

A curva 1 representa uma ruptura geral do maciço de solo. Ocorre em solos compactos ou rijos, como no caso da obra em questão. A ruptura é bem definida e é caracterizada pela abscissa da tangente vertical à curva.

A capacidade de carga para uma sapata corrida, segundo Terzaghi, é dada pela equação:

$$\sigma_r = c \times N_c + q \times N_q + \frac{1}{2} \times \gamma \times B \times N_\gamma$$

Os três componentes da equação representam a influência da coesão, atrito e sobrecarga. Os termos adimensionais N_c , N_q e N_γ são os fatores de capacidade de carga, determinados através da **Figura 4**.

A linha contínua representa solos de ruptura generalizada e a linha traceja representa os solos de ruptura localizada.

ϕ	N_c	N_q	N_γ	N_q/N_c	$\tan \phi$
0	5.14	1.00	0.00	0.20	0.00
1	5.38	1.09	0.07	0.20	0.02
2	5.63	1.20	0.15	0.21	0.03
3	5.90	1.31	0.24	0.22	0.05
4	6.19	1.43	0.34	0.23	0.07
5	6.49	1.57	0.45	0.24	0.09
6	6.81	1.72	0.57	0.25	0.11
7	7.16	1.88	0.71	0.26	0.12
8	7.53	2.06	0.86	0.27	0.14
9	7.92	2.25	1.03	0.28	0.16
10	8.35	2.47	1.22	0.30	0.18
11	8.80	2.71	1.44	0.31	0.19
12	9.28	2.97	1.69	0.32	0.21
13	9.81	3.26	1.97	0.33	0.23
14	10.37	3.59	2.29	0.35	0.25
15	10.98	3.94	2.65	0.36	0.27
16	11.63	4.34	3.06	0.37	0.29
17	12.34	4.77	3.53	0.39	0.31
18	13.10	5.26	4.07	0.40	0.32
19	13.93	5.80	4.68	0.42	0.34
20	14.83	6.40	5.39	0.43	0.36
21	15.82	7.07	6.20	0.45	0.38
22	16.88	7.82	7.13	0.46	0.40
23	18.05	8.66	8.20	0.48	0.42
24	19.32	9.60	9.44	0.50	0.45
25	20.72	10.66	10.88	0.51	0.47
26	22.25	11.85	12.54	0.53	0.49
27	23.94	13.20	14.47	0.55	0.51
28	25.80	14.72	16.72	0.57	0.53
29	27.86	16.44	19.34	0.59	0.55
30	30.14	18.40	22.40	0.61	0.58
31	32.67	20.63	25.99	0.63	0.60
32	35.49	23.18	30.22	0.65	0.62
33	38.64	26.09	35.19	0.68	0.65
34	42.16	29.44	41.06	0.70	0.67
35	46.12	33.30	48.03	0.72	0.70
36	50.59	37.75	56.31	0.75	0.73
37	55.63	42.92	66.19	0.77	0.75
38	61.35	48.93	78.03	0.80	0.78
39	67.87	55.96	92.25	0.82	0.81
40	75.31	64.20	109.41	0.85	0.84
41	83.86	73.90	130.22	0.88	0.87
42	93.71	85.38	155.55	0.91	0.90
43	105.11	99.02	186.54	0.94	0.93
44	118.37	115.31	224.64	0.97	0.97
45	133.88	134.88	271.76	1.01	1.00
46	152.10	158.51	330.35	1.04	1.04
47	173.64	187.21	403.67	1.08	1.07
48	199.26	222.31	496.01	1.12	1.11
49	229.93	265.51	613.16	1.15	1.15
50	266.89	319.07	762.89	1.20	1.19

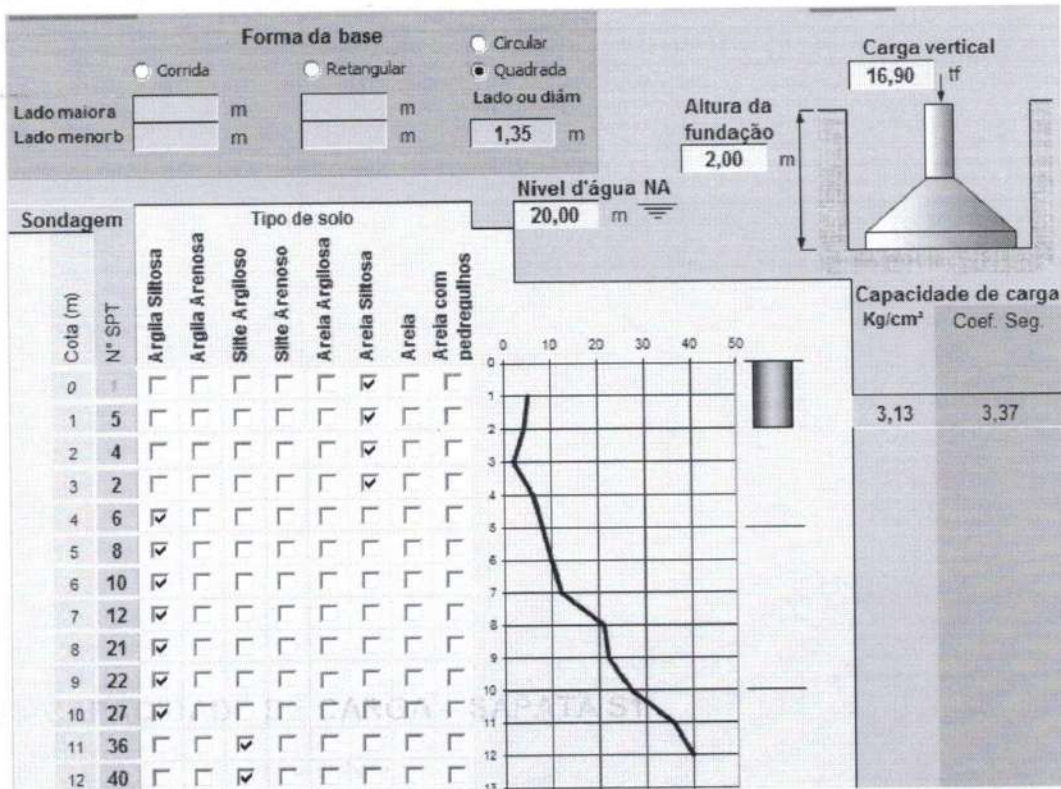
Shape of the Base	ξ_c	ξ_q	ξ_γ
Strip	1.00	1.00	1.00
Rectangle	$1 + (B/L)(N_q/N_c)$	$1 + (B/L) \tan \phi$	$1 - 0.4B/L$
Circle and Square	$1 + (N_q/N_c)$	$1 + \tan \phi$	0.60

Figura 4 – Tabela para os fatores de capacidade de carga e de Forma

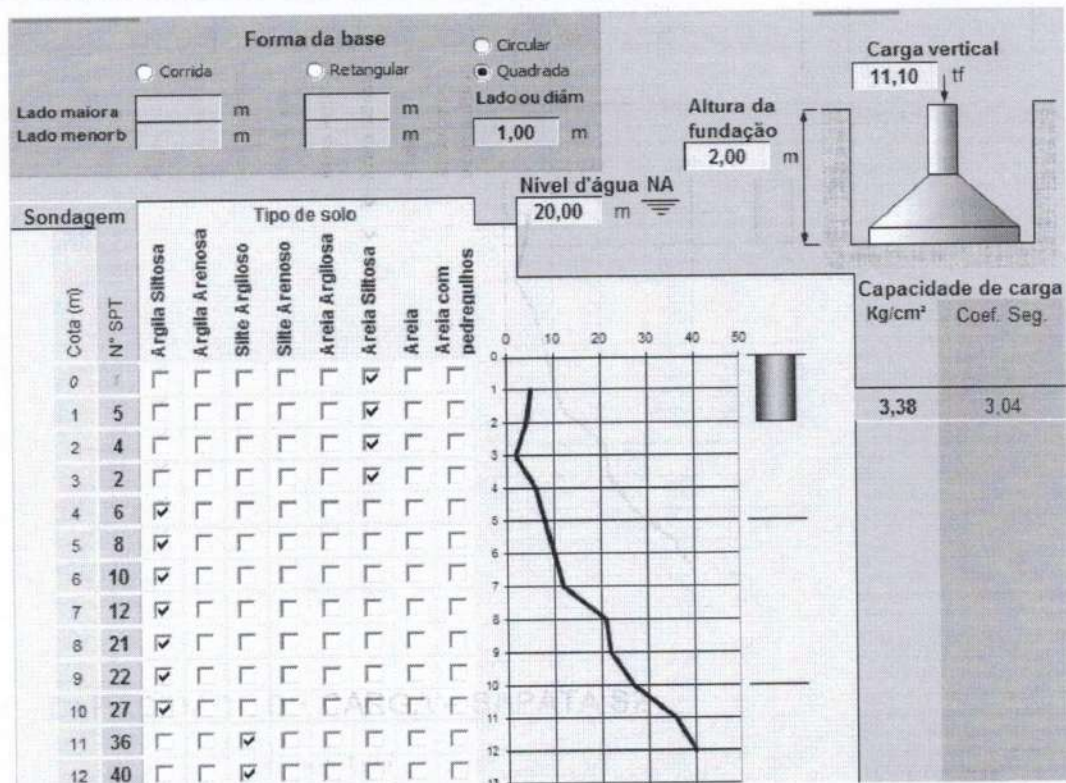
Com base nesta metodologia, as tensões Admissíveis são variáveis e foram determinadas individualmente para cada Sapata, devido à variação da Forma da Fundação.

Todas as estimativas de Capacidade de Carga foram feitas com base na Sondagem SPT-02, que apresentou a pior geologia em relação às sondagens executadas.

SPT-2 – CAPACIDADE DE CARGA – SAPATA S1



SPT-2 – CAPACIDADE DE CARGA – SAPATA S2



SPT-2 – CAPACIDADE DE CARGA – SAPATA S3

Forma da base

☐ Corrida ☐ Retangular ☐ Circular ☒ Quadrada

Lado maior a m Lado menor b m Lado ou diâm m

Altura da fundação m

Nível d'água NA m

Carga vertical tf

Sondagem

Cota (m)	N° SPT	Argila Siltosa	Argila Arenosa	Silte Argiloso	Silte Arenoso	Areia Argilosa	Areia Siltosa	Areia	Areia com pedregulhos
0	1								
1	5								
2	4								
3	2								
4	6								
5	8								
6	10								
7	12								
8	21								
9	22								
10	27								
11	36								
12	40								

Capacidade de carga
Kg/cm² Coef. Seg.

SPT-2 – CAPACIDADE DE CARGA – SAPATA S4

Forma da base

☐ Corrida ☐ Retangular ☐ Circular ☒ Quadrada

Lado maior a m Lado menor b m Lado ou diâm m

Altura da fundação m

Nível d'água NA m

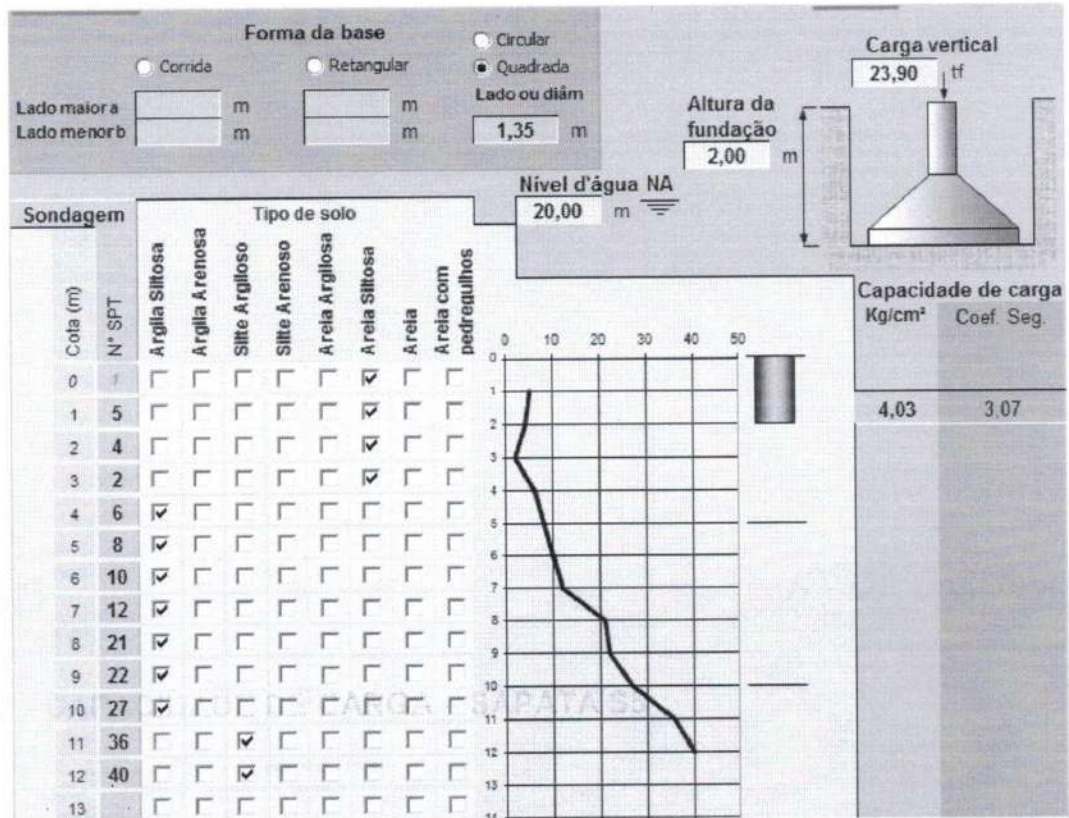
Carga vertical tf

Sondagem

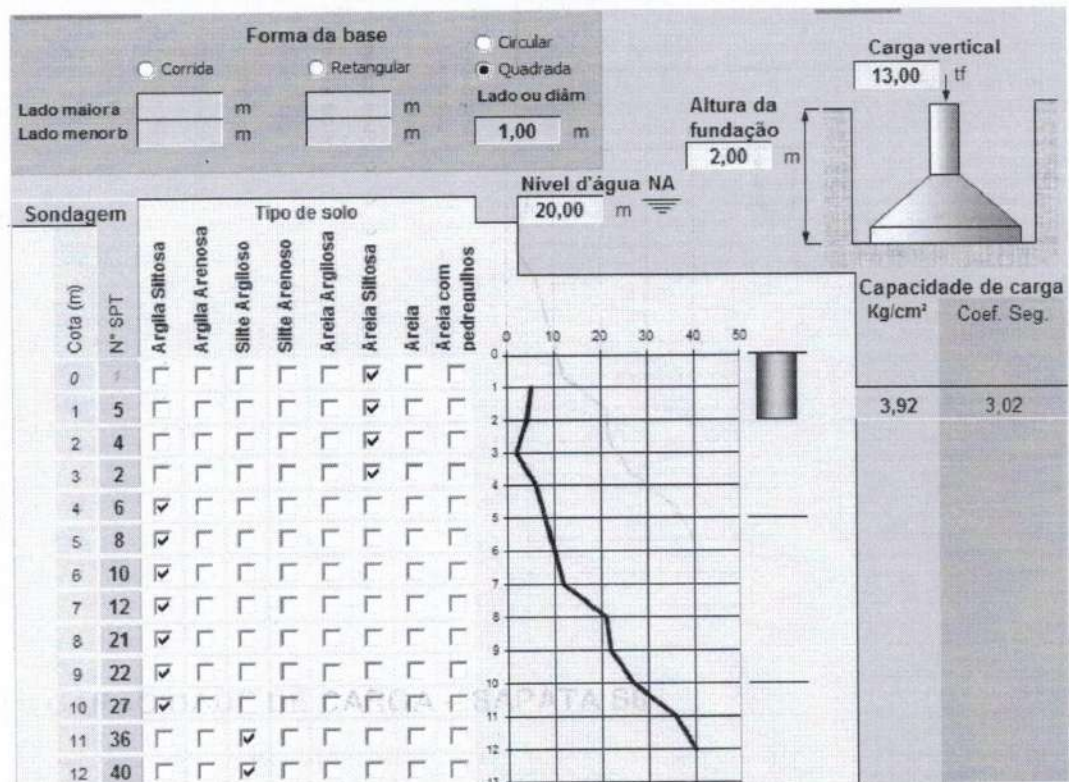
Cota (m)	N° SPT	Argila Siltosa	Argila Arenosa	Silte Argiloso	Silte Arenoso	Areia Argilosa	Areia Siltosa	Areia	Areia com pedregulhos
0	1								
1	5								
2	4								
3	2								
4	6								
5	8								
6	10								
7	12								
8	21								
9	22								
10	27								
11	36								
12	40								
13									

Capacidade de carga
Kg/cm² Coef. Seg.

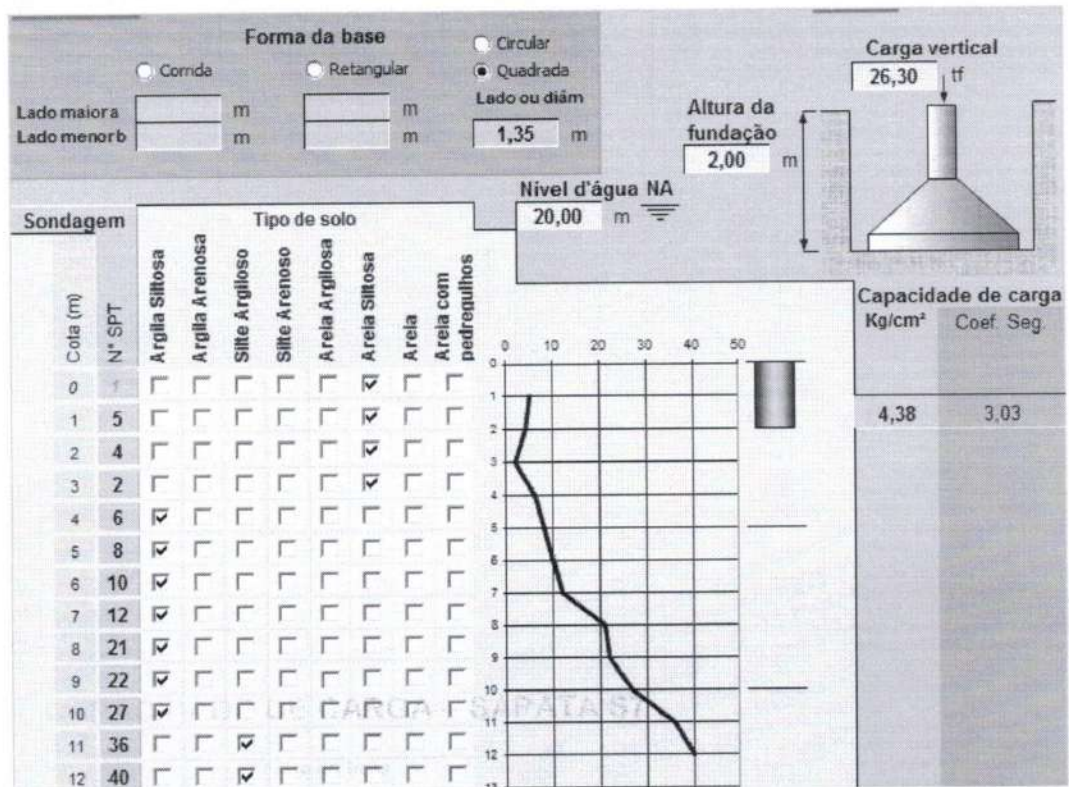
SPT-2 – CAPACIDADE DE CARGA – SAPATA S5



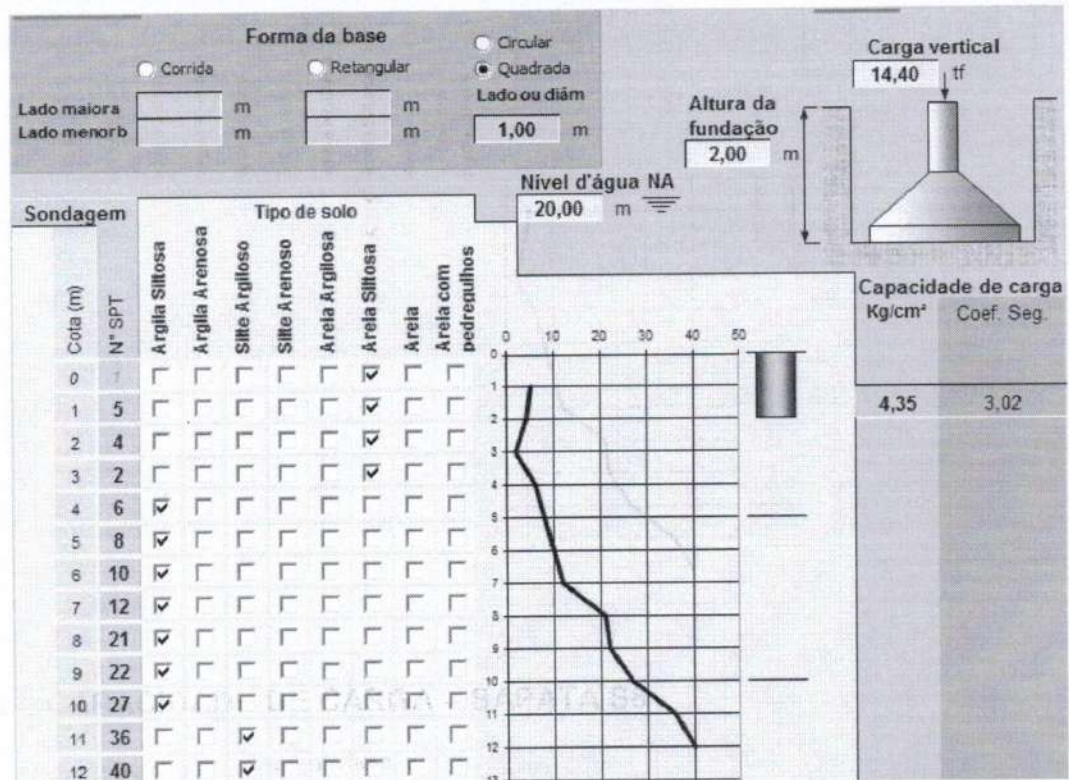
SPT-2 – CAPACIDADE DE CARGA – SAPATA S6



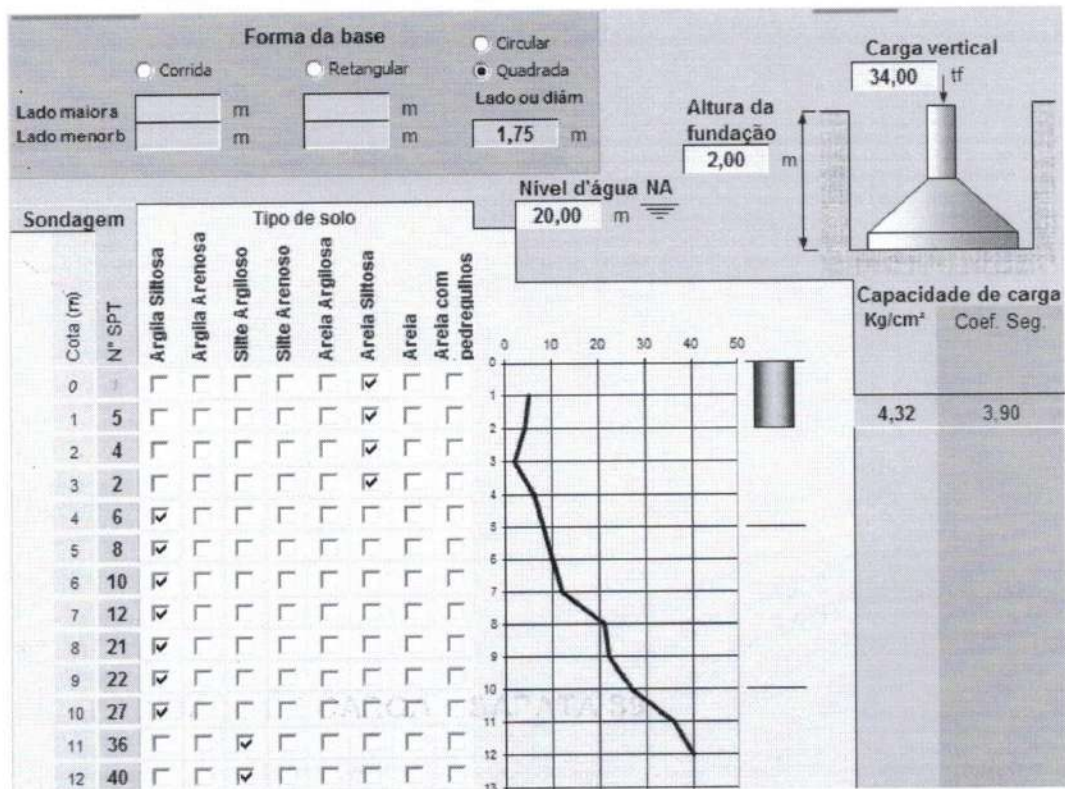
SPT-2 – CAPACIDADE DE CARGA – SAPATA S7



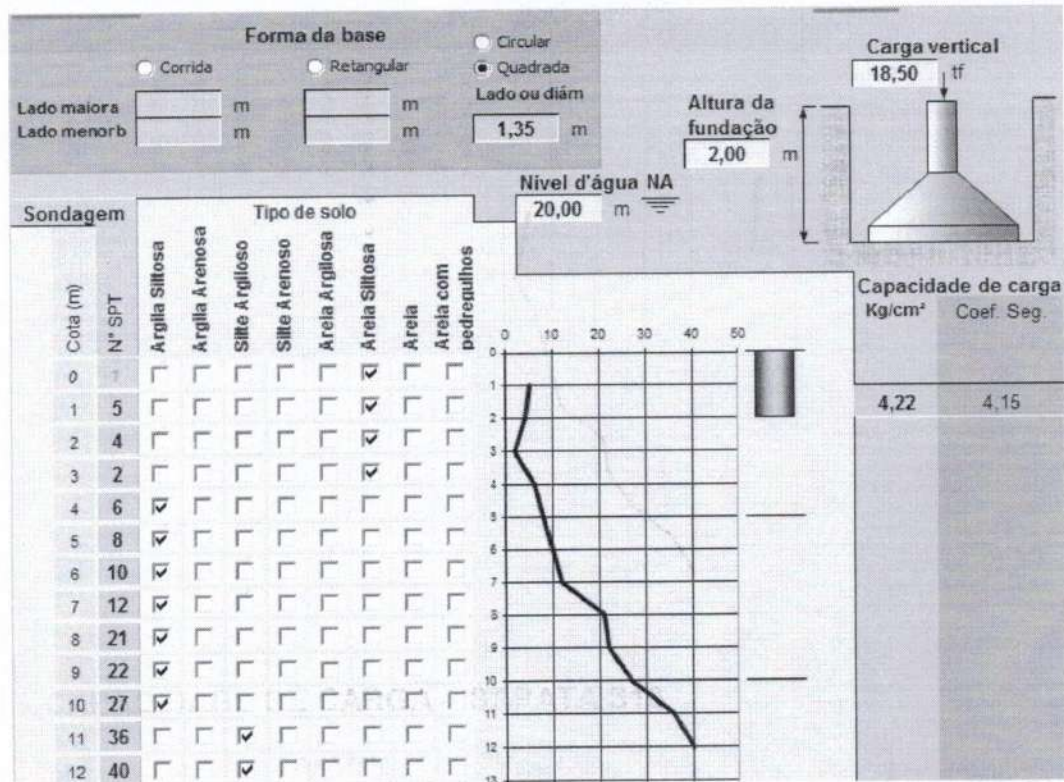
SPT-2 – CAPACIDADE DE CARGA – SAPATA S8



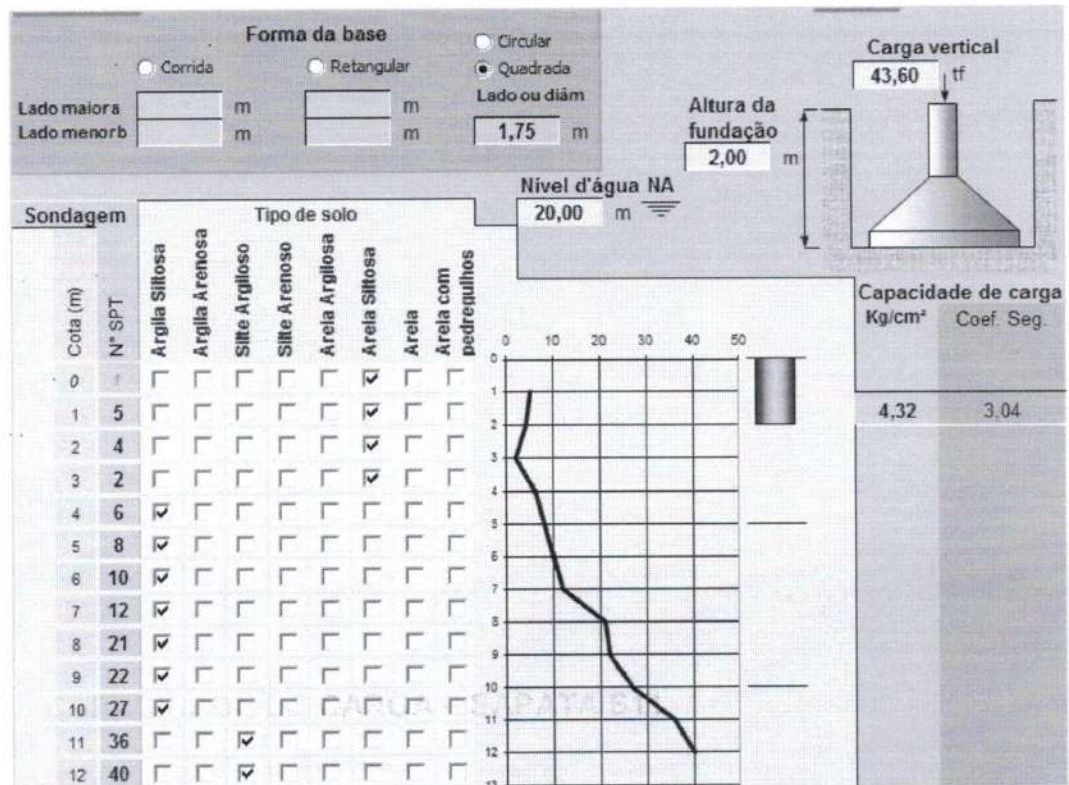
SPT-2 – CAPACIDADE DE CARGA – SAPATA S9



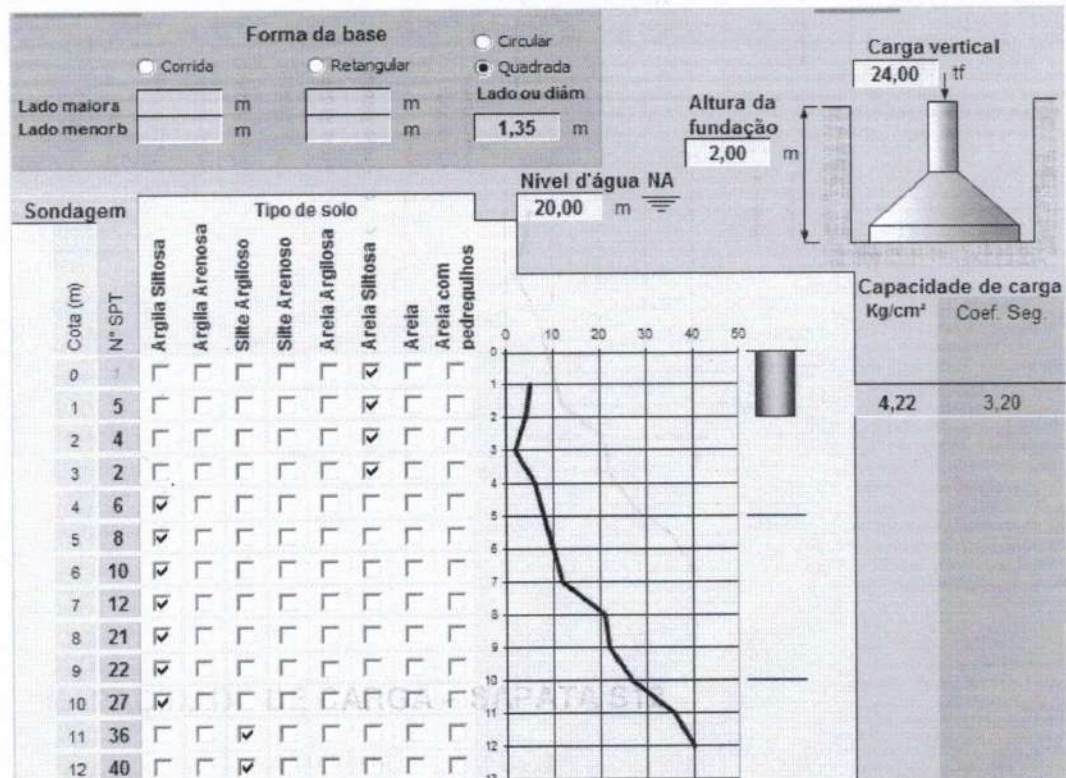
SPT-2 – CAPACIDADE DE CARGA – SAPATA S10



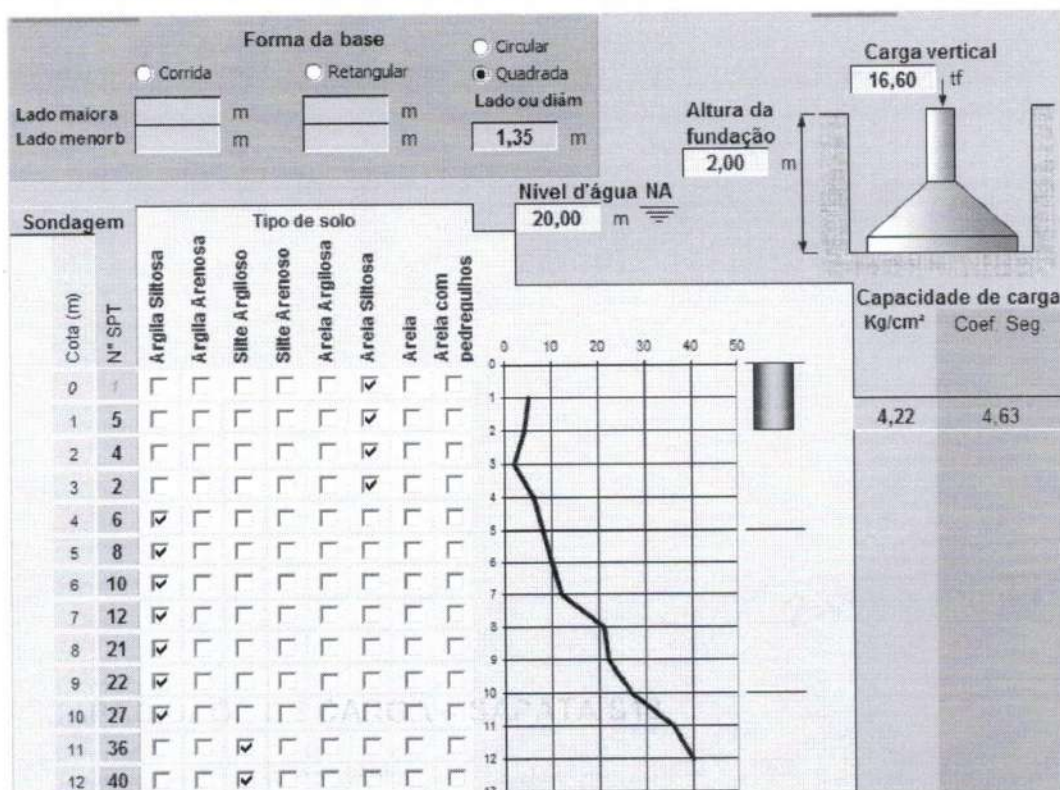
SPT-2 – CAPACIDADE DE CARGA – SAPATA S11



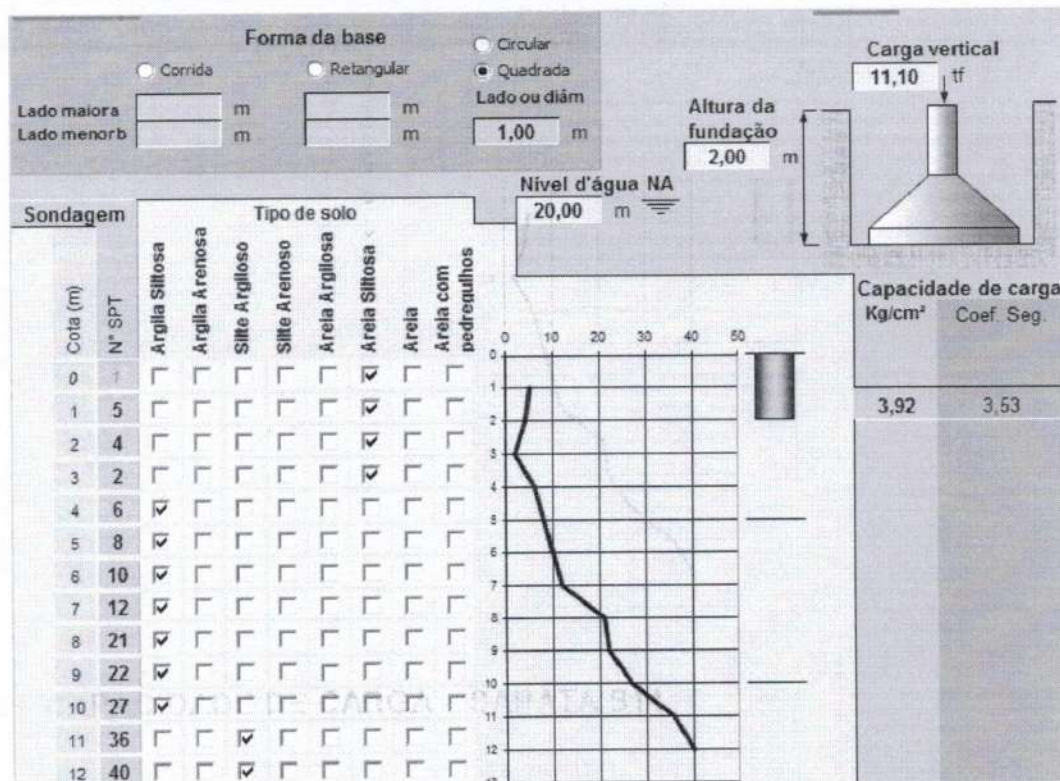
SPT-2 – CAPACIDADE DE CARGA – SAPATA S12



SPT-2 – CAPACIDADE DE CARGA – SAPATA S13



SPT-2 – CAPACIDADE DE CARGA – SAPATA S14



As tensões admissíveis variaram de cerca de 1,10 a 1,46kgf/cm², de acordo com cada elemento verificado, porém todos com Fatores de Segurança superiores a 3.

7 - DECLARAÇÕES FINAIS

Ressalta-se neste momento, que o presente documento é referente, APENAS, à avaliação da Estrutura contemplada pelo Projeto Executivo de Reforço constante do Item 6.1. A Estrutura é capaz de resistir aos esforços a que será submetida, considerando as Normas Técnicas mencionadas, com coeficientes de segurança e índices de esbeltez desejáveis.

Nada mais restando, encerra-se o presente documento composto de 45 folhas, incluindo os desenhos de Projeto, e deverão ser impressas somente no anverso.

APÊNDICES

APÊNDICES

**APÊNDICE 01 – DE-2054-01_R1 – REFORÇO ESTRUTURAL -
LOCAÇÃO DAS SAPATAS E FÔRMAS**

APÊNDICE 01 – DE-2054-01_R1 – REFORÇO ESTRUTURAL -
LOCAÇÃO DAS SAPATAS E FÔRMAS

NOTAS:

- 1-MEDIDAS DA CONTINUIDADE E INFLUÊNCIA DA METROLOGIA INDICADO.
- 2-PROVA ESTRUTURAL: $f_{ck} = 30 \text{ MPa}$
FAZOR: 10,0/10,55
CONSUMO MÍNIMO DE CIMENTO = 320 kg/m^3
- 3-CONCRETO MACRO: $f_{ck} = 11 \text{ MPa}$
CONSUMO MÍNIMO DE CIMENTO = 200 kg/m^3
- 4-ESTRUTURA DE CONCRETO DEVERIA SER EXECUTADA DE ACORDO COM A NBR 6118 - PROJETO DE ESTRUTURAS DE CONCRETO
- 5-TENSÃO ADMISSÍVEL ADOTADA DE $1,4 \text{ kg/cm}^2$

LEGENDA:

☐ - CONCRETO EM CORTE NO REFORÇO

SUGESTÃO DE SEQUÊNCIA EXECUTIVA:

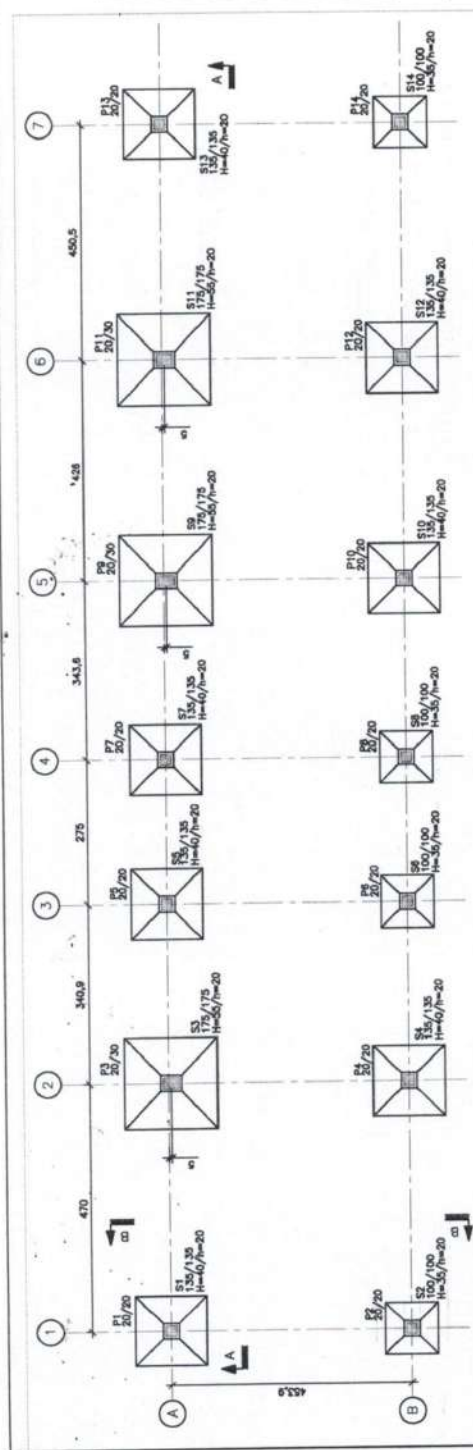
- 1- EXECUTAR A LULA, SEGUEMOS O DESENHO DO TETO DO TERREDO DA ERFICACIA, CONFORME DESENHO DE-2054-02.
- 2- EXECUTAR O SERVIÇO DE LOCALIZAÇÃO, FORMA E ARMADURA DAS SANFASIS N.ºS 52, 53, 54, 57, DE ACORDO COM O DESENHO DE-2054-03, INCLUSIVE ARMADURA DAS SANFASIS N.ºS 52, 53, 54, 57, N.ºS 510, 511, 512, 514, CONFORME DESENHO DE-2054-03, INCLUSIVE ARMADURA DAS SANFASIS N.ºS 510, 511, 512, 514, CONFORME DESENHO DE-2054-03.
- 3- CONCRETAR AS SANFASIS N.ºS 52, 53, 56, 59, 510, 511, 514, CONFORME DESENHO DE-2054-03.
- 4- APÓS REATERO DAS SANFASIS DA ATIVIDADE "3", REALIZAR REMOÇÃO GERAL DO TETO DE APENAS 1 FURO DOS TACLOS E PREPARAR FORMA E ARMADURA DOS PLANOS P1, P2, P3, P4, P5, P10, P11, P12, P13, P14, P15, P16, P17, P18, P19, P20, P21, P22, P23, P24, P25, P26, P27, P28, P29, P30, P31, P32, P33, P34, P35, P36, P37, P38, P39, P40, P41, P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52, P53, P54, P55, P56, P57, P58, P59, P60, P61, P62, P63, P64, P65, P66, P67, P68, P69, P70, P71, P72, P73, P74, P75, P76, P77, P78, P79, P80, P81, P82, P83, P84, P85, P86, P87, P88, P89, P90, P91, P92, P93, P94, P95, P96, P97, P98, P99, P100, P101, P102, P103, P104, P105, P106, P107, P108, P109, P110, P111, P112, P113, P114, P115, P116, P117, P118, P119, P120, P121, P122, P123, P124, P125, P126, P127, P128, P129, P130, P131, P132, P133, P134, P135, P136, P137, P138, P139, P140, P141, P142, P143, P144, P145, P146, P147, P148, P149, P150, P151, P152, P153, P154, P155, P156, P157, P158, P159, P160, P161, P162, P163, P164, P165, P166, P167, P168, P169, P170, P171, P172, P173, P174, P175, P176, P177, P178, P179, P180, P181, P182, P183, P184, P185, P186, P187, P188, P189, P190, P191, P192, P193, P194, P195, P196, P197, P198, P199, P200, P201, P202, P203, P204, P205, P206, P207, P208, P209, P210, P211, P212, P213, P214, P215, P216, P217, P218, P219, P220, P221, P222, P223, P224, P225, P226, P227, P228, P229, P230, P231, P232, P233, P234, P235, P236, P237, P238, P239, P240, P241, P242, P243, P244, P245, P246, P247, P248, P249, P250, P251, P252, P253, P254, P255, P256, P257, P258, P259, P260, P261, P262, P263, P264, P265, P266, P267, P268, P269, P270, P271, P272, P273, P274, P275, P276, P277, P278, P279, P280, P281, P282, P283, P284, P285, P286, P287, P288, P289, P290, P291, P292, P293, P294, P295, P296, P297, P298, P299, P300, P301, P302, P303, P304, P305, P306, P307, P308, P309, P310, P311, P312, P313, P314, P315, P316, P317, P318, P319, P320, P321, P322, P323, P324, P325, P326, P327, P328, P329, P330, P331, P332, P333, P334, P335, P336, P337, P338, P339, P340, P341, P342, P343, P344, P345, P346, P347, P348, P349, P350, P351, P352, P353, P354, P355, P356, P357, P358, P359, P360, P361, P362, P363, P364, P365, P366, P367, P368, P369, P370, P371, P372, P373, P374, P375, P376, P377, P378, P379, P380, P381, P382, P383, P384, P385, P386, P387, P388, P389, P390, P391, P392, P393, P394, P395, P396, P397, P398, P399, P400, P401, P402, P403, P404, P405, P406, P407, P408, P409, P410, P411, P412, P413, P414, P415, P416, P417, P418, P419, P420, P421, P422, P423, P424, P425, P426, P427, P428, P429, P430, P431, P432, P433, P434, P435, P436, P437, P438, P439, P440, P441, P442, P443, P444, P445, P446, P447, P448, P449, P450, P451, P452, P453, P454, P455, P456, P457, P458, P459, P460, P461, P462, P463, P464, P465, P466, P467, P468, P469, P470, P471, P472, P473, P474, P475, P476, P477, P478, P479, P480, P481, P482, P483, P484, P485, P486, P487, P488, P489, P490, P491, P492, P493, P494, P495, P496, P497, P498, P499, P500, P501, P502, P503, P504, P505, P506, P507, P508, P509, P510, P511, P512, P513, P514, P515, P516, P517, P518, P519, P520, P521, P522, P523, P524, P525, P526, P527, P528, P529, P530, P531, P532, P533, P534, P535, P536, P537, P538, P539, P540, P541, P542, P543, P544, P545, P546, P547, P548, P549, P550, P551, P552, P553, P554, P555, P556, P557, P558, P559, P560, P561, P562, P563, P564, P565, P566, P567, P568, P569, P570, P571, P572, P573, P574, P575, P576, P577, P578, P579, P580, P581, P582, P583, P584, P585, P586, P587, P588, P589, P590, P591, P592, P593, P594, P595, P596, P597, P598, P599, P600, P601, P602, P603, P604, P605, P606, P607, P608, P609, P610, P611, P612, P613, P614, P615, P616, P617, P618, P619, P620, P621, P622, P623, P624, P625, P626, P627, P628, P629, P630, P631, P632, P633, P634, P635, P636, P637, P638, P639, P640, P641, P642, P643, P644, P645, P646, P647, P648, P649, P650, P651, P652, P653, P654, P655, P656, P657, P658, P659, P660, P661, P662, P663, P664, P665, P666, P667, P668, P669, P670, P671, P672, P673, P674, P675, P676, P677, P678, P679, P680, P681, P682, P683, P684, P685, P686, P687, P688, P689, P690, P691, P692, P693, P694, P695, P696, P697, P698, P699, P700, P701, P702, P703, P704, P705, P706, P707, P708, P709, P710, P711, P712, P713, P714, P715, P716, P717, P718, P719, P720, P721, P722, P723, P724, P725, P726, P727, P728, P729, P730, P731, P732, P733, P734, P735, P736, P737, P738, P739, P740, P741, P742, P743, P744, P745, P746, P747, P748, P749, P750, P751, P752, P753, P754, P755, P756, P757, P758, P759, P760, P761, P762, P763, P764, P765, P766, P767, P768, P769, P770, P771, P772,

- 9- APOS REINTERO DAS SEMENTES DA ANIMAZIA P4, REALIZAR REMOÇÃO CUIDADOSA DE AFINAS AS ANIMAZOAS PASSEANTES DAS VAGAS V1, V2, V3, V4, V5, V6, V7, V8 DO TETO E REDECHO DO TETO, V1 E V2, CONFORME DESENHOS DE DE-2054-03 E DE-2054-04.
- 10- EXECUTAR REMOÇÃO LOCALIZADA DE AFINAS A FURTO DOS TULOS E POSICIONAR AFINAS AS ANIMAZOAS PASSEANTES DAS VAGAS TRANSVERSAIS DO TETO, V1 E V2, CONFORME DESENHO DE DE-2054-04.
- 11- CONCRETAR OS PLANOS P3, P4, P7, P8, P11, P12 E AS VAGAS V4, V6 DO TETO, CONFORME DESENHOS DE DE-2054-03 E DE-2054-04.
- 12- APOS NO ANIMO 14, DAS DE CURA DAS VAGAS-J4 CONCRETIZAS, COMPLEMENTAR AS ANIMAZOAS COM REMOÇÃO CUIDADOSA E PARCIAL DAS ALVENARIAS E REALIZAR A FORMA DAS VAGAS TRANSVERSAIS DO TETO, V1 E V2, CONFORME DESENHO DE DE-2054-04.
- 13- CONCRETAR AS VAGAS TRANSVERSAIS DO TETO, V1 E V2, CONFORME DESENHO DE-2054-04.
- 14- REALIZAR REMOÇÃO CUIDADOSA DE AFINAS A FURTO DOS TULOS E DE TREDHO DO TETO, V1 E V2, CONFORME DESENHOS DE DE-2054-03 E DE-2054-04.
- 15- EXECUTAR REMOÇÃO LOCALIZADA DE AFINAS A FURTO DOS TULOS E POSICIONAR AFINAS AS ANIMAZOAS PASSEANTES DAS VAGAS TRANSVERSAIS DO TETO, V1 E V2, CONFORME DESENHO DE DE-2054-04.
- 16- CONCRETAR AS VAGAS V3, V4, V7, V8 DO TETO E TREDHO DOCELO DO LAJE SUPERIOR, CONFORME DESENHOS DE-2054-02 E DE-2054-04.
- 17- REALIZAR REMOÇÃO CUIDADOSA DE AFINAS A FURTO DOS TULOS E DE TREDHO DO TETO, V1 E V2, CONFORME DESENHOS DE DE-2054-03 E DE-2054-04.
- 18- EXECUTAR REMOÇÃO LOCALIZADA DE AFINAS A FURTO DOS TULOS E POSICIONAR AFINAS AS ANIMAZOAS PASSEANTES DAS VAGAS TRANSVERSAIS DO TETO, V1 E V2, CONFORME DESENHO DE DE-2054-04.
- 19- CONCRETAR AS VAGAS V4, V6 DO TETO E TREDHO DOCELO DO LAJE SUPERIOR, CONFORME DESENHOS DE-2054-02 E DE-2054-04.

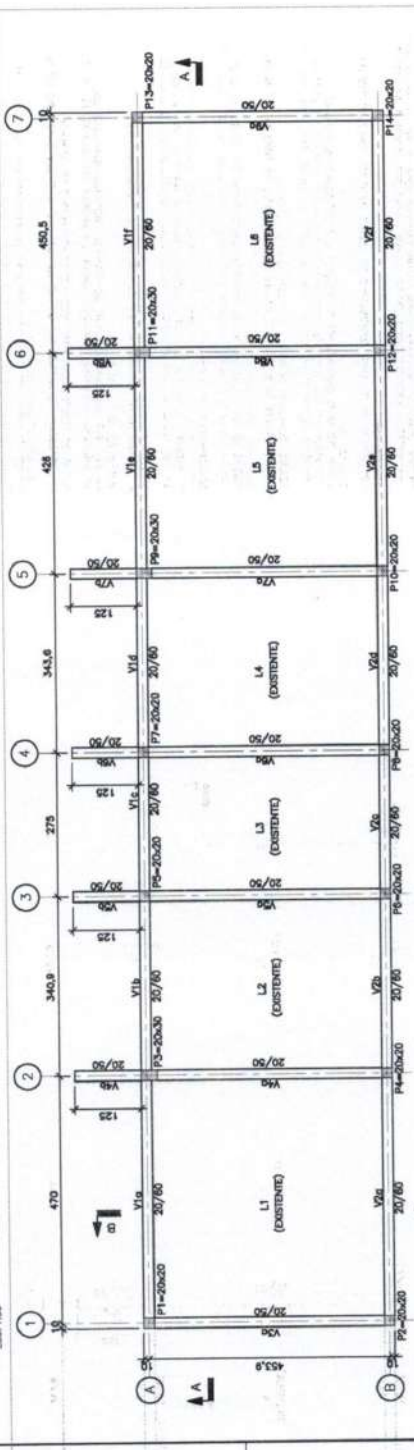
ATENÇÃO: AGUARDAR O COMANDO DA UNOPS		DATA	PROV
1	ENTRADA INICIAL	01/01/19	01
2	ENTRADA INICIAL	01/01/19	01
3	ENTRADA INICIAL	01/01/19	01
4	ENTRADA INICIAL	01/01/19	01
5	ENTRADA INICIAL	01/01/19	01
6	ENTRADA INICIAL	01/01/19	01
7	ENTRADA INICIAL	01/01/19	01
8	ENTRADA INICIAL	01/01/19	01
9	ENTRADA INICIAL	01/01/19	01
10	ENTRADA INICIAL	01/01/19	01
11	ENTRADA INICIAL	01/01/19	01
12	ENTRADA INICIAL	01/01/19	01
13	ENTRADA INICIAL	01/01/19	01
14	ENTRADA INICIAL	01/01/19	01
15	ENTRADA INICIAL	01/01/19	01
16	ENTRADA INICIAL	01/01/19	01
17	ENTRADA INICIAL	01/01/19	01
18	ENTRADA INICIAL	01/01/19	01
19	ENTRADA INICIAL	01/01/19	01
20	ENTRADA INICIAL	01/01/19	01
21	ENTRADA INICIAL	01/01/19	01
22	ENTRADA INICIAL	01/01/19	01
23	ENTRADA INICIAL	01/01/19	01
24	ENTRADA INICIAL	01/01/19	01
25	ENTRADA INICIAL	01/01/19	01
26	ENTRADA INICIAL	01/01/19	01
27	ENTRADA INICIAL	01/01/19	01
28	ENTRADA INICIAL	01/01/19	01
29	ENTRADA INICIAL	01/01/19	01
30	ENTRADA INICIAL	01/01/19	01
31	ENTRADA INICIAL	01/01/19	01
32	ENTRADA INICIAL	01/01/19	01
33	ENTRADA INICIAL	01/01/19	01
34	ENTRADA INICIAL	01/01/19	01
35			



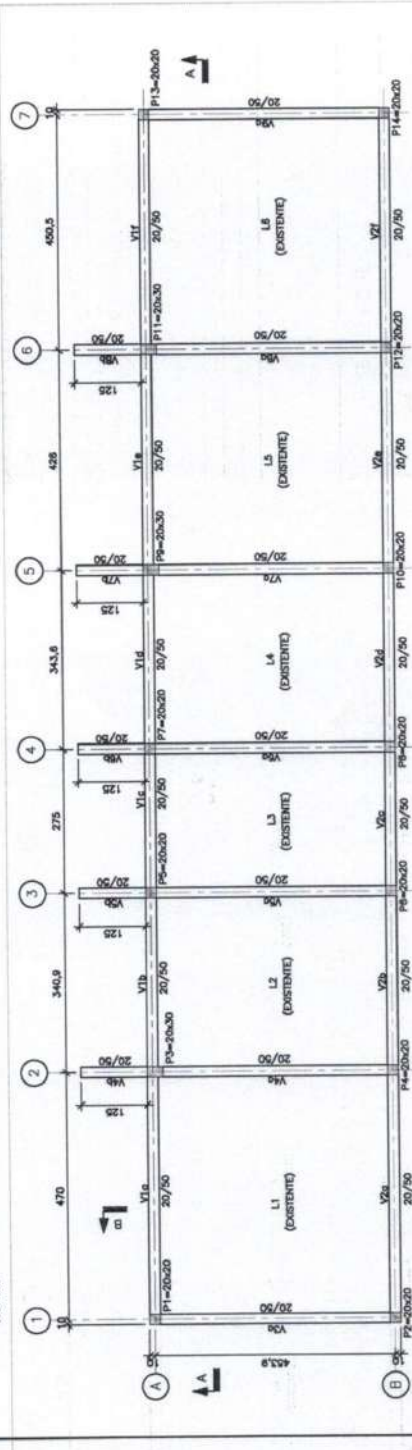
CLIENTE:	UNOPES UNITED NATION OFFICE FOR PROJECTS SERVICES	DESL:	FELIJO MOTO
		PROJ1:	MARLON PASSER
		VEIF1:	LEONARDO MARQUES
		APRO1:	JOSE ROBERTO BRAGA
TOTAL:	REFORÇO ESTRUTURAL LOÇÇÃO DAS SAPATAS E FORMAS	DATA:	MARÇO/2018
		ESCALA:	1:50
		DEL Nº	DE-2054-01
		FOLHA	1 / 1
		REV:	1



LOCALIZAÇÃO DAS SAPATAS



TÉRREO - FORMA



TETO - FORMA

**APÊNDICE 02 – DE-2054-02_R1 – REFORÇO ESTRUTURAL - CORTES,
DETALHES E ÁREA DE ESCORAMENTO**

DOCUMENTOS DE REFERÊNCIA

SONDAGENS REALIZADAS PELA J.T. SONDAGENS, SUBCONTRATADA DA GEOPROJETOS.

- NOTAS:
- 1- MEDIDAS EM CENTÍMETRO E NÚMEROS EM METRO EXCETO ONDE INDICADO.
 - 2- CONCRETO ESTRUTURAL f_{ck} = 30 MPa.
 - 3- FATOR $\gamma_c = 1,4$ E $\gamma_s = 1,25$.
 - 4- CONSUMO MÍNIMO DE CIMENTO: 200kg/m³.
 - 5- CONSUMO MÍNIMO DE AREIA: 1000kg/m³.
 - 6- CONSUMO MÍNIMO DE AGUA: 180kg/m³.
 - 7- A ESTRUTURA DE CONCRETO DEVERÁ SER EXECUTADA DE ACORDO COM A NBR 14931 - 8118 - PROJETO DE ESTRUTURAS DE CONCRETO - PROCEDIMENTO E NBR 14931 - 8118 - PROJETO DE ESTRUTURAS DE CONCRETO.
 - 8- CIMENTOS ADOTADOS
 - 9- PISO PRÉFABRICO ESTRUTURAL DE C.A.
 - 10- CARREGAMENTO PERMANENTE P = 100kg/m².
 - 11- SOBRECARGA ACIDENTAL Q = 150kg/m².
 - 12- ALVENARIAS P = 180kg/m².

LEGENDA:

- CONCRETO EM CORTE EXISTENTE
- CONCRETO EM CORTE NO REFORÇO

SUGESTÃO DE SEQUÊNCIA EXECUTIVA:

SUGESTÃO DE SEQUÊNCIA EXECUTIVA:



1- REALIZAR ESCORAMENTO DO TETO DO TERREO DA EDIFICAÇÃO, CONFORME DESENHO DE-2054-02.

2- EXECUTAR DEMOLIÇÃO LOCALIZADA, FORMA E ARMADURA DAS SAPATAS S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, S25, S26, S27, S28, S29, S30, S31, S32, S33, S34, S35, S36, S37, S38, S39, S40, S41, S42, S43, S44, S45, S46, S47, S48, S49, S50, S51, S52, S53, S54, S55, S56, S57, S58, S59, S60, S61, S62, S63, S64, S65, S66, S67, S68, S69, S70, S71, S72, S73, S74, S75, S76, S77, S78, S79, S80, S81, S82, S83, S84, S85, S86, S87, S88, S89, S90, S91, S92, S93, S94, S95, S96, S97, S98, S99, S100, S101, S102, S103, S104, S105, S106, S107, S108, S109, S110, S111, S112, S113, S114, S115, S116, S117, S118, S119, S120, S121, S122, S123, S124, S125, S126, S127, S128, S129, S130, S131, S132, S133, S134, S135, S136, S137, S138, S139, S140, S141, S142, S143, S144, S145, S146, S147, S148, S149, S150, S151, S152, S153, S154, S155, S156, S157, S158, S159, S160, S161, S162, S163, S164, S165, S166, S167, S168, S169, S170, S171, S172, S173, S174, 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**APÊNDICE 03 – DE-2054-03_R0 – REFORÇO ESTRUTURAL -
ARMADURAS DAS SAPATAS E PILARES**

**APÊNDICE 04 – DE-2054-04_R0 – REFORÇO ESTRUTURAL -
ARMADURAS DAS VIGAS**

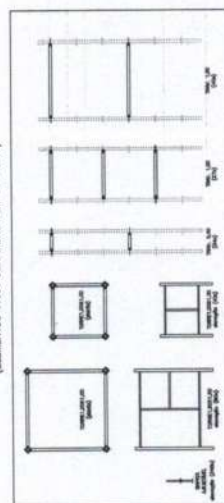
APÊNDICE 05 – DE-2054-05_R1 – ESCORAMENTO – DETALHES E QUANTITATIVOS

-  - CONCRETO EM CORTE EXISTENTE
-  - CONCRETO EM CORTE NO REFORÇO




QUANTITATIVO

QUANTITATIVO
(ELEMENTOS PARA UMA MONTAGEM COMPLETA)



1	ATENDIMENTO AOS COMANDANTES DA UNOPS	MM/19	MARLON	JR
0	ENCARGO FISCAL	MM/19	MARLON	JR
REV.	INDICAÇÃO	DATA	POR	APROV



Geoprojetos

soluções em tecnologia para o setor público

CLIENTE:	UNOPS UNITED NATIONS OFFICE FOR PROJECT SERVICES
DESCRIÇÃO:	<p>FEIJÃO NETO</p> <p>PROJETO: MARLON PASSERIN</p> <p>VENHA: LEONARDO MARQUES</p> <p>APROVAÇÃO: JOSE ROBERTO BRANDT</p> <p>DATA: MARÇO/2019</p> <p>ESCALA: 1:50</p> <p>DEL Nº DE-2054-05</p> <p>FOLHA 1/1 REV: 1</p>
TÍTULO:	ESCRIMENTO DETAHES E QUANTITATIVO