to 10.5 mtrs	0.65	2.82	42.5
	10.5 to 12.0 mtrs	0.63	2.85	44.7
	12.0 to 13.5 mtrs	0.60	2.89	47.3
	13.5 to 15.0 mtrs	0.56	2.91	50.4

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Test Report

ILC/TC/2680/18-19

Format: F-5.10/T

Glossary

Abbreviations	Descriptions
BC	Black Cotton
BH	Bore Hole
SBC	Safe Bearing Capacity
T	Tone
SPT	Standard Penetration Test
UDS	Undisturbed Sample
DS	Disturbed Sample
G	Gravel
S	Sand
M	Silt
C	Clay
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
FDD	Field Dry Density
NMC	Natural Moisture Content
C	Cohesion
Ø	Angle of Internal Friction
SL	Shrinkage Limit
FSI	Free Swell Index
RMR	Rock Mass Rating
RR	Rock Recovery



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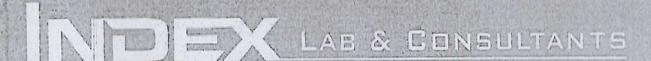
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Test Report

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Format: F-5.10/T

TOTAL
Rock Quality Designation
Field Moisture Content
Specific Gravity
Not Applicable





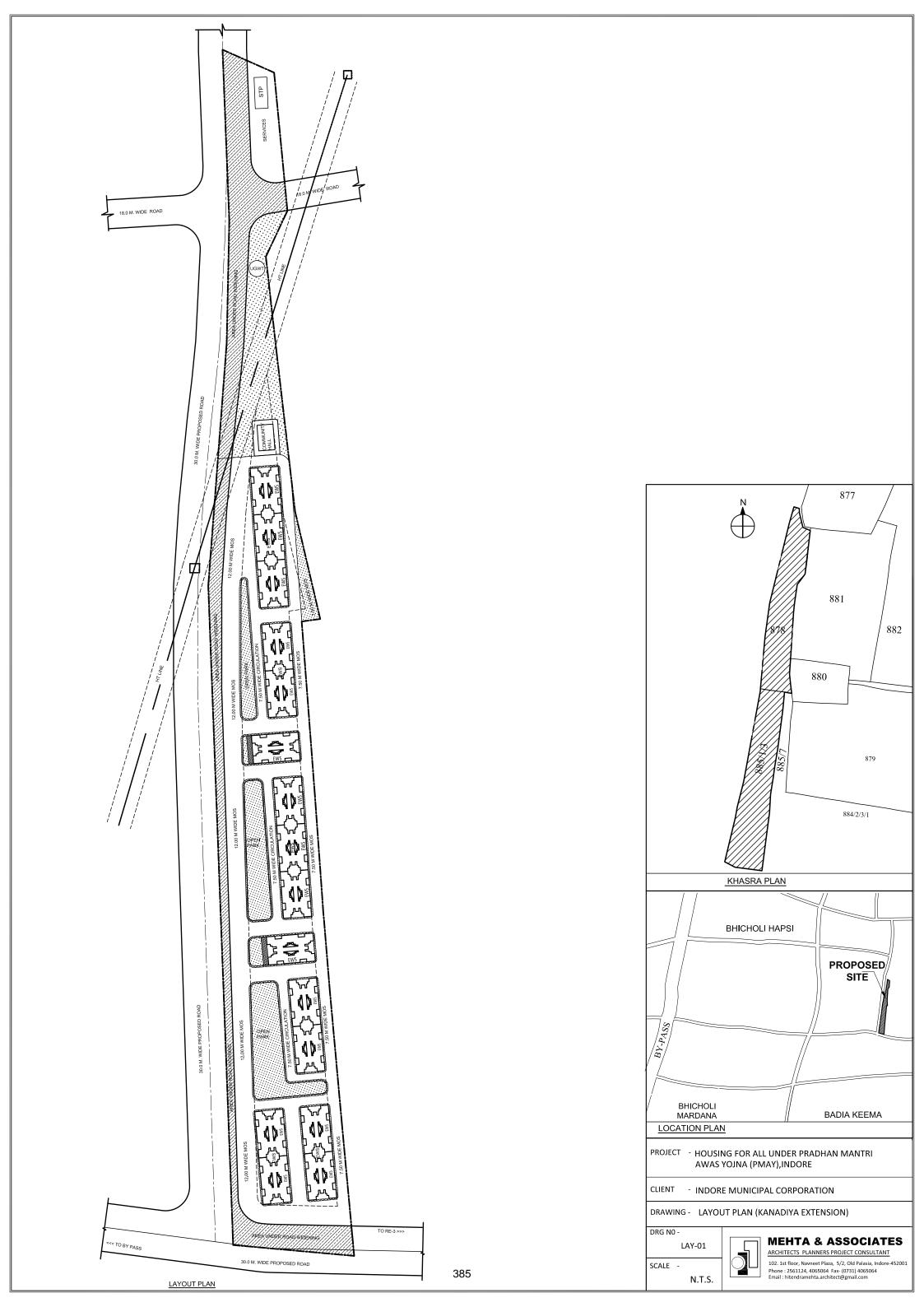
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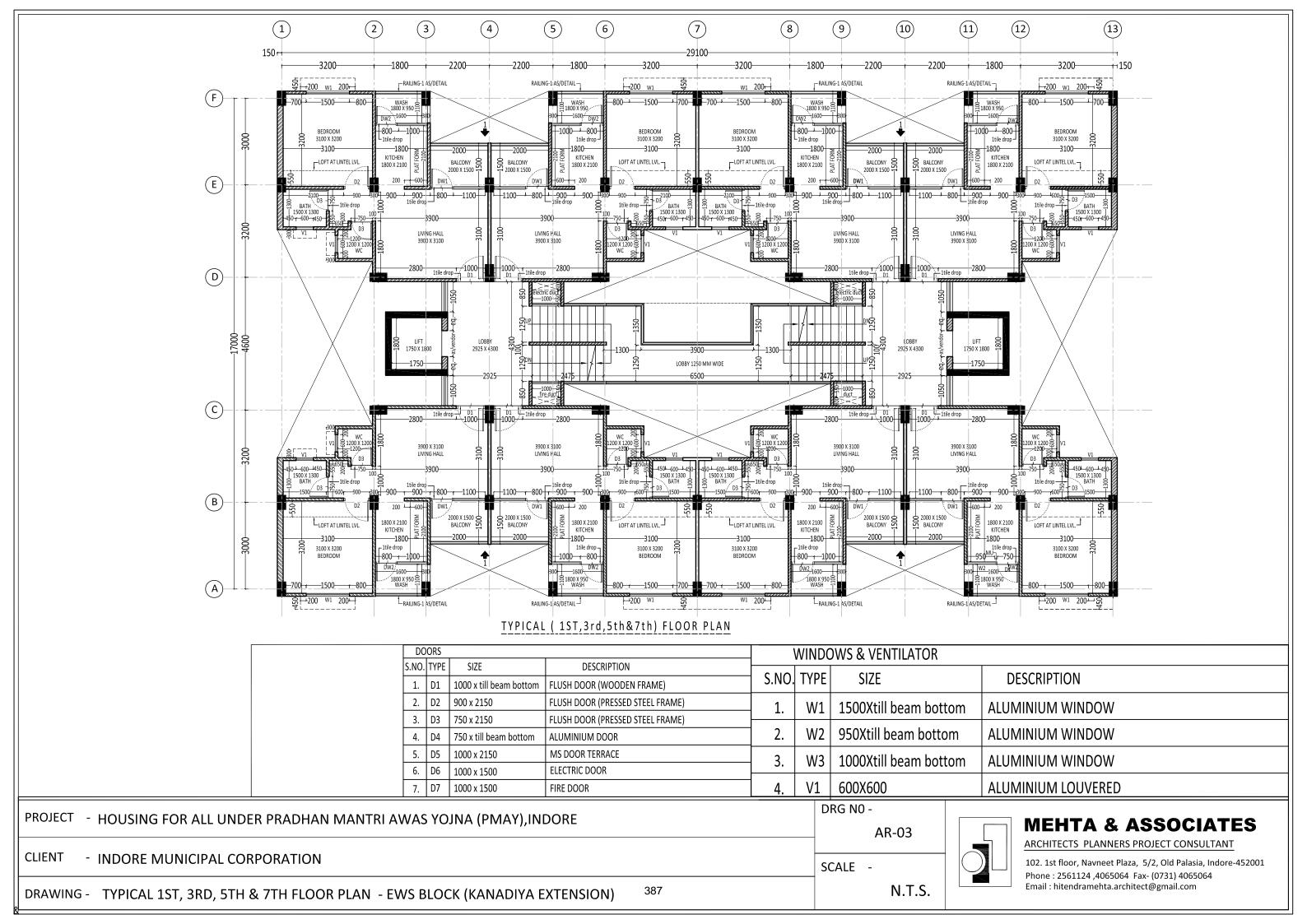
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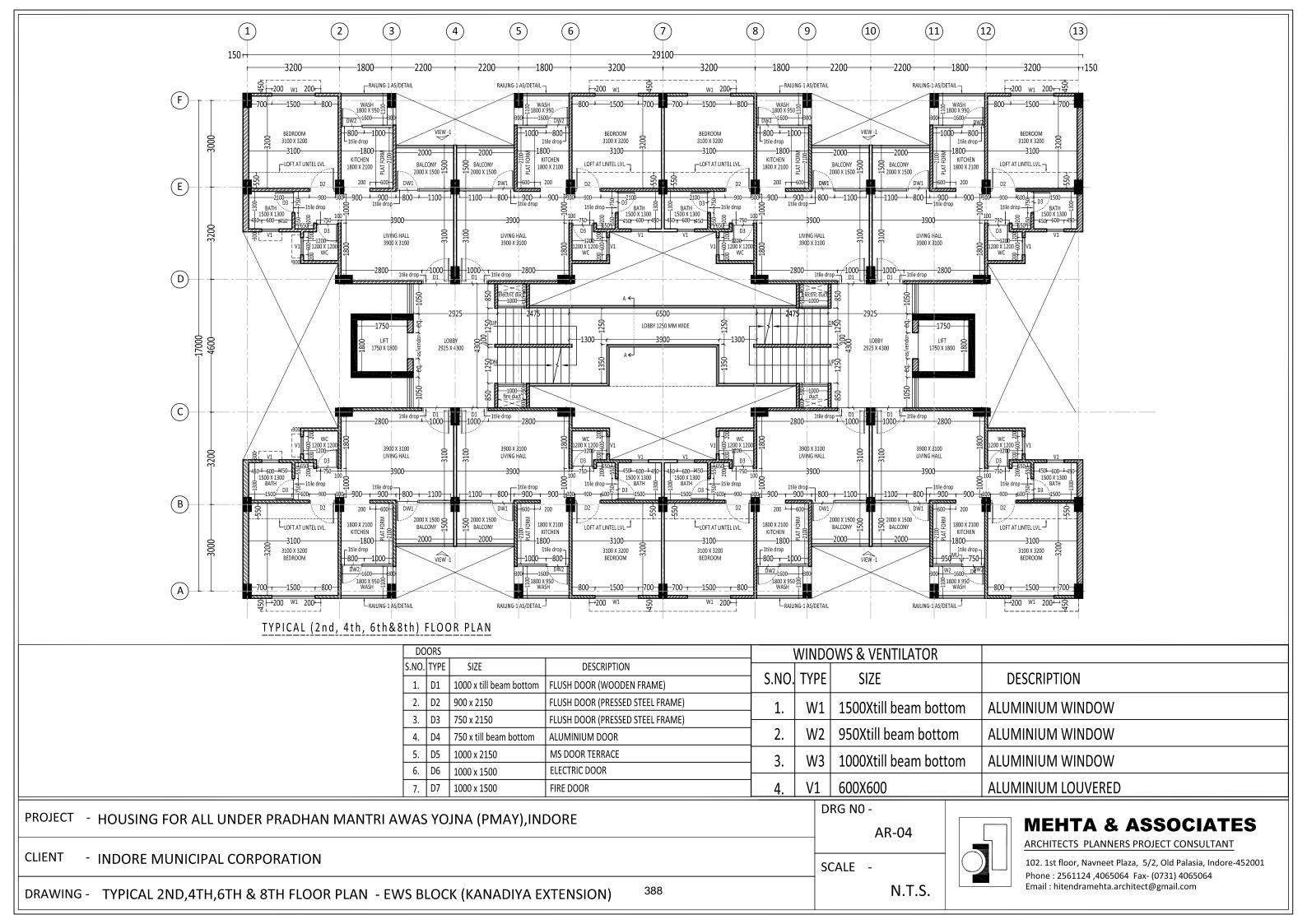
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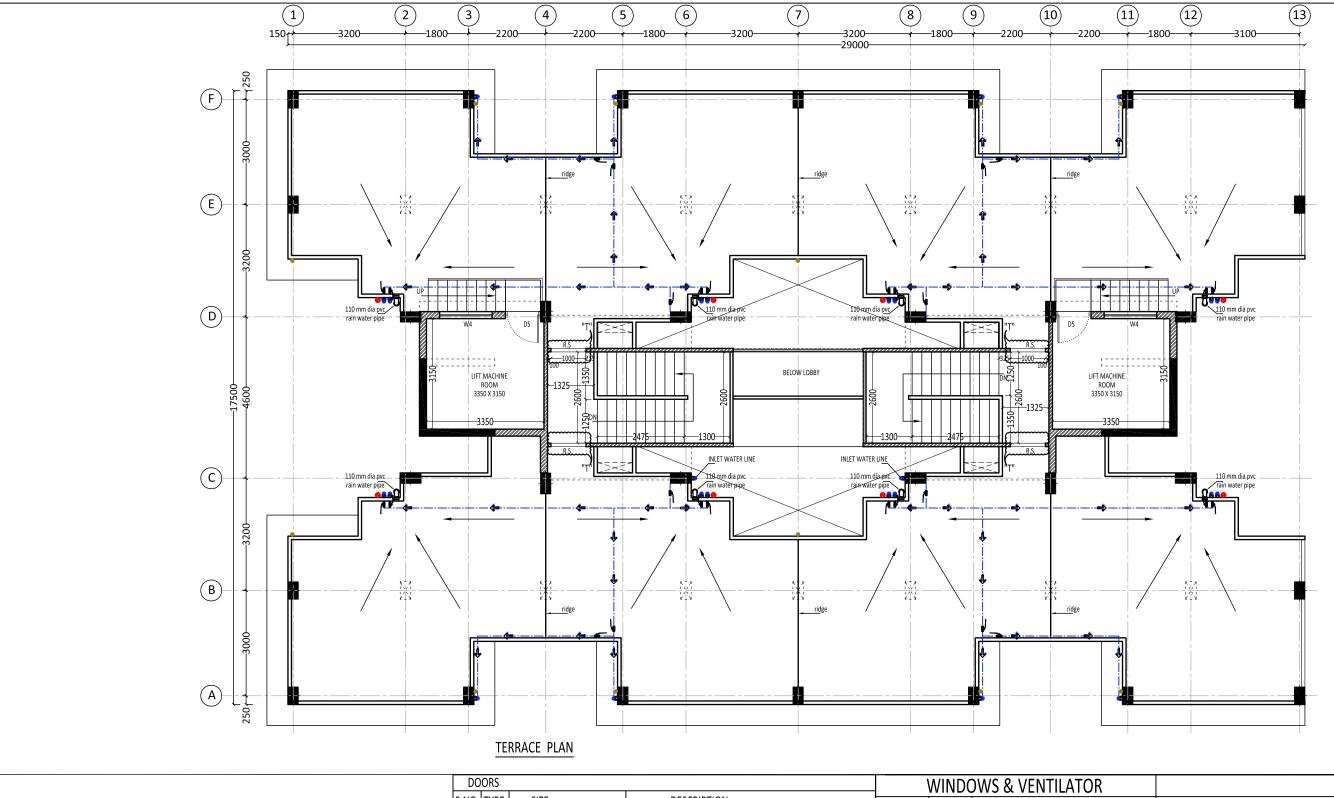
2.3.4 <u>Layout Plan</u>



2.3.6 Floor Plans







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	DOORS		WINDOWS & VENTILATOR		OWS & VENTILATOR			
S	.NO.	TYPE	SIZE	DESCRIPTION				DECORIDETION
	1.	D1	1000 x till beam bottom	FLUSH DOOR (WOODEN FRAME)	S.NO.	TYPE	SIZE	DESCRIPTION
	2.	D2	900 x 2150	FLUSH DOOR (PRESSED STEEL FRAME)	1	W1	1500Xtill beam bottom	ALUMINIUM WINDOW
	3.	D3	750 x 2150	FLUSH DOOR (PRESSED STEEL FRAME)	Ψ.	***	1500/kiii Beaiii Bottoiii	7.EGIVIII (IGIVI VIII DOV
	4.	D4	750 x till beam bottom	ALUMINIUM DOOR	2.	W2	950Xtill beam bottom	ALUMINIUM WINDOW
	5.	D5	1000 x 2150	MS DOOR TERRACE	3	W3	1000Xtill beam bottom	ALUMINIUM WINDOW
	6.	D6	1000 x 1500	ELECTRIC DOOR	٥.	VV 3	1000Xtill bealth bottom	ALOWING WINDOW
	7.	D7	1000 x 1500	FIRE DOOR	4.	V1	600X600	ALUMINIUM LOUVERED

PROJECT - HOUSING FOR ALL UNDER PRADHAN MANTRI AWAS YOJNA (PMAY),INDORE

CLIENT - INDORE MUNICIPAL CORPORATION

DRAWING - TERRACE FLOOR PLAN - EWS BLOCK (KANADIYA EXTENSION)

DRG NO -AR-05

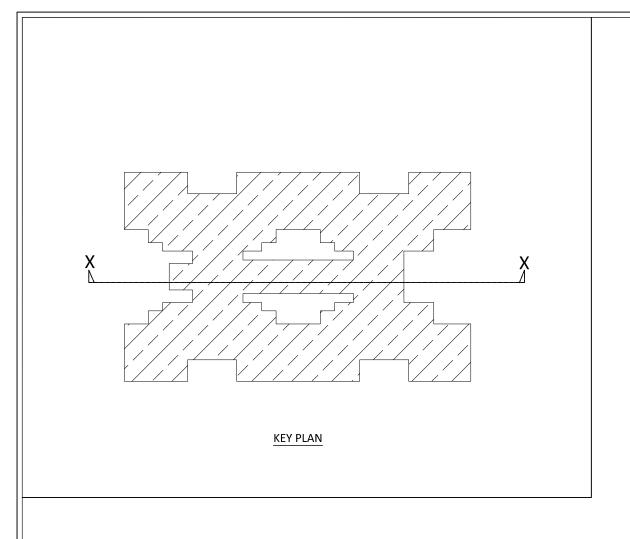
SCALE -

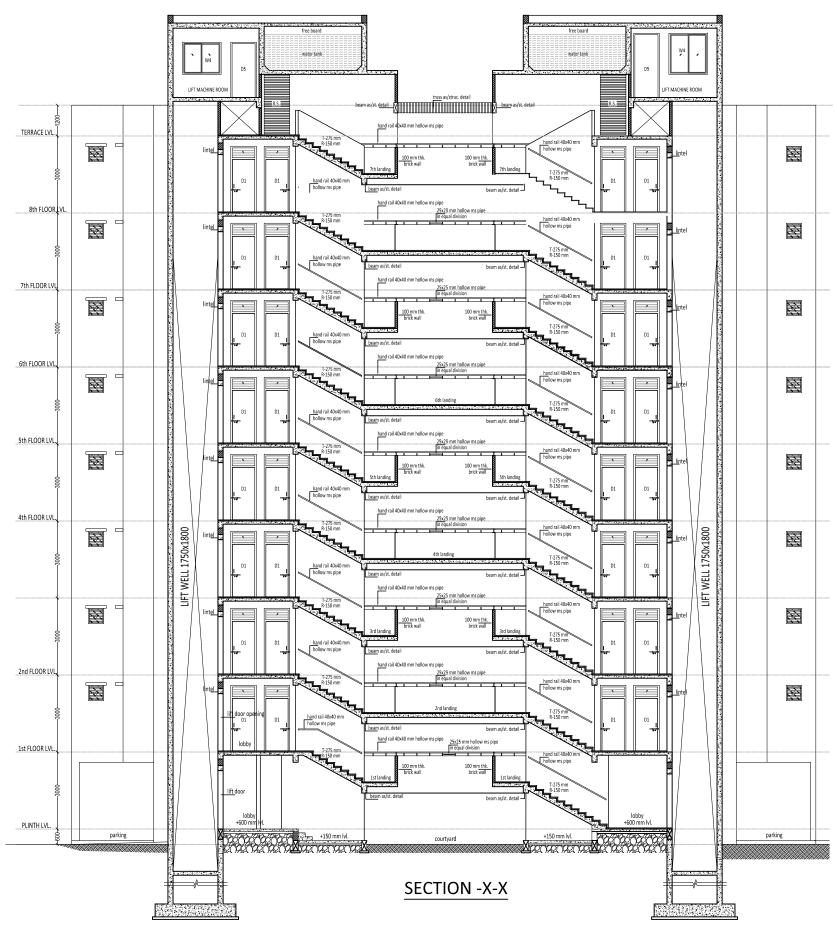
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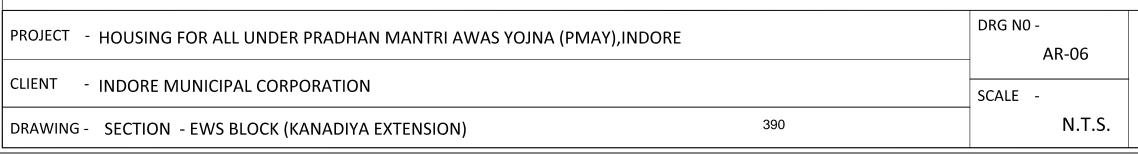


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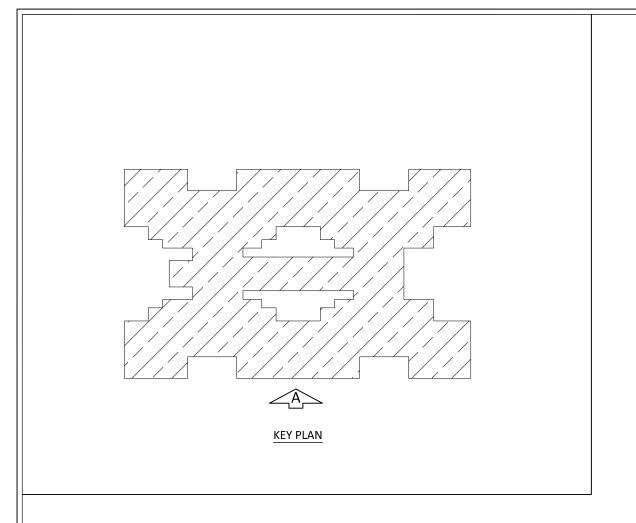






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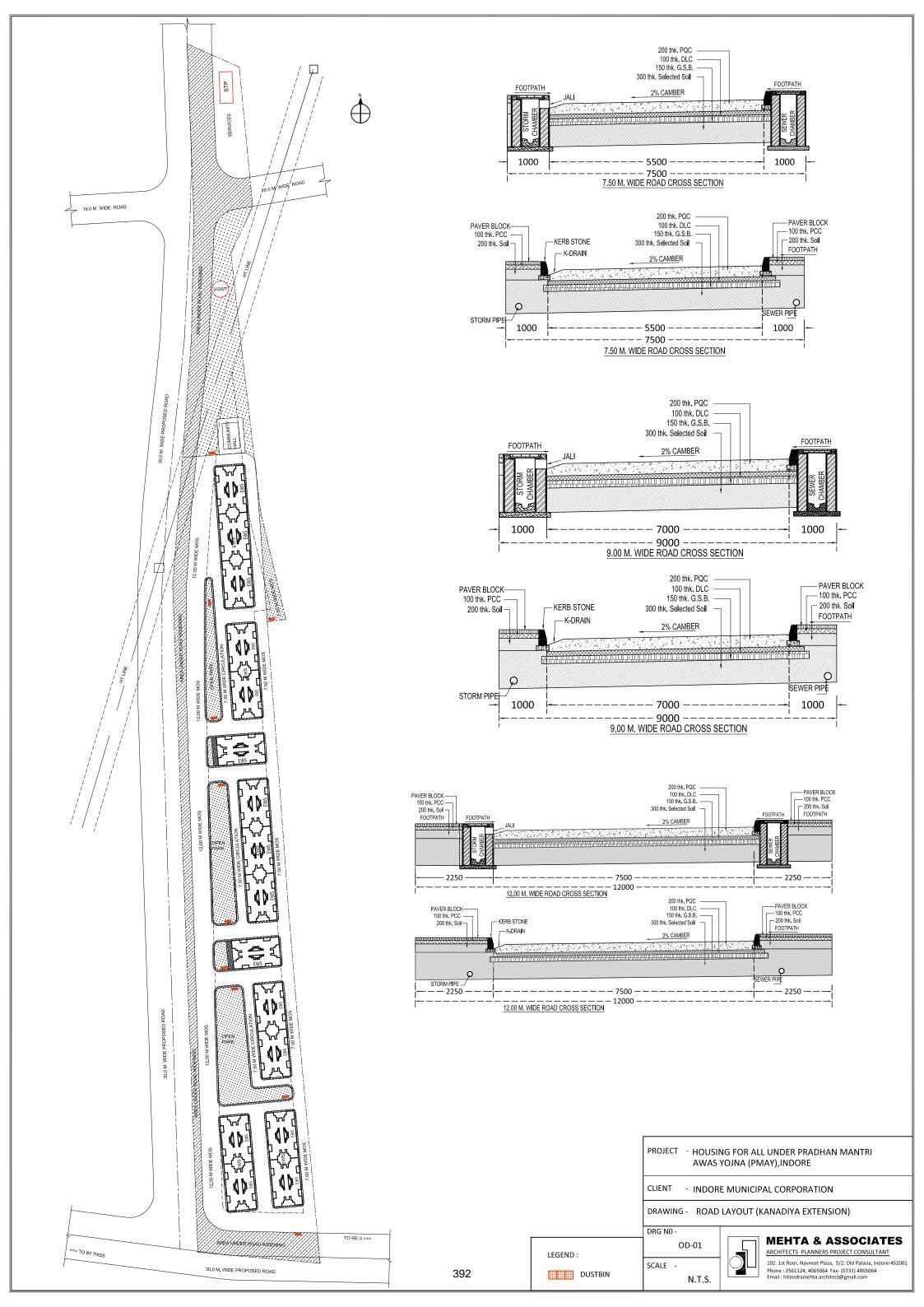
ELEVATION - A

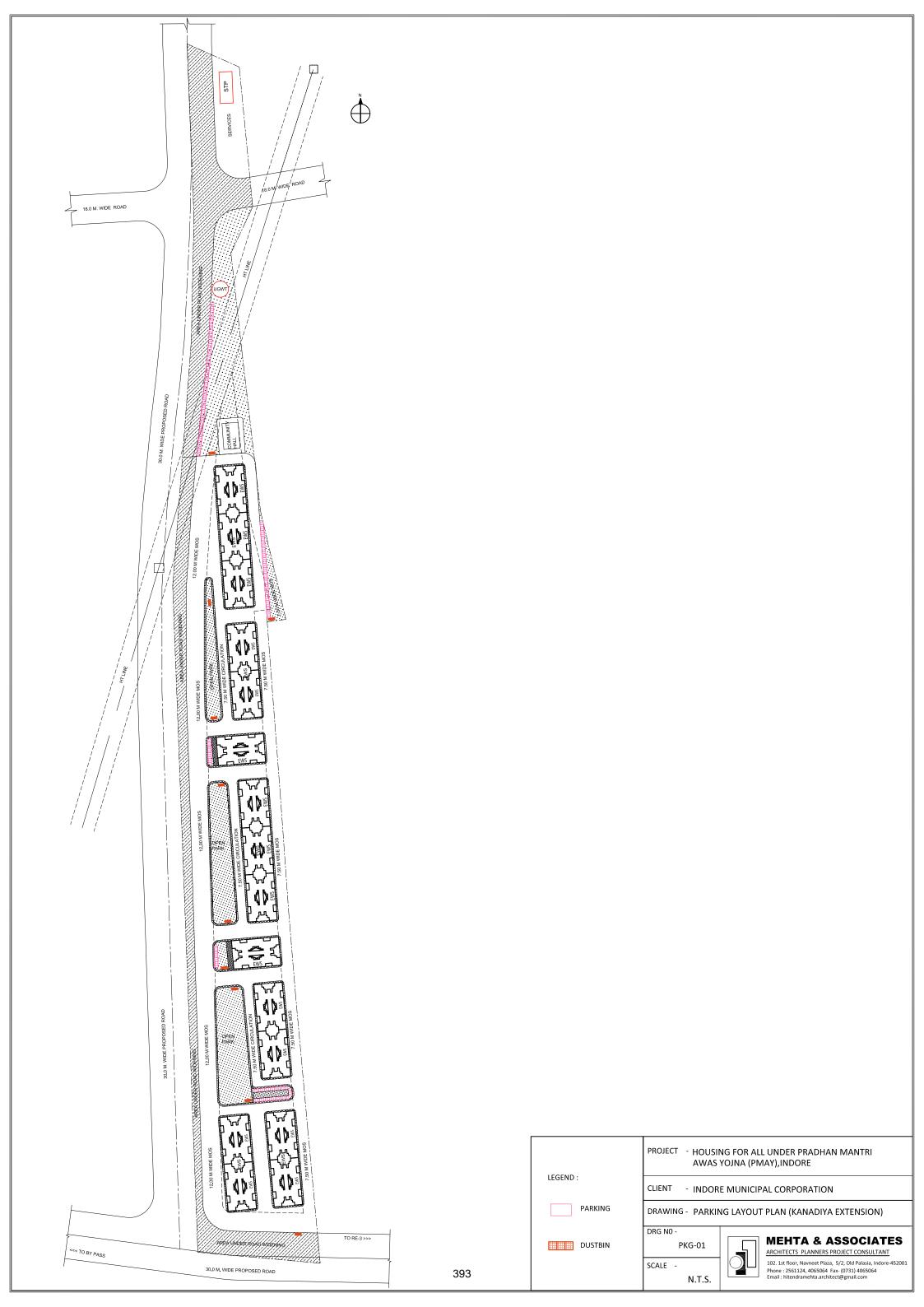
DRG NO -PROJECT - HOUSING FOR ALL UNDER PRADHAN MANTRI AWAS YOJNA (PMAY), INDORE AR-07 CLIENT - INDORE MUNICIPAL CORPORATION SCALE -N.T.S. 391 DRAWING - FRONT ELEVATION - EWS BLOCK (KANADIYA EXTENSION)

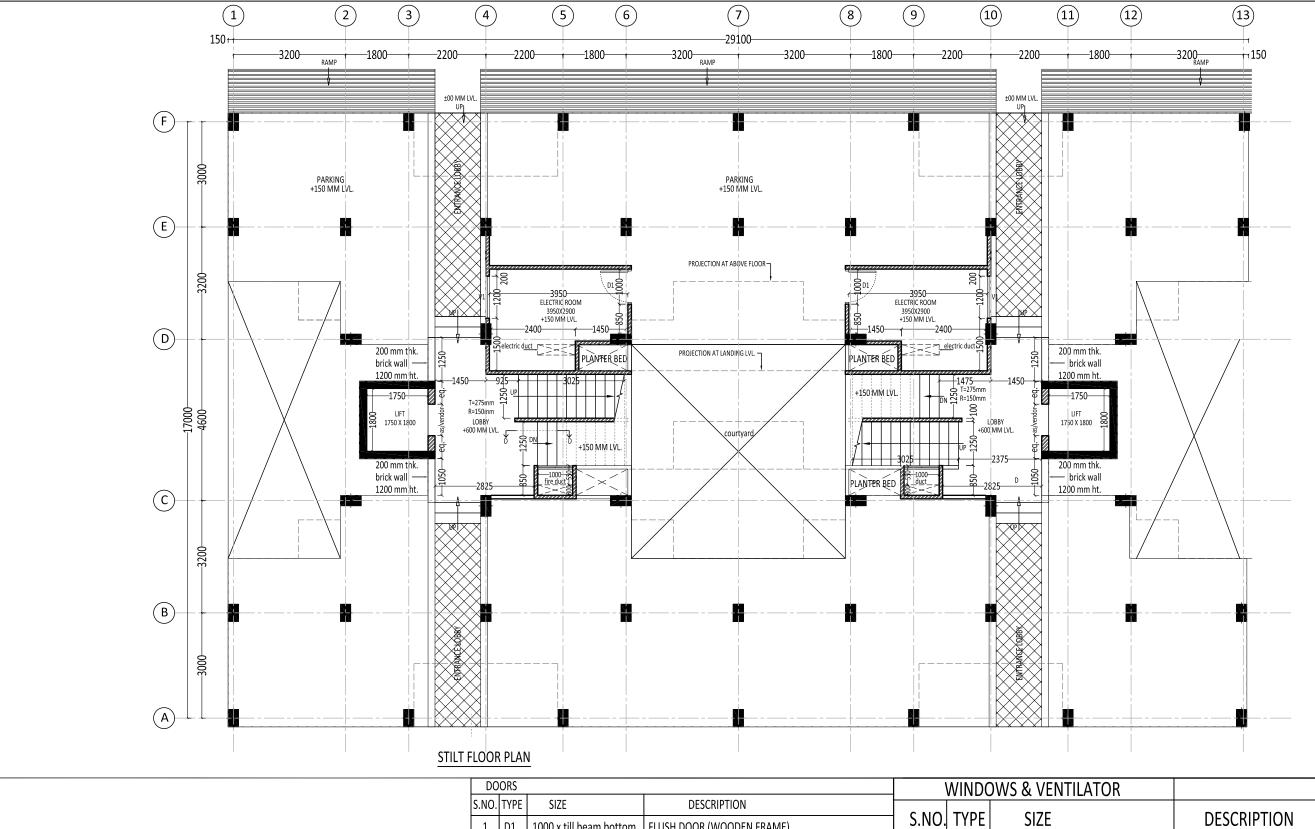


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DOORS		WINDOWS & VENTILATOR		WS & VENTILATOR			
S.NO	. TYPE	SIZE	DESCRIPTION	CNO	TVDE	CIZE	DECCRIPTION
1.	D1	1000 x till beam bottom	FLUSH DOOR (WOODEN FRAME)	S.NO.	IYPE	SIZE	DESCRIPTION
2.	D2	900 x 2150	FLUSH DOOR (PRESSED STEEL FRAME)	1	w1	1500Xtill beam bottom	ALUMINIUM WINDOW
3.	D3	750 x 2150	FLUSH DOOR (PRESSED STEEL FRAME)		***	1300/till Bealth Bottom	7.EGWIII WII WII WARAN WANAN WARAN WANA WANA
4.	D4	750 x till beam bottom	ALUMINIUM DOOR	2.	W2	950Xtill beam bottom	ALUMINIUM WINDOW
5.	D5	1000 x 2150	MS DOOR TERRACE	2	W3	1000Xtill beam bottom	ALUMINIUM WINDOW
6.	D6	1000 x 1500	ELECTRIC DOOR	٥.	VV 3	1000Xtill bealth bottom	ALOMINION WINDOW
7.	D7	1000 x 1500	FIRE DOOR	4.	V1	600X600	ALUMINIUM LOUVERED

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CLIENT - INDORE MUNICIPAL CORPORATION

DRAWING - STILT FLOOR PLAN - EWS BLOCK (KANADIYA EXTENSION)

DRG N0 -

AR-02

SCALE -

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N.T.S.



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2.3.7 <u>Physical Infrastructure Drawings</u>

