

Relatório geral da instalação – Bacia nº 03

1. Descrição da rede de saneamento

- Título: BACIA Nº03
- Cidade: Buritizeiro
- Data: 28/04/2007

A velocidade da instalação deverá permanecer acima do mínimo estabelecido, para evitar sedimentação, incrustação e estancamento, e abaixo do máximo, para que não se produza erosão.

2. Descrição dos materiais utilizados

Os materiais utilizados para esta instalação são:

TUBOS PVC - Coeficiente de Manning: 0.01000

Descrição	Geometria	Dimensão	Diâmetros mm
DN150	Circular	Diâmetro	150.0

O diâmetro a utilizar será calculado de forma que a velocidade no conduto não exceda a velocidade máxima e ultrapasse a velocidade mínima estabelecidas para o cálculo.

3. Descrição de Solos

As características dos solos a escavar serão detalhadas em seguida.

Descrição	Leito cm	Reaterro cm	Largura mínima cm	Distância lateral cm	Talude
Solos coesivos	20	20	65	25	0/3

4. Formulação

Para o cálculo de condutos de saneamento, emprega-se a fórmula de Manning - Strickler.

$$Q = \frac{A \cdot Rh^{(2/3)} \cdot So^{(1/2)}}{n}$$

$$v = \frac{Rh^{(2/3)} \cdot So^{(1/2)}}{n}$$

onde:

- ⇒ Q é a vazão em m³/s
- ⇒ v é a velocidade do fluido em m/s
- ⇒ A é a seção da lâmina do fluido (m²).
- ⇒ Rh é o raio hidráulico da lâmina de fluido (m).
- ⇒ So é a inclinação do solo do canal (desnível por comprimento de conduto).
- ⇒ n é o coeficiente de Manning.

5. Combinações

A seguir são detalhadas as hipóteses utilizadas nas contribuições, e as combinações que são realizadas ponderando os valores concedidos para cada hipótese.

Combinação	Hipóteses Esaotos
Esaotos	1.00

6. Resultados

6.1 Relatório de nós

Combinação: Esgotos

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Nó	Cota m	Prof. Poço de visita m	Vazão sim. l/s	Coment.
EEE21	521.86	4.34	1.60	
PV1	535.63	1.65	0.00	
PV2	534.01	1.65	0.00	
PV3	532.93	1.65	0.00	
PV4	532.47	1.65	0.00	
PV5	531.85	1.65	0.00	
PV6	530.86	2.80	0.00	
PV7	529.59	3.00	0.00	
PV8	528.59	2.50	0.00	
PV9	528.82	3.00	0.00	
PV10	529.96	3.00	0.00	
PV11	531.15	3.00	0.00	
PV12	531.43	3.00	0.00	
PV13	529.87	2.50	0.00	
PV14	536.86	1.65	0.00	
PV15	536.75	1.91	1.17	
PV16	536.21	1.66	0.00	
PV17	535.57	1.66	0.00	
PV18	534.79	1.66	0.00	
PV19	534.63	1.85	0.00	
PV20	534.11	1.67	0.00	
PV21	533.18	1.65	0.00	
PV22	532.20	1.65	0.00	
PV23	531.34	1.65	0.00	
PV24	531.07	1.74	0.00	
PV25	531.96	2.98	0.00	
PV26	532.69	4.07	0.00	
PV27	532.69	4.41	0.00	
PV28	531.18	3.25	0.00	
PV29	529.59	2.33	0.00	
PV30	528.69	2.78	0.00	
PV31	526.48	1.65	0.00	
PV32	526.98	2.54	0.00	
PV33	528.57	4.49	0.00	
PV34	530.16	6.44	0.00	
PV35	529.62	6.25	0.00	
PV36	527.85	4.84	0.00	
PV37	527.56	4.91	0.00	
PV38	525.83	3.52	0.00	
PV39	526.97	5.45	0.00	
PV40	528.53	3.00	0.00	
PV41	529.60	2.00	0.00	
PV42	530.31	1.65	0.00	
PV43	531.08	1.65	0.00	
PV44	527.81	1.65	0.00	
PV45	526.89	1.65	0.00	
PV46	525.90	1.65	0.00	
PV47	525.31	2.00	0.00	
PV48	524.19	2.20	0.00	
PV49	523.26	2.80	0.00	
PV50	528.86	1.65	0.00	
PV51	532.13	1.65	0.00	

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PV52	532.40	1.65	0.00
PV53	524.41	4.34	0.01
PV54	521.86	4.17	0.00

6.2 Relatório de trechos

Os valores negativos na vazão ou na velocidade indicam que o sentido de circulação é do nó final para o nó inicial.

Combinação: Esgotos

Início	Final	Comprimento m	Diâmetros mm	Inclinação %	Infiltração l/s	Vazão l/s	Profundidade mm	Velocidade m/s	Coment.
EEE21	PV54	23.14	DN150	0.74	0.0017	-1.60 -1.60	31.07 31.09	0.60	
PV1	PV52	105.90	DN150	3.05	0.0079	0.00 0.01	1.39 2.24	0.60 0.60	
PV1	PVT1	58.74	DN150	0.99	0.0044	-0.00 0.00	0.00 1.80	0.60 0.00	
PV2	PV52	76.27	DN150	2.11	0.0057	0.00 0.01	1.52 2.23	0.60 0.60	
PV2	PVT2	59.07	DN150	2.64	0.0044	-0.00 0.00	0.00 1.44	0.60 0.00	
PV3	PV43	81.22	DN150	2.28	0.0061	0.00 0.01	1.56 2.27	0.60 0.60	
PV3	PVT3	65.42	DN150	2.84	0.0049	-0.00 0.00	0.00 1.48	0.60 0.00	
PV4	PV42	71.85	DN150	3.01	0.0054	0.01 0.01	1.56 2.13	0.60 0.60	
PV4	PVT4	74.76	DN150	2.89	0.0056	-0.01 0.00	0.00 1.57	0.60 0.00	
PV5	PV41	73.27	DN150	3.55	0.0055	0.01 0.01	1.48 2.05	0.60 0.60	
PV5	PVT5	73.27	DN150	3.08	0.0055	-0.01 0.00	0.00 1.53	0.60 0.00	
PV6	PV40	73.80	DN150	3.43	0.0055	0.01 0.01	1.49 2.06	0.60 0.60	
PV6	PVT6	72.66	DN150	4.29	0.0054	-0.01 0.00	0.00 1.42	0.60 0.00	
PV7	PV39	74.25	DN150	5.95	0.0056	0.01 0.01	1.31 1.82	0.60 0.60	
PV7	PVT7	72.18	DN150	4.31	0.0054	-0.01 0.00	0.00 1.41	0.60 0.00	
PV8	PV38	74.13	DN150	4.52	0.0056	0.01 0.01	1.39 1.93	0.60 0.60	
PV8	PVT8	71.91	DN150	3.82	0.0054	-0.01 0.00	0.00 1.45	0.60 0.00	
PV9	PV37	74.15	DN150	3.68	0.0056	0.01 0.01	1.46 2.03	0.60 0.60	
PV9	PVT9	72.09	DN150	3.81	0.0054	-0.01 0.00	0.00 1.45	0.60 0.00	
PV10	PV36	76.00	DN150	4.62	0.0057	0.01 0.01	1.37 1.92	0.60 0.60	
PV10	PVT10	70.18	DN150	3.56	0.0053	-0.01 0.00	0.00 1.45	0.60 0.00	
PV11	PV35	75.61	DN150	5.74	0.0057	0.01 0.01	1.31 1.83	0.60 0.60	
PV11	PVT11	70.95	DN150	2.88	0.0053	-0.01 0.00	0.00 1.54	0.60 0.00	
PV12	PV34	75.88	DN150	5.63	0.0057	0.00 0.01	1.27 1.81	0.60 0.60	
PV12	PVT12	66.04	DN150	2.66	0.0050	-0.00 0.00	0.00 1.51	0.60 0.00	

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PV13	PV33	63.04	DN150	4.52	0.0047	0.00 0.01	1.24 1.76	0.60 0.60
PV13	PVT13	56.14	DN150	3.22	0.0042	-0.00 0.00	0.00 1.34	0.60 0.00
PV14	PV15	18.35	DN150	2.00	0.0014	0.00 0.01	1.52 1.72	0.60 0.60
PV14	PVT20	57.47	DN150	0.46	0.0043	-0.00 0.00	0.00 2.13	0.60 0.00
PV15	PV16	60.81	DN150	0.47	0.0046	1.18 1.18	29.84 29.90	0.60
PV16	PV17	73.77	DN150	0.87	0.0055	1.18 1.19	25.72 25.78	0.60
PV17	PV18	76.02	DN150	1.03	0.0057	1.19 1.19	24.75 24.80	0.62
PV18	PV19	74.80	DN150	0.47	0.0056	1.19 1.20	30.04 30.11	0.60
PV19	PV20	73.67	DN150	0.47	0.0055	1.20 1.21	30.17 30.24	0.60
PV19	PVT19	70.31	DN150	1.55	0.0053	-0.01 0.00	0.00 1.76	0.60 0.00
PV20	PV21	76.22	DN150	1.19	0.0057	1.21 1.21	24.07 24.12	0.66
PV21	PV22	74.78	DN150	1.31	0.0056	1.22 1.22	23.63 23.68	0.68
PV21	PVT18	70.11	DN150	2.24	0.0053	-0.01 0.00	0.00 1.62	0.60 0.00
PV22	PV23	75.46	DN150	1.14	0.0057	1.22 1.23	24.50 24.56	0.65
PV23	PV24	74.80	DN150	0.47	0.0056	1.23 1.24	30.51 30.58	0.60
PV24	PV25	75.58	DN150	0.47	0.0057	1.24 1.24	30.58 30.65	0.60
PV25	PV26	75.72	DN150	0.47	0.0057	1.25 1.25	30.72 30.79	0.60
PV25	PVT17	69.67	DN150	1.87	0.0052	-0.01 0.00	0.00 1.68	0.60 0.00
PV26	PV27	73.02	DN150	0.47	0.0055	1.25 1.26	30.78 30.85	0.60
PV27	PV28	73.78	DN150	0.47	0.0055	1.26 1.26	30.85 30.92	0.60
PV28	PV29	74.22	DN150	0.90	0.0056	1.26 1.27	26.32 26.37	0.61
PV29	PV30	74.24	DN150	1.21	0.0056	1.27 1.28	24.61 24.66	0.67
PV29	PVT16	70.42	DN150	2.61	0.0053	-0.01 0.00	0.00 1.56	0.60 0.00
PV30	PV31	65.87	DN150	1.64	0.0049	1.28 1.29	22.97 23.01	0.75
PV30	PVT15	69.27	DN150	1.11	0.0052	-0.01 0.00	0.00 1.89	0.60 0.00
PV31	PV32	82.47	DN150	0.47	0.0062	1.29 1.30	31.24 31.31	0.60
PV32	PV33	77.96	DN150	0.47	0.0058	1.30 1.31	31.40 31.47	0.60
PV32	PVT14	94.74	DN150	2.96	0.0071	-0.01 0.00	0.00 1.74	0.60 0.00
PV33	PV34	76.52	DN150	0.47	0.0057	1.32 1.32	31.58 31.64	0.60
PV34	PV35	74.23	DN150	0.47	0.0056	1.33 1.34	31.77 31.83	0.60

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PV35	PV36	75.65	DN150	0.47	0.0057	1.35 1.36	31.96 32.03	0.60
PV36	PV37	76.01	DN150	0.47	0.0057	1.37 1.37	32.16 32.22	0.60
PV37	PV38	74.08	DN150	0.47	0.0056	1.38 1.39	32.35 32.42	0.60
PV38	PV39	74.64	DN150	1.05	0.0056	1.40 1.41	26.68 26.73	0.66
PV39	PV40	75.31	DN150	4.46	0.0056	-0.06 -0.05	3.90 4.10	0.60 0.60
PV39	PV53	73.23	DN150	1.98	0.0055	1.47 1.48	23.42 23.47	0.84
PV40	PV41	75.84	DN150	2.73	0.0057	-0.04 -0.03	3.61 3.89	0.60 0.60
PV41	PV42	73.46	DN150	1.44	0.0055	-0.02 -0.02	3.03 3.47	0.60 0.60
PV42	PVT24	71.15	DN150	1.08	0.0053	-0.01 0.00	0.00 1.93	0.60 0.00
PV43	PV50	67.96	DN150	3.27	0.0051	0.04 0.04	3.78 4.00	0.60 0.60
PV43	PV51	65.01	DN150	1.62	0.0049	-0.03 -0.02	3.51 3.83	0.60 0.60
PV44	PV47	74.49	DN150	3.83	0.0056	0.01 0.01	1.42 2.00	0.60 0.60
PV44	PVT21	69.51	DN150	3.60	0.0052	-0.01 0.00	0.00 1.44	0.60 0.00
PV45	PV48	74.98	DN150	4.33	0.0056	0.01 0.01	1.38 1.94	0.60 0.60
PV45	PVT22	69.53	DN150	3.90	0.0052	-0.01 0.00	0.00 1.42	0.60 0.00
PV46	PV49	75.01	DN150	5.05	0.0056	0.01 0.01	1.34 1.87	0.60 0.60
PV46	PVT23	69.56	DN150	3.78	0.0052	-0.01 0.00	0.00 1.43	0.60 0.00
PV47	PV48	73.35	DN150	1.80	0.0055	0.06 0.07	5.43 5.64	0.60 0.60
PV47	PV50	111.75	DN150	3.49	0.0084	-0.05 -0.04	3.94 4.27	0.60 0.60
PV48	PV49	75.34	DN150	2.03	0.0057	0.08 0.09	5.87 6.06	0.60 0.60
PV49	PV54	76.03	DN150	2.80	0.0057	0.10 0.10	5.94 6.10	0.60 0.60
PV51	PV52	15.71	DN150	1.72	0.0012	-0.02 -0.02	3.38 3.46	0.60 0.60
PV53	PV54	70.11	DN150	3.40	0.0053	1.49 1.49	20.68 20.71	1.01 1.01

7. Envoltória

Indicam-se os máximos dos valores absolutos.

Envoltória de máximos

Início	Final	Comprimento m	Diâmetros mm	Inclinação %	Vazão l/s	Profundidade mm	Velocidade M/s
EEE21	PV54	23.14	DN150	0.74	1.60	31.09	0.60
PV1	PV52	105.90	DN150	3.05	0.01	2.24	0.60
PV1	PVT1	58.74	DN150	0.99	0.00	1.80	0.60
PV2	PV52	76.27	DN150	2.11	0.01	2.23	0.60
PV2	PVT2	59.07	DN150	2.64	0.00	1.44	0.60
PV3	PV43	81.22	DN150	2.28	0.01	2.27	0.60

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PV3	PVT3	65.42	DN150	2.84	0.00	1.48	0.60
PV4	PV42	71.85	DN150	3.01	0.01	2.13	0.60
PV4	PVT4	74.76	DN150	2.89	0.01	1.57	0.60
PV5	PV41	73.27	DN150	3.55	0.01	2.05	0.60
PV5	PVT5	73.27	DN150	3.08	0.01	1.53	0.60
PV6	PV40	73.80	DN150	3.43	0.01	2.06	0.60
PV6	PVT6	72.66	DN150	4.29	0.01	1.42	0.60
PV7	PV39	74.25	DN150	5.95	0.01	1.82	0.60
PV7	PVT7	72.18	DN150	4.31	0.01	1.41	0.60
PV8	PV38	74.13	DN150	4.52	0.01	1.93	0.60
PV8	PVT8	71.91	DN150	3.82	0.01	1.45	0.60
PV9	PV37	74.15	DN150	3.68	0.01	2.03	0.60
PV9	PVT9	72.09	DN150	3.81	0.01	1.45	0.60
PV10	PV36	76.00	DN150	4.62	0.01	1.92	0.60
PV10	PVT10	70.18	DN150	3.56	0.01	1.45	0.60
PV11	PV35	75.61	DN150	5.74	0.01	1.83	0.60
PV11	PVT11	70.95	DN150	2.88	0.01	1.54	0.60
PV12	PV34	75.88	DN150	5.63	0.01	1.81	0.60
PV12	PVT12	66.04	DN150	2.66	0.00	1.51	0.60
PV13	PV33	63.04	DN150	4.52	0.01	1.76	0.60
PV13	PVT13	56.14	DN150	3.22	0.00	1.34	0.60
PV14	PV15	18.35	DN150	2.00	0.01	1.72	0.60
PV14	PVT20	57.47	DN150	0.46	0.00	2.13	0.60
PV15	PV16	60.81	DN150	0.47	1.18	29.90	0.60
PV16	PV17	73.77	DN150	0.87	1.19	25.78	0.60
PV17	PV18	76.02	DN150	1.03	1.19	24.80	0.62
PV18	PV19	74.80	DN150	0.47	1.20	30.11	0.60
PV19	PV20	73.67	DN150	0.47	1.21	30.24	0.60
PV19	PVT19	70.31	DN150	1.55	0.01	1.76	0.60
PV20	PV21	76.22	DN150	1.19	1.21	24.12	0.66
PV21	PV22	74.78	DN150	1.31	1.22	23.68	0.68
PV21	PVT18	70.11	DN150	2.24	0.01	1.62	0.60
PV22	PV23	75.46	DN150	1.14	1.23	24.56	0.65
PV23	PV24	74.80	DN150	0.47	1.24	30.58	0.60
PV24	PV25	75.58	DN150	0.47	1.24	30.65	0.60
PV25	PV26	75.72	DN150	0.47	1.25	30.79	0.60
PV25	PVT17	69.67	DN150	1.87	0.01	1.68	0.60
PV26	PV27	73.02	DN150	0.47	1.26	30.85	0.60
PV27	PV28	73.78	DN150	0.47	1.26	30.92	0.60
PV28	PV29	74.22	DN150	0.90	1.27	26.37	0.61
PV29	PV30	74.24	DN150	1.21	1.28	24.66	0.67
PV29	PVT16	70.42	DN150	2.61	0.01	1.56	0.60
PV30	PV31	65.87	DN150	1.64	1.29	23.01	0.75
PV30	PVT15	69.27	DN150	1.11	0.01	1.89	0.60
PV31	PV32	82.47	DN150	0.47	1.30	31.31	0.60
PV32	PV33	77.96	DN150	0.47	1.31	31.47	0.60
PV32	PVT14	94.74	DN150	2.96	0.01	1.74	0.60
PV33	PV34	76.52	DN150	0.47	1.32	31.64	0.60
PV34	PV35	74.23	DN150	0.47	1.34	31.83	0.60
PV35	PV36	75.65	DN150	0.47	1.36	32.03	0.60
PV36	PV37	76.01	DN150	0.47	1.37	32.22	0.60
PV37	PV38	74.08	DN150	0.47	1.39	32.42	0.60
PV38	PV39	74.64	DN150	1.05	1.41	26.73	0.66
PV39	PV40	75.31	DN150	4.46	0.06	4.10	0.60

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PV39	PV53	73.23	DN150	1.98	1.48	23.47	0.84
PV40	PV41	75.84	DN150	2.73	0.04	3.89	0.60
PV41	PV42	73.46	DN150	1.44	0.02	3.47	0.60
PV42	PVT24	71.15	DN150	1.08	0.01	1.93	0.60
PV43	PV50	67.96	DN150	3.27	0.04	4.00	0.60
PV43	PV51	65.01	DN150	1.62	0.03	3.83	0.60
PV44	PV47	74.49	DN150	3.83	0.01	2.00	0.60
PV44	PVT21	69.51	DN150	3.60	0.01	1.44	0.60
PV45	PV48	74.98	DN150	4.33	0.01	1.94	0.60
PV45	PVT22	69.53	DN150	3.90	0.01	1.42	0.60
PV46	PV49	75.01	DN150	5.05	0.01	1.87	0.60
PV46	PVT23	69.56	DN150	3.78	0.01	1.43	0.60
PV47	PV48	73.35	DN150	1.80	0.07	5.64	0.60
PV47	PV50	111.75	DN150	3.49	0.05	4.27	0.60
PV48	PV49	75.34	DN150	2.03	0.09	6.06	0.60
PV49	PV54	76.03	DN150	2.80	0.10	6.10	0.60
PV51	PV52	15.71	DN150	1.72	0.02	3.46	0.60
PV53	PV54	70.11	DN150	3.40	1.49	20.71	1.01

Indicam-se os mínimos dos valores absolutos.

Envoltória de mínimos

Início	Final	Comprimento m	Diâmetros mm	Inclinação %	Vazão l/s	Profundidade mm	Velocidade m/s
EEE21	PV54	23.14	DN150	0.74	1.60	31.07	0.60
PV1	PV52	105.90	DN150	3.05	0.00	1.39	0.60
PV1	PVT1	58.74	DN150	0.99	0.00	0.00	0.00
PV2	PV52	76.27	DN150	2.11	0.00	1.52	0.60
PV2	PVT2	59.07	DN150	2.64	0.00	0.00	0.00
PV3	PV43	81.22	DN150	2.28	0.00	1.56	0.60
PV3	PVT3	65.42	DN150	2.84	0.00	0.00	0.00
PV4	PV42	71.85	DN150	3.01	0.01	1.56	0.60
PV4	PVT4	74.76	DN150	2.89	0.00	0.00	0.00
PV5	PV41	73.27	DN150	3.55	0.01	1.48	0.60
PV5	PVT5	73.27	DN150	3.08	0.00	0.00	0.00
PV6	PV40	73.80	DN150	3.43	0.01	1.49	0.60
PV6	PVT6	72.66	DN150	4.29	0.00	0.00	0.00
PV7	PV39	74.25	DN150	5.95	0.01	1.31	0.60
PV7	PVT7	72.18	DN150	4.31	0.00	0.00	0.00
PV8	PV38	74.13	DN150	4.52	0.01	1.39	0.60
PV8	PVT8	71.91	DN150	3.82	0.00	0.00	0.00
PV9	PV37	74.15	DN150	3.68	0.01	1.46	0.60
PV9	PVT9	72.09	DN150	3.81	0.00	0.00	0.00
PV10	PV36	76.00	DN150	4.62	0.01	1.37	0.60
PV10	PVT10	70.18	DN150	3.56	0.00	0.00	0.00
PV11	PV35	75.61	DN150	5.74	0.01	1.31	0.60
PV11	PVT11	70.95	DN150	2.88	0.00	0.00	0.00
PV12	PV34	75.88	DN150	5.63	0.00	1.27	0.60
PV12	PVT12	66.04	DN150	2.66	0.00	0.00	0.00
PV13	PV33	63.04	DN150	4.52	0.00	1.24	0.60
PV13	PVT13	56.14	DN150	3.22	0.00	0.00	0.00
PV14	PV15	18.35	DN150	2.00	0.00	1.52	0.60
PV14	PVT20	57.47	DN150	0.46	0.00	0.00	0.00
PV15	PV16	60.81	DN150	0.47	1.18	29.84	0.60
PV16	PV17	73.77	DN150	0.87	1.18	25.72	0.60

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PV17	PV18	76.02	DN150	1.03	1.19	24.75	0.62
PV18	PV19	74.80	DN150	0.47	1.19	30.04	0.60
PV19	PV20	73.67	DN150	0.47	1.20	30.17	0.60
PV19	PVT19	70.31	DN150	1.55	0.00	0.00	0.00
PV20	PV21	76.22	DN150	1.19	1.21	24.07	0.66
PV21	PV22	74.78	DN150	1.31	1.22	23.63	0.68
PV21	PVT18	70.11	DN150	2.24	0.00	0.00	0.00
PV22	PV23	75.46	DN150	1.14	1.22	24.50	0.65
PV23	PV24	74.80	DN150	0.47	1.23	30.51	0.60
PV24	PV25	75.58	DN150	0.47	1.24	30.58	0.60
PV25	PV26	75.72	DN150	0.47	1.25	30.72	0.60
PV25	PVT17	69.67	DN150	1.87	0.00	0.00	0.00
PV26	PV27	73.02	DN150	0.47	1.25	30.78	0.60
PV27	PV28	73.78	DN150	0.47	1.26	30.85	0.60
PV28	PV29	74.22	DN150	0.90	1.26	26.32	0.61
PV29	PV30	74.24	DN150	1.21	1.27	24.61	0.67
PV29	PVT16	70.42	DN150	2.61	0.00	0.00	0.00
PV30	PV31	65.87	DN150	1.64	1.28	22.97	0.75
PV30	PVT15	69.27	DN150	1.11	0.00	0.00	0.00
PV31	PV32	82.47	DN150	0.47	1.29	31.24	0.60
PV32	PV33	77.96	DN150	0.47	1.30	31.40	0.60
PV32	PVT14	94.74	DN150	2.96	0.00	0.00	0.00
PV33	PV34	76.52	DN150	0.47	1.32	31.58	0.60
PV34	PV35	74.23	DN150	0.47	1.33	31.77	0.60
PV35	PV36	75.65	DN150	0.47	1.35	31.96	0.60
PV36	PV37	76.01	DN150	0.47	1.37	32.16	0.60
PV37	PV38	74.08	DN150	0.47	1.38	32.35	0.60
PV38	PV39	74.64	DN150	1.05	1.40	26.68	0.66
PV39	PV40	75.31	DN150	4.46	0.05	3.90	0.60
PV39	PV53	73.23	DN150	1.98	1.47	23.42	0.84
PV40	PV41	75.84	DN150	2.73	0.03	3.61	0.60
PV41	PV42	73.46	DN150	1.44	0.02	3.03	0.60
PV42	PVT24	71.15	DN150	1.08	0.00	0.00	0.00
PV43	PV50	67.96	DN150	3.27	0.04	3.78	0.60
PV43	PV51	65.01	DN150	1.62	0.02	3.51	0.60
PV44	PV47	74.49	DN150	3.83	0.01	1.42	0.60
PV44	PVT21	69.51	DN150	3.60	0.00	0.00	0.00
PV45	PV48	74.98	DN150	4.33	0.01	1.38	0.60
PV45	PVT22	69.53	DN150	3.90	0.00	0.00	0.00
PV46	PV49	75.01	DN150	5.05	0.01	1.34	0.60
PV46	PVT23	69.56	DN150	3.78	0.00	0.00	0.00
PV47	PV48	73.35	DN150	1.80	0.06	5.43	0.60
PV47	PV50	111.75	DN150	3.49	0.04	3.94	0.60
PV48	PV49	75.34	DN150	2.03	0.08	5.87	0.60
PV49	PV54	76.03	DN150	2.80	0.10	5.94	0.60
PV51	PV52	15.71	DN150	1.72	0.02	3.38	0.60
PV53	PV54	70.11	DN150	3.40	1.49	20.68	1.01

8. Quantitativos

Em seguida, são detalhados os comprimentos totais dos materiais utilizados na instalação.

TUBOS PVC

Descrição	Comprimento m
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DN150	5563.90
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9. Quantitativos escavação

Os volumes de terra removidos para a execução da obra são:

Descrição	Vol. escavado m3	Vol. areias m3	Vol. areia fina m3
Solos coesivos	9477.14	2024.11	7354.94
Total	9477.14	2024.11	7354.94

Volume de terra por trechos

Início	Final	Solo Início m	Solo Final m	Comprimento m	Prof. Início m	Prof. Final m	Largura fundo cm	Talude	Vol. escavado m3	Vol. areias m3	Vol. areia fina m3	Superfície pavimento m2
EEE21	PV54	521.51	521.51	23.14	4.34	4.17	70.00	0/3	66.55	8.50	57.64	16.20
PV1	PV52	535.28	532.05	105.90	1.65	1.65	70.00	0/3	111.19	38.90	70.42	74.13
PV1	PVT1	535.28	535.86	58.74	1.65	1.65	70.00	0/3	61.68	21.58	39.06	41.12
PV2	PV52	533.66	532.05	76.27	1.65	1.65	70.00	0/3	80.08	28.02	50.72	53.39
PV2	PVT2	533.66	535.22	59.07	1.65	1.65	70.00	0/3	62.02	21.70	39.28	41.35
PV3	PV43	532.58	530.73	81.22	1.65	1.65	70.00	0/3	85.28	29.83	54.01	56.85
PV3	PVT3	532.58	534.44	65.42	1.65	1.65	70.00	0/3	68.69	24.03	43.50	45.79
PV4	PV42	532.12	529.96	71.85	1.65	1.65	70.00	0/3	75.44	26.39	47.78	50.30
PV4	PVT4	532.12	534.28	74.76	1.65	1.65	70.00	0/3	78.50	27.46	49.72	52.33
PV5	PV41	531.50	529.25	73.27	1.65	2.00	70.00	0/3	85.75	26.91	57.54	51.29
PV5	PVT5	531.50	533.76	73.27	1.65	1.65	70.00	0/3	76.93	26.91	48.72	51.29
PV6	PV40	530.51	528.18	73.80	2.80	3.00	70.00	0/3	142.04	27.11	113.62	51.66
PV6	PVT6	530.51	532.83	72.66	2.80	2.00	70.00	0/3	113.82	26.69	85.85	50.86
PV7	PV39	529.24	526.62	74.25	3.00	4.80	70.00	0/3	192.94	27.27	164.37	51.96
PV7	PVT7	529.24	531.85	72.18	3.00	2.50	70.00	0/3	131.16	26.51	103.37	50.52
PV8	PV38	528.24	525.48	74.13	2.50	3.09	70.00	0/3	136.97	27.23	108.43	51.89
PV8	PVT8	528.24	530.99	71.91	2.50	2.50	70.00	0/3	118.30	26.42	90.61	50.34
PV9	PV37	528.47	527.21	74.15	3.00	4.47	70.00	0/3	184.72	27.23	156.18	51.89
PV9	PVT9	528.47	530.72	72.09	3.00	2.50	70.00	0/3	131.00	26.48	103.24	50.46
PV10	PV36	529.61	527.50	76.00	3.00	4.40	70.00	0/3	187.59	27.91	158.33	53.19
PV10	PVT10	529.61	531.61	70.18	3.00	2.50	70.00	0/3	127.53	25.78	100.51	49.12
PV11	PV35	530.80	529.27	75.61	3.00	5.81	70.00	0/3	220.84	27.75	191.75	52.89
PV11	PVT11	530.80	532.34	70.95	3.00	2.50	70.00	0/3	128.92	26.06	101.60	49.66
PV12	PV34	531.08	529.81	75.88	3.00	6.00	70.00	0/3	226.14	27.85	196.95	53.07
PV12	PVT12	531.08	532.34	66.04	3.00	2.50	70.00	0/3	120.01	24.26	94.59	46.23
PV13	PV33	529.52	528.22	63.04	2.50	4.05	70.00	0/3	136.43	23.15	112.16	44.12
PV13	PVT13	529.52	530.83	56.14	2.50	2.00	70.00	0/3	82.32	20.62	60.71	39.30
PV14	PV15	536.40	536.40	18.35	1.65	1.91	70.00	0/3	20.22	6.74	13.15	12.84
PV14	PVT20	536.40	536.51	57.47	1.65	1.65	70.00	0/3	52.96	21.11	30.83	40.23
PV15	PV16	536.40	535.86	60.81	1.91	1.66	70.00	0/3	69.50	22.34	46.08	42.57
PV16	PV17	535.86	535.22	73.77	1.66	1.66	70.00	0/3	77.82	27.10	49.42	51.64
PV17	PV18	535.22	534.44	76.02	1.66	1.66	70.00	0/3	80.20	27.92	50.93	53.21
PV18	PV19	534.44	534.28	74.80	1.66	1.85	70.00	0/3	83.88	27.48	55.08	52.36
PV19	PV20	534.28	533.76	73.67	1.85	1.67	70.00	0/3	83.08	27.06	54.72	51.57
PV19	PVT19	534.28	535.37	70.31	1.65	1.65	70.00	0/3	73.83	25.83	46.76	49.22
PV20	PV21	533.76	532.83	76.22	1.67	1.65	70.00	0/3	80.82	28.00	51.48	53.35
PV21	PV22	532.83	531.85	74.78	1.65	1.65	70.00	0/3	78.78	27.47	49.99	52.35
PV21	PVT18	532.83	534.40	70.11	1.65	1.65	70.00	0/3	73.61	25.75	46.62	49.08
PV22	PV23	531.85	530.99	75.46	1.65	1.65	70.00	0/3	79.49	27.72	50.44	52.82
PV23	PV24	530.99	530.72	74.80	1.65	1.74	70.00	0/3	80.92	27.48	52.13	52.36

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PV24	PV25	530.72	531.61	75.58	1.74	2.98	70.00	0/3	115.28	27.76	86.19	52.90
PV25	PV26	531.61	532.34	75.72	2.98	4.07	70.00	0/3	178.08	27.81	148.93	53.00
PV25	PVT17	531.61	532.91	69.67	1.65	1.65	70.00	0/3	73.15	25.59	46.33	48.77
PV26	PV27	532.34	532.34	73.02	4.07	4.41	70.00	0/3	209.08	26.82	180.97	51.12
PV27	PV28	532.34	530.83	73.78	4.41	3.25	70.00	0/3	189.31	27.10	160.91	51.64
PV28	PV29	530.83	529.24	74.22	3.25	2.33	70.00	0/3	136.50	27.26	107.93	51.95
PV29	PV30	529.24	528.34	74.24	2.33	2.33	70.00	0/3	113.38	27.27	84.80	51.97
PV29	PVT16	529.24	529.24	70.42	1.65	1.65	70.00	0/3	20.09	6.35	12.73	40.18
PV30	PV31	528.34	526.13	65.87	2.78	1.65	70.00	0/3	94.03	24.19	68.67	46.11
PV30	PVT15	528.34	528.43	69.27	2.33	1.65	70.00	0/3	88.71	25.44	62.04	48.49
PV31	PV32	526.13	526.63	82.47	1.65	2.54	70.00	0/3	111.22	30.29	79.47	57.73
PV32	PV33	526.63	528.22	77.96	2.54	4.49	70.00	0/3	180.97	28.63	150.96	54.55
PV32	PVT14	526.63	529.24	94.74	2.09	1.90	70.00	0/3	122.30	34.80	85.83	66.32
PV33	PV34	528.22	529.81	76.52	4.49	6.44	70.00	0/3	283.18	28.10	253.73	53.55
PV34	PV35	529.81	529.27	74.23	6.44	6.25	70.00	0/3	322.04	27.27	293.46	51.96
PV35	PV36	529.27	527.50	75.65	6.25	4.84	70.00	0/3	284.83	27.78	255.71	52.95
PV36	PV37	527.50	527.21	76.01	4.84	4.91	70.00	0/3	251.22	27.92	221.95	53.21
PV37	PV38	527.21	525.48	74.08	4.91	3.52	70.00	0/3	209.68	27.21	181.16	51.84
PV38	PV39	525.48	526.62	74.64	3.52	5.45	70.00	0/3	224.59	27.41	195.86	52.23
PV39	PV40	526.62	528.18	75.31	4.80	3.00	70.00	0/3	195.70	27.65	166.71	52.70
PV39	PV53	526.62	524.06	73.23	5.45	4.34	70.00	0/3	242.64	26.90	214.45	51.26
PV40	PV41	528.18	529.25	75.84	3.00	2.00	70.00	0/3	123.79	27.85	94.59	53.08
PV41	PV42	529.25	529.96	73.46	2.00	1.65	70.00	0/3	85.97	26.98	57.69	51.42
PV42	PVT24	529.96	530.73	71.15	1.65	1.65	70.00	0/3	74.71	26.14	47.31	49.80
PV43	PV50	530.73	528.51	67.96	1.65	1.65	70.00	0/3	71.36	24.96	45.19	47.57
PV43	PV51	530.73	531.78	65.01	1.65	1.65	70.00	0/3	68.26	23.88	43.23	45.51
PV44	PV47	527.46	524.96	74.49	1.65	2.00	70.00	0/3	87.18	27.36	58.50	52.14
PV44	PVT21	527.46	529.96	69.51	1.65	1.65	70.00	0/3	72.98	25.53	46.22	48.66
PV45	PV48	526.54	523.84	74.98	1.65	2.20	70.00	0/3	92.79	27.54	63.92	52.49
PV45	PVT22	526.54	529.25	69.53	1.65	1.65	70.00	0/3	73.01	25.54	46.24	48.67
PV46	PV49	525.55	522.91	75.01	1.65	2.80	70.00	0/3	107.52	27.55	78.64	52.50
PV46	PVT23	525.55	528.18	69.56	1.65	1.65	70.00	0/3	73.03	25.55	46.25	48.69
PV47	PV48	524.96	523.84	73.35	2.00	2.20	70.00	0/3	100.08	26.94	71.84	51.35
PV47	PV50	524.96	528.51	111.75	2.00	1.65	70.00	0/3	130.78	41.05	87.76	78.22
PV48	PV49	523.84	522.91	75.34	2.20	2.80	70.00	0/3	123.60	27.68	94.59	52.74
PV49	PV54	522.91	521.51	76.03	2.80	3.53	70.00	0/3	160.07	27.93	130.79	53.22
PV51	PV52	531.78	532.05	15.71	1.65	1.65	70.00	0/3	16.49	5.77	10.45	10.99
PV53	PV54	524.06	521.51	70.11	4.34	4.17	70.00	0/3	201.58	25.75	174.59	49.08

Número de poços por profundidades

Profundidade m	Número de poços de visita
1.65	36
1.85	1
2.00	4
2.80	2
3.00	6
2.50	8
5.45	1
3.52	1
4.91	1
2.98	1
4.84	1
6.25	1

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6.44	1
1.91	1
1.67	1
4.07	1
3.25	1
2.33	1
2.78	1
2.54	1
4.49	1
2.20	1
4.34	2
1.90	1
1.74	1
4.41	1
4.17	1
Total	79