Construction of

220 kV Loop in Loop out Paliastomi- into Ozurgeti Substation and

110 kV Double Circuit (D/C) Overhead Line from Ozurgeti Substation to Zoti HPP

Foundation Drawings of Tower Type "12A-LC"

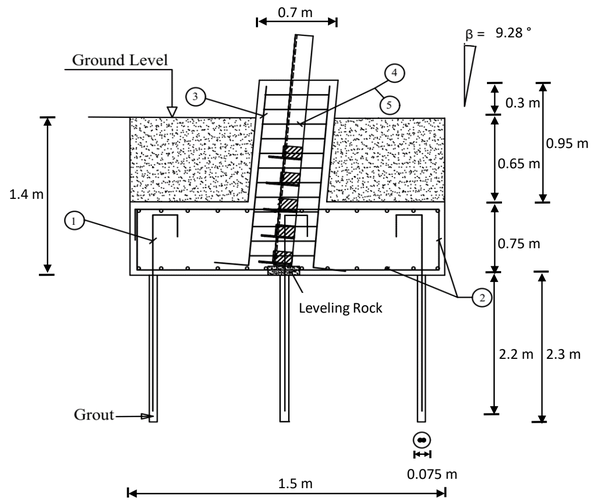
(for all soil types)

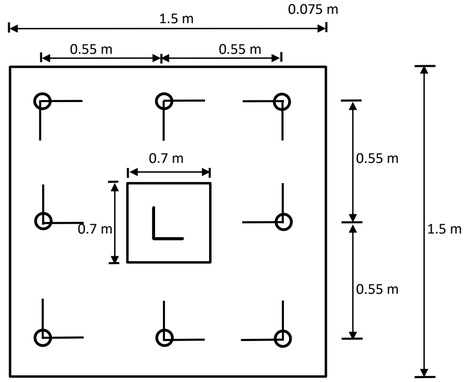
1	1/11/2022	Revised as per Consultant Comments	D. Nezamolmolki	H.O.Bulut	K. Karagoz
0	21/07/22	First Submission	D. Nezamolmolki	H.O.Bulut	K. Karagoz
Rev. No.	Date	Description	Designed by	Checked by	Approved by

Employer Logo and Business Name	Project Name
GEORGIAN STATE ELECTROSYSTEM 2 Baratashvili Street Tbilisi 0105 Georgia	Open Programme Extension of the Transmission Network II BMZ No. 2015 68 286
Engineer logo and business name	Contract Identification Number
Fichtner GmbH & Co. KG Sarweystrasse 3 70191 Stuttgart / Germany	KfW/DSI/OHL-TD-Lot 2
Contractor logo and business name	Document Number
MITAS Energy & Metal Construction Inc. Eski Güvercinlik Yolu No: 113 Gazi 06560 Ankara / Turkey	7145A07-EG-FND-DWG-0607_01

Document Title	Scale	Sheet of Sheets
Foundation Drawings of Tower Type "12A-LC" **(for all soil types)**	**n.a.**	Page 1 of 10

Soil Type:	Type 1-Sound Rock
Foundation Type:	Rock Anchor
Tower Type:	12A-LC





Dimensions (m)

Width of Pad	bp =	1.50
Height of Pad	hp =	0.75
Width of Chimney	bc =	0.70
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	0.65
Total Height of Chimney	hc =	0.95
No. of Anchor Hole Rows	n =	3
No. of Anchor in one hole	m =	2
Total No. of Anchor Holes	i =	8
Distance of Anchor Rows	C =	0.550
Embeded Length of Anchors in Ground	L =	2.20
Anchor Hole Diameter (Minimum Value)	Dh =	0.075
Anchor Hole Length	Lh =	2.30
Depth of Pad	H =	1.40

Quantities

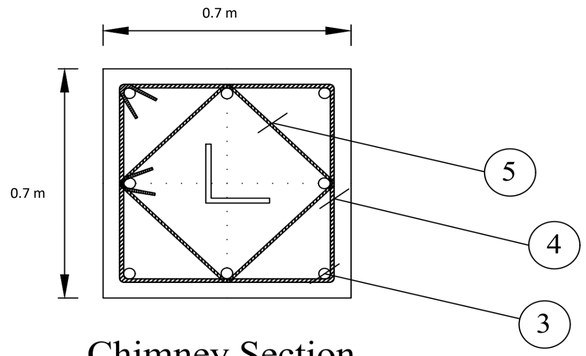
Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	2.15	8.61
Excavation (Rock)	m3	3.15	12.60
Backfill	m3	1.00	3.99
Formwork	m2	2.66	10.64
Grout	m3	0.08	0.32
Drilling	m3	0.08	0.32
Reinforcement	kg	300	1198

Material Specifications

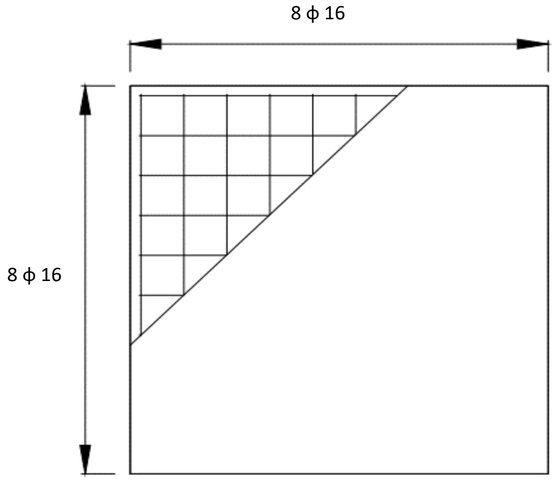
Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Grout and Steel Bond Stress	2.00	Mpa
Grout and Rock Bond Stress	0.90	Mpa
Concrete and Rebar Bond Stress	2.30	Mpa
Soil Density	2.55	ton/m3
Bearing Capacity of Soils	10.19	kg/cm2

* The foundation is in direct contact with undisturbed soil.

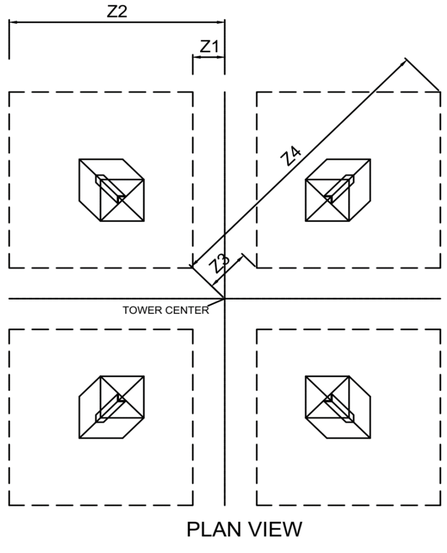
Mark	Pattern	Length (cm)	Diameter (mm)	Unit Weight (kg)	QTY	Total Weight
1	285, 30, 20	335	20	8.27	16	132.4
2	35, 135, 60	425	16	6.72	16	107.5
3	155, 40	195	20	4.82	8	38.5
4	58, 58	251	8	0.992	12	12.2
5	40	182	8	0.72	12	8.9
				SUM		299.5



Chimney Section



Pad Rebars



PLAN VIEW

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions
8- Expanding Grout to be used as per Technical Specification or Manufacturer Instruction.

BODY EXTENSIONS	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	-3	2830	4330	4003	6124
	-1.5	3075	4575	4349	6471
	+0	3320	4820	4696	6817
	+1.5	3566	5066	5043	7164
	+3	3811	5311	5389	7511
	+4.5	4056	5556	5736	7857
	+6	4301	5801	6083	8204
BE+0	-3	3320	4820	4696	6817
	-1.5	3566	5066	5043	7164
	+0	3811	5311	5389	7511
	+1.5	4056	5556	5736	7857
	+3	4301	5801	6083	8204
	+4.5	4546	6046	6429	8551
	+6	4791	6291	6776	8898
BE+3	-3	3811	5311	5389	7511
	-1.5	4056	5556	5736	7857
	+0	4301	5801	6083	8204
	+1.5	4546	6046	6429	8551
	+3	4791	6291	6776	8898
	+4.5	5037	6537	7123	9244
	+6	5282	6782	7470	9591
BE+6	-3	4301	5801	6083	8204
	-1.5	4546	6046	6429	8551
	+0	4791	6291	6776	8898
	+1.5	5037	6537	7123	9244
	+3	5282	6782	7470	9591
	+4.5	5527	7027	7816	9938
	+6	5772	7272	8163	10284
BE+9	-3	4791	6291	6776	8898
	-1.5	5037	6537	7123	9244
	+0	5282	6782	7470	9591
	+1.5	5527	7027	7816	9938
	+3	5772	7272	8163	10284
	+4.5	6017	7517	8510	10631
	+6	6262	7762	8856	10978
BE+12	-3	5282	6782	7470	9591
	-1.5	5527	7027	7816	9938
	+0	5772	7272	8163	10284
	+1.5	6017	7517	8510	10631
	+3	6262	7762	8856	10978
	+4.5	6508	8008	9203	11325
	+6	6753	8253	9550	11671

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

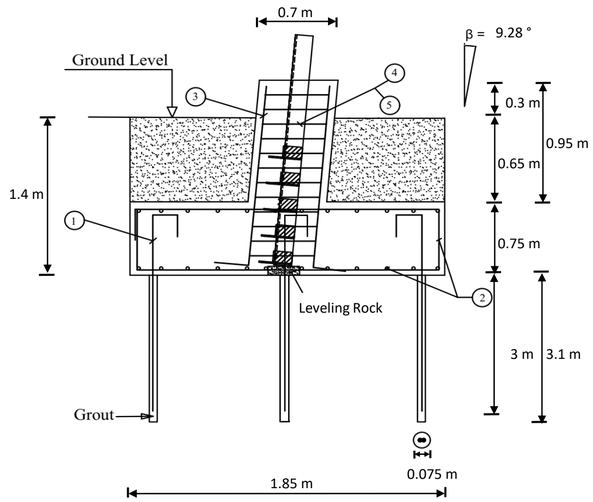
ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
info@fichtner.de

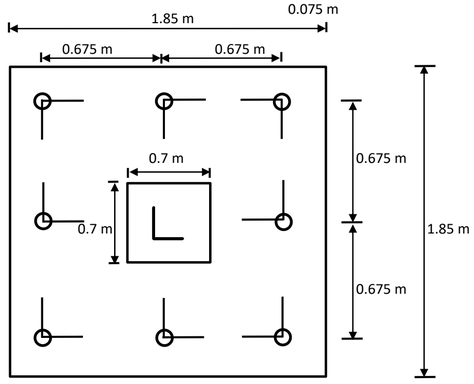
CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
info@mitastower.com

APPROVAL AREA / მეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	'' 12A-LC ''	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 1-Sound Rock	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Rock Anchor Foundation	

SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	2 of 10

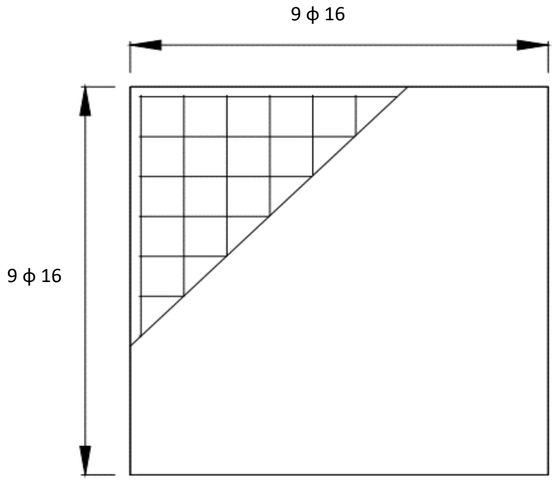
Soil Type:	Type 2-Deleterious Rock
Foundation Type:	Rock Anchor
Tower Type:	12A-LC



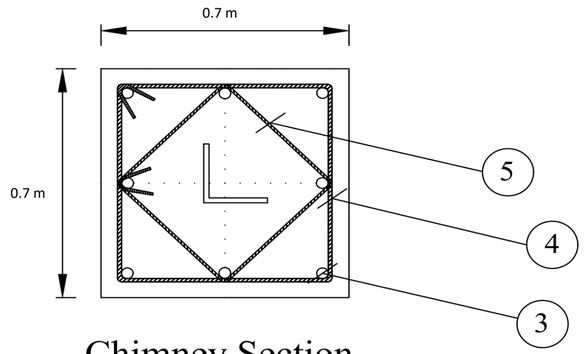


* The foundation is in direct contact with undisturbed soil.

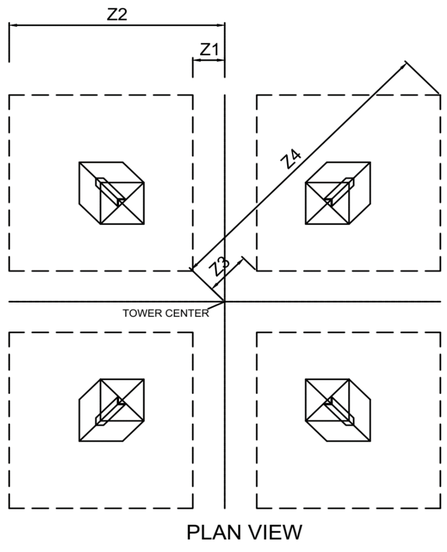
Mark	Pattern	Length (cm)	Diameter (mm)	Unit Weight (kg)	QTY	Total Weight
1	365, 30, 20	415	20	10.25	16	164.0
2	35, 170, 60	495	16	7.82	18	140.8
3	155, 40	195	20	4.82	8	38.5
4	58, 58	251	8	0.992	12	12.2
5	40	182	8	0.72	12	8.9
				SUM		364.5



Pad Rebars



Chimney Section



PLAN VIEW

Dimensions (m)

Width of Pad	bp =	1.85
Height of Pad	hp =	0.75
Width of Chimney	bc =	0.70
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	0.65
Total Height of Chimney	hc =	0.95
No. of Anchor Hole Rows	n =	3
No. of Anchor in one hole	m =	2
Total No. of Anchor Holes	i =	8
Distance of Anchor Rows	C =	0.675
Embeded Length of Anchors in Ground	L =	3.00
Anchor Hole Diameter (Minimum Value)	Dh =	0.075
Anchor Hole Length	Lh =	3.10
Depth of Pad	H =	1.40

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	3.03	12.13
Excavation (Rock)	m3	4.79	19.17
Backfill	m3	1.76	7.04
Formwork	m2	2.66	10.64
Grout	m3	0.11	0.44
Drilling	m3	0.11	0.44
Reinforcement	kg	364	1458

Material Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Grout and Steel Bond Stress	2.00	Mpa
Grout and Rock Bond Stress	0.60	Mpa
Concrete and Rebar Bond Stress	2.30	Mpa
Soil Density	2.04	ton/m3
Bearing Capacity of Soils	5.10	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions
8- Expanding Grout to be used as per Technical Specification or Manufacturer Instruction.

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	2655	4505	3755	6371
	-1.5	2900	4750	4102	6718
	+0	3145	4995	4448	7065
	+1.5	3391	5241	4795	7411
	+3	3636	5486	5142	7758
	+4.5	3881	5731	5489	8105
	+6	4126	5976	5835	8452
BE+0	**-3**	3145	4995	4448	7065
	-1.5	3391	5241	4795	7411
	+0	3636	5486	5142	7758
	+1.5	3881	5731	5489	8105
	+3	4126	5976	5835	8452
	+4.5	4371	6221	6182	8798
	+6	4616	6466	6529	9145
BE+3	**-3**	3636	5486	5142	7758
	-1.5	3881	5731	5489	8105
	+0	4126	5976	5835	8452
	+1.5	4371	6221	6182	8798
	+3	4616	6466	6529	9145
	+4.5	4862	6712	6875	9492
	+6	5107	6957	7222	9838
BE+6	**-3**	4126	5976	5835	8452
	-1.5	4371	6221	6182	8798
	+0	4616	6466	6529	9145
	+1.5	4862	6712	6875	9492
	+3	5107	6957	7222	9838
	+4.5	5352	7202	7569	10185
	+6	5597	7447	7916	10532
BE+9	**-3**	4616	6466	6529	9145
	-1.5	4862	6712	6875	9492
	+0	5107	6957	7222	9838
	+1.5	5352	7202	7569	10185
	+3	5597	7447	7916	10532
	+4.5	5842	7692	8262	10879
	+6	6087	7937	8609	11225
BE+12	**-3**	5107	6957	7222	9838
	-1.5	5352	7202	7569	10185
	+0	5597	7447	7916	10532
	+1.5	5842	7692	8262	10879
	+3	6087	7937	8609	11225
	+4.5	6333	8183	8956	11572
	+6	6578	8428	9302	11919

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

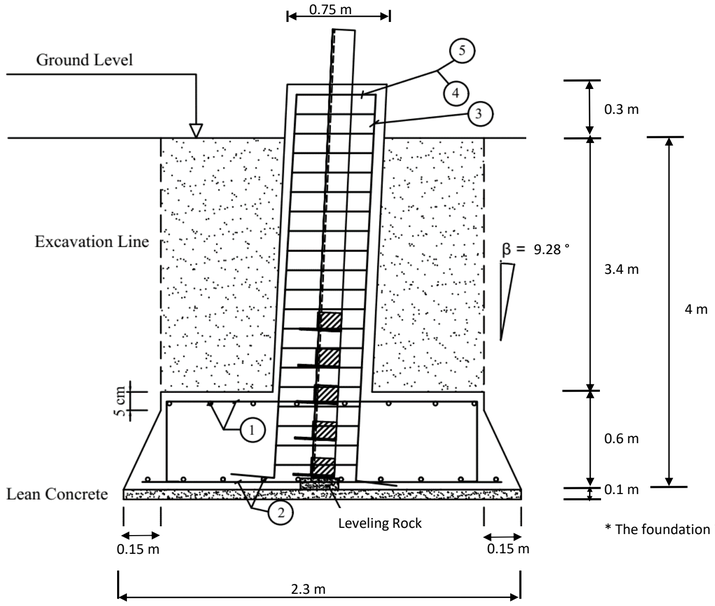
ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
info@fichtner.de

CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
info@mitastower.com

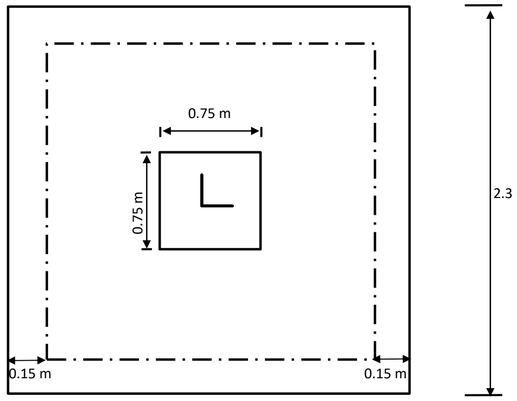
APPROVAL AREA / მეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	'' 12A-LC ''	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 2-Deleterious Rock	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Rock Anchor Foundation	

SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	3 of 10

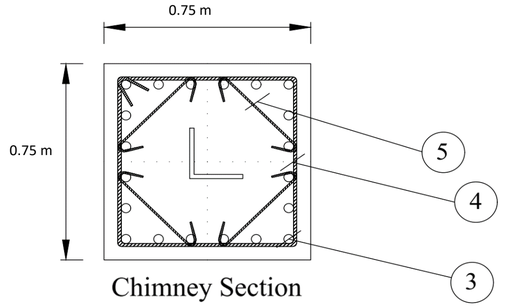
Soil Type:	Type 2-Deleterious Rock
Foundation Type:	Semi-Auger
Tower Type:	12A-LC



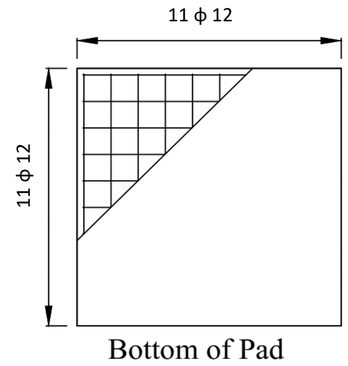
* The foundation is in direct contact with undisturbed soil.



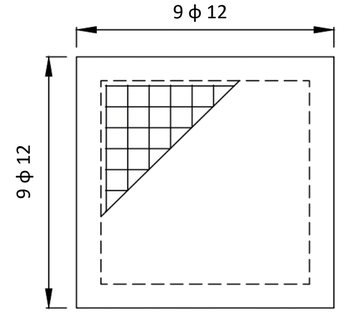
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	185, 45, 15	305	12	2.71	18	48.8
2	215	215	12	1.91	22	42.0
3	40, 415	455	16	7.19	20	143.8
4	62, 62	270	8	1.06	29	30.9
5	35	50	8	0.20	116	22.9
					SUM	288.3



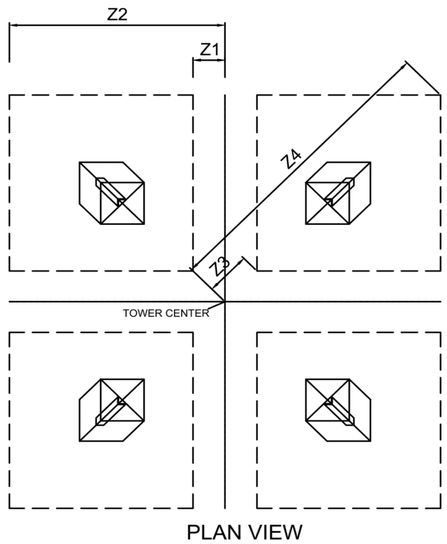
Chimney Section



Bottom of Pad



Top of Pad



PLAN VIEW

Dimensions (m)

Width of Pad	bp =	2.30
Height of Pad	hp =	0.60
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	4.9	19.4
Excavation	m3	16.4	65.6
Backfill	m3	11.5	46.2
Lean Concrete	m3	0.5	2.1
Formwork	m2	11.1	44.4
Reinforcement	kg	288.3	1153.2

Material and Soil Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	2.04	ton/m3
Backfill Density	2.04	ton/m3
Bearing Capacity of Soils	5.10	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	3005	5005	4249	7078
	-1.5	3250	5250	4596	7425
	+0	3495	5495	4943	7771
	+1.5	3740	5740	5290	8118
	+3	3985	5985	5636	8465
	+4.5	4231	6231	5983	8811
	+6	4476	6476	6330	9158
BE+0	**-3**	3495	5495	4943	7771
	-1.5	3740	5740	5290	8118
	+0	3985	5985	5636	8465
	+1.5	4231	6231	5983	8811
	+3	4476	6476	6330	9158
	+4.5	4721	6721	6676	9505
	+6	4966	6966	7023	9852
BE+3	**-3**	3985	5985	5636	8465
	-1.5	4231	6231	5983	8811
	+0	4476	6476	6330	9158
	+1.5	4721	6721	6676	9505
	+3	4966	6966	7023	9852
	+4.5	5211	7211	7370	10198
	+6	5456	7456	7717	10545
BE+6	**-3**	4476	6476	6330	9158
	-1.5	4721	6721	6676	9505
	+0	4966	6966	7023	9852
	+1.5	5211	7211	7370	10198
	+3	5456	7456	7717	10545
	+4.5	5702	7702	8063	10892
	+6	5947	7947	8410	11238
BE+9	**-3**	4966	6966	7023	9852
	-1.5	5211	7211	7370	10198
	+0	5456	7456	7717	10545
	+1.5	5702	7702	8063	10892
	+3	5947	7947	8410	11238
	+4.5	6192	8192	8757	11585
	+6	6437	8437	9103	11932
BE+12	**-3**	5456	7456	7717	10545
	-1.5	5702	7702	8063	10892
	+0	5947	7947	8410	11238
	+1.5	6192	8192	8757	11585
	+3	6437	8437	9103	11932
	+4.5	6682	8682	9450	12279
	+6	6927	8927	9797	12625

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

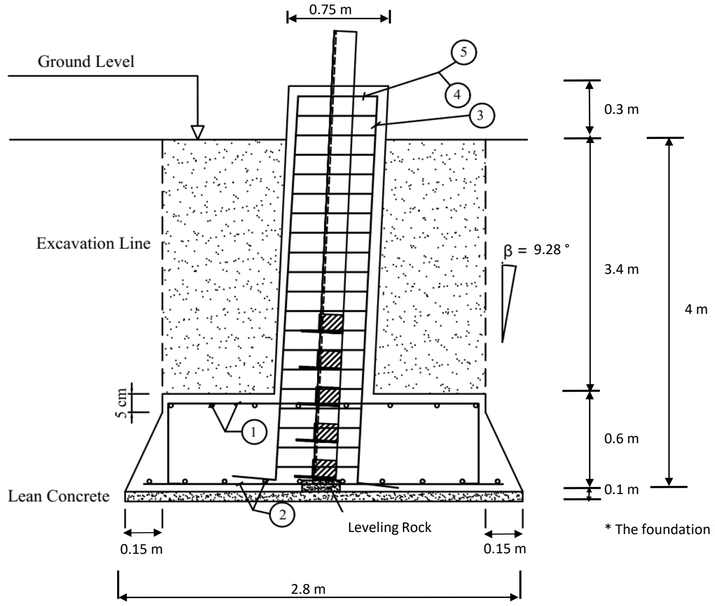
ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
info@fichtner.de

CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
info@mitastower.com

APPROVAL AREA / შეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	" 12A-LC "	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 2-Deleterious Rock	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Semi-Auger Foundation	

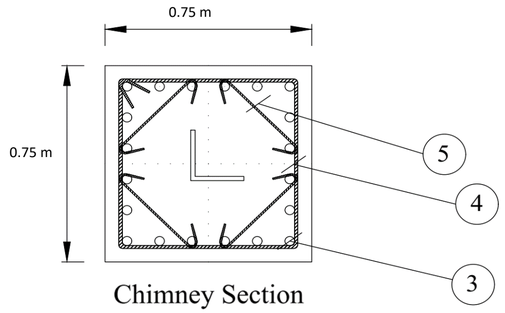
SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	4 of 10

Soil Type:	Type 3-Good Soil
Foundation Type:	Semi-Auger
Tower Type:	12A-LC

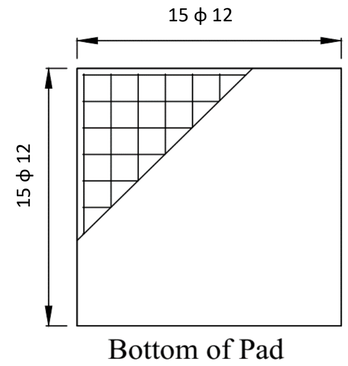


* The foundation is in direct contact with undisturbed soil.

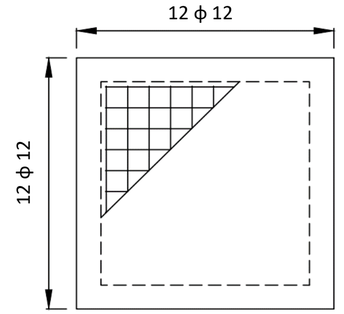
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	235, 45, 15	355	12	3.15	24	75.7
2	265	265	12	2.35	30	70.6
3	40, 415	455	16	7.19	20	143.8
4	62, 62	270	8	1.06	29	30.9
5	35	50	8	0.20	116	22.9
					SUM	343.8



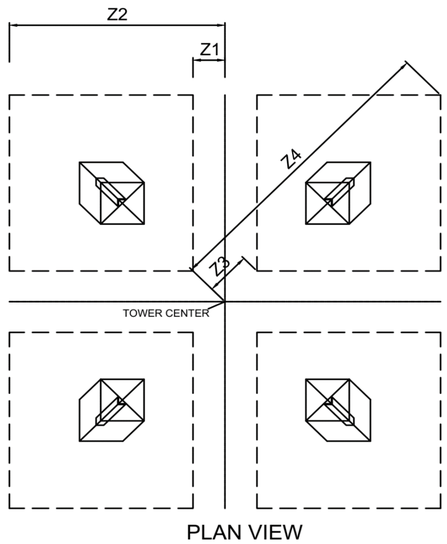
Chimney Section



Bottom of Pad



Top of Pad



PLAN VIEW

Dimensions (m)		
Width of Pad	bp =	2.80
Height of Pad	hp =	0.60
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities			
Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	6.3	25.2
Excavation	m3	25.6	102.5
Backfill	m3	19.3	77.3
Lean Concrete	m3	0.8	3.1
Formwork	m2	11.1	44.4
Reinforcement	kg	343.8	1375.2

Material and Soil Specifications		
Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	1.73	ton/m3
Backfill Density	1.73	ton/m3
Bearing Capacity of Soils	3.06	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	2755	5255	3896	7431
	-1.5	3000	5500	4243	7778
	+0	3245	5745	4589	8125
	+1.5	3490	5990	4936	8472
	+3	3735	6235	5283	8818
	+4.5	3981	6481	5629	9165
	+6	4226	6726	5976	9512
BE+0	**-3**	3245	5745	4589	8125
	-1.5	3490	5990	4936	8472
	+0	3735	6235	5283	8818
	+1.5	3981	6481	5629	9165
	+3	4226	6726	5976	9512
	+4.5	4471	6971	6323	9858
	+6	4716	7216	6670	10205
BE+3	**-3**	3735	6235	5283	8818
	-1.5	3981	6481	5629	9165
	+0	4226	6726	5976	9512
	+1.5	4471	6971	6323	9858
	+3	4716	7216	6670	10205
	+4.5	4961	7461	7016	10552
	+6	5206	7706	7363	10899
BE+6	**-3**	4226	6726	5976	9512
	-1.5	4471	6971	6323	9858
	+0	4716	7216	6670	10205
	+1.5	4961	7461	7016	10552
	+3	5206	7706	7363	10899
	+4.5	5452	7952	7710	11245
	+6	5697	8197	8056	11592
BE+9	**-3**	4716	7216	6670	10205
	-1.5	4961	7461	7016	10552
	+0	5206	7706	7363	10899
	+1.5	5452	7952	7710	11245
	+3	5697	8197	8056	11592
	+4.5	5942	8442	8403	11939
	+6	6187	8687	8750	12285
BE+12	**-3**	5206	7706	7363	10899
	-1.5	5452	7952	7710	11245
	+0	5697	8197	8056	11592
	+1.5	5942	8442	8403	11939
	+3	6187	8687	8750	12285
	+4.5	6432	8932	9097	12632
	+6	6677	9177	9443	12979

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
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CONTRACTOR / კონტრაქტორი :
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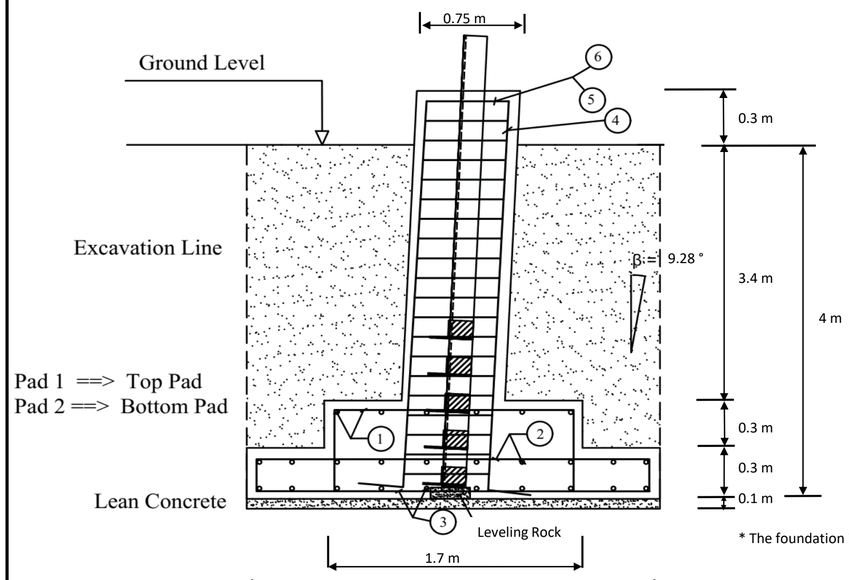
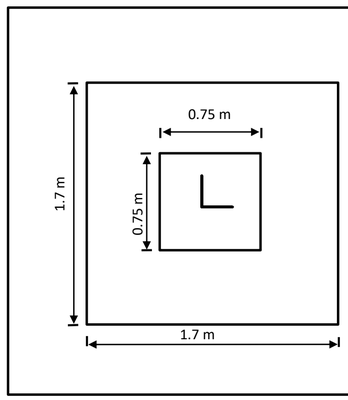
info@mitastower.com

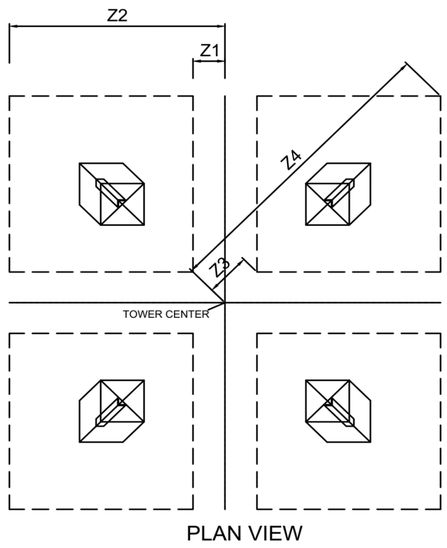
APPROVAL AREA / შეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	'' 12A-LC ''	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 3-Good Soil	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Semi-Auger Foundation	

SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	5 of 10

Soil Type:	Type 3-Good Soil
Foundation Type:	Pad & Chimney
Tower Type:	12A-LC

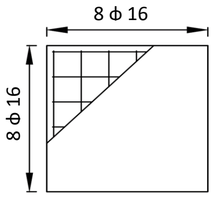




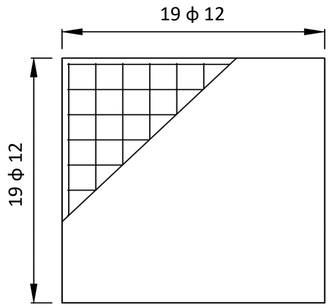


PLAN VIEW

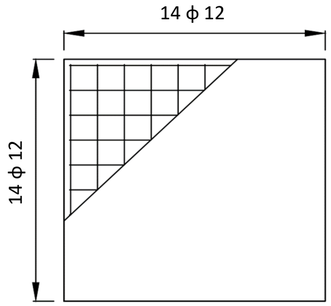
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	155, 45, 15	275	16	4.35	16	69.5
2	310, 15, 15	370	12	3.29	28	92.0
3	310	310	12	2.75	38	104.6
4	40, 415	455	16	7.19	20	143.8
5	62, 62	270	8	1.06	29	30.9
6	35	50	8	0.20	116	22.9
					SUM	463.7



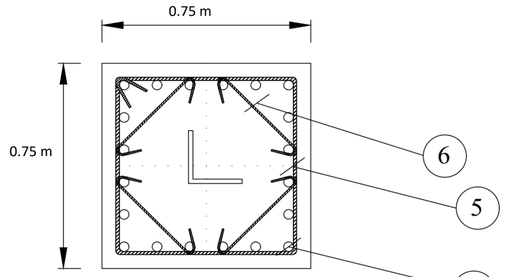
Top of Pad 1



Bottom of Pad 2



Top of Pad 2



Chimney Section

* The foundation is in direct contact with undisturbed soil.

Dimensions (m)

Width of Pad1	bp1 =	1.70
Width of Pad2	bp2 =	3.25
Height of Pad1	hp1 =	0.30
Height of Pad2	hp2 =	0.30
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	6.1	24.5
Excavation	m3	43.3	173.2
Backfill	m3	37.2	148.8
Lean Concrete	m3	1.1	4.2
Formwork	m2	13.1	52.6
Reinforcement	kg	463.7	1854.7

Material and Soil Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	1.73	ton/m3
Backfill Density	1.73	ton/m3
Bearing Capacity of Soils	3.06	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	2380	5630	3366	7962
	-1.5	2625	5875	3712	8309
	+0	2870	6120	4059	8655
	+1.5	3115	6365	4406	9002
	+3	3360	6610	4752	9349
	+4.5	3606	6856	5099	9695
	+6	3851	7101	5446	10042
BE+0	**-3**	2870	6120	4059	8655
	-1.5	3115	6365	4406	9002
	+0	3360	6610	4752	9349
	+1.5	3606	6856	5099	9695
	+3	3851	7101	5446	10042
	+4.5	4096	7346	5793	10389
	+6	4341	7591	6139	10735
BE+3	**-3**	3360	6610	4752	9349
	-1.5	3606	6856	5099	9695
	+0	3851	7101	5446	10042
	+1.5	4096	7346	5793	10389
	+3	4341	7591	6139	10735
	+4.5	4586	7836	6486	11082
	+6	4831	8081	6833	11429
BE+6	**-3**	3851	7101	5446	10042
	-1.5	4096	7346	5793	10389
	+0	4341	7591	6139	10735
	+1.5	4586	7836	6486	11082
	+3	4831	8081	6833	11429
	+4.5	5077	8327	7179	11776
	+6	5322	8572	7526	12122
BE+9	**-3**	4341	7591	6139	10735
	-1.5	4586	7836	6486	11082
	+0	4831	8081	6833	11429
	+1.5	5077	8327	7179	11776
	+3	5322	8572	7526	12122
	+4.5	5567	8817	7873	12469
	+6	5812	9062	8220	12816
BE+12	**-3**	4831	8081	6833	11429
	-1.5	5077	8327	7179	11776
	+0	5322	8572	7526	12122
	+1.5	5567	8817	7873	12469
	+3	5812	9062	8220	12816
	+4.5	6057	9307	8566	13162
	+6	6302	9552	8913	13509

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
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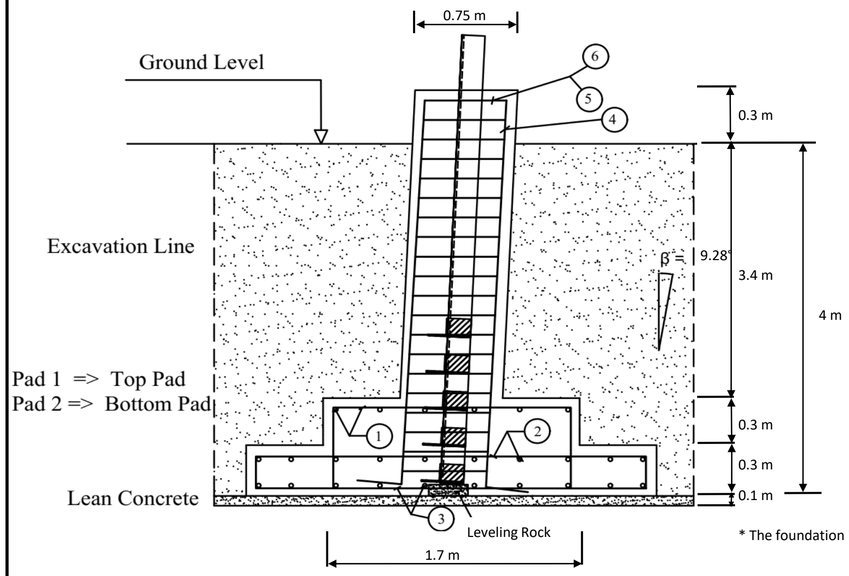
CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
info@mitastower.com

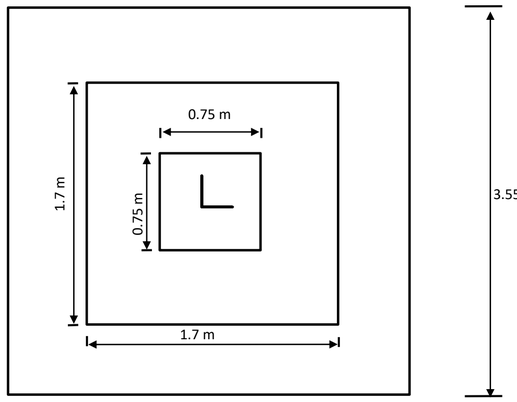
APPROVAL AREA / შეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	'' 12A-LC ''	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 3-Good Soil	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Pad & Chimney Foundation	

SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	6 of 10

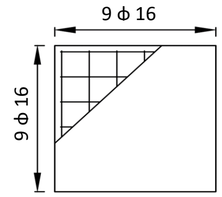
Soil Type:	Type 4-Normal Soil-Dry
Foundation Type:	Pad & Chimney
Tower Type:	12A-LC



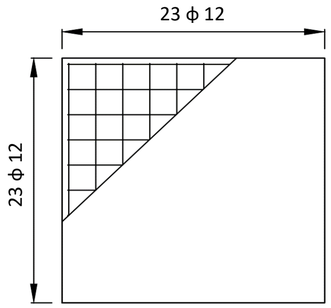
* The foundation is cast inside formwork.



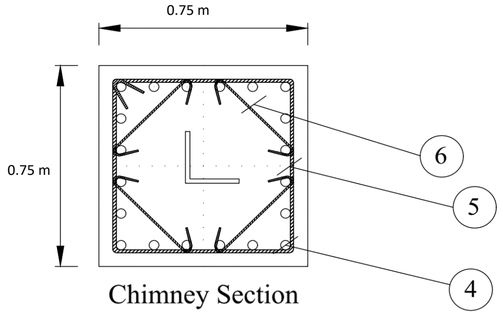
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	155, 45, 15	275	16	4.35	18	78.2
2	340, 15, 15	400	12	3.55	34	120.8
3	340	340	12	3.02	46	138.9
4	40, 415	455	16	7.19	20	143.8
5	62, 62	270	8	1.06	29	30.9
6	35	50	8	0.20	116	22.9
					SUM	535.4



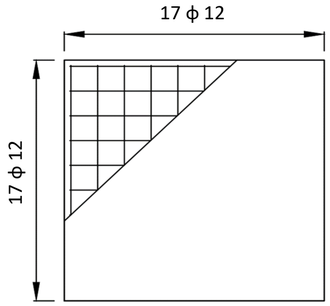
Top of Pad 1



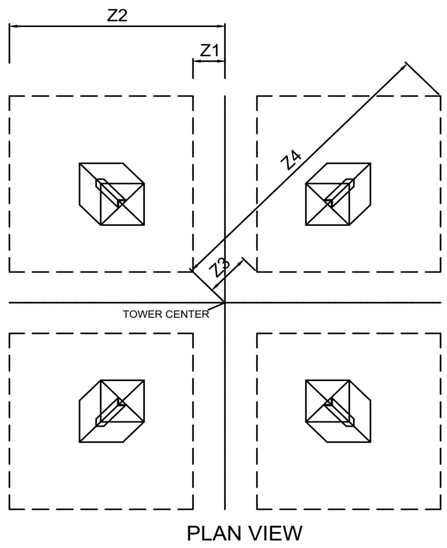
Bottom of Pad 2



Chimney Section



Top of Pad 2



PLAN VIEW

Dimensions (m)

Width of Pad1	bp1 =	1.70
Width of Pad2	bp2 =	3.55
Height of Pad1	hp1 =	0.30
Height of Pad2	hp2 =	0.30
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	6.7	26.9
Excavation	m3	84.9	339.5
Backfill	m3	78.2	312.6
Lean Concrete	m3	1.7	6.9
Formwork	m2	17.4	69.6
Reinforcement	kg	535.4	2141.6

Material and Soil Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	1.83	ton/m3
Backfill Density	1.83	ton/m3
Bearing Capacity of Soils	2.04	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	2230	5780	3153	8174
	-1.5	2475	6025	3500	8521
	+0	2720	6270	3847	8867
	+1.5	2965	6515	4194	9214
	+3	3210	6760	4540	9561
	+4.5	3456	7006	4887	9907
	+6	3701	7251	5234	10254
BE+0	**-3**	2720	6270	3847	8867
	-1.5	2965	6515	4194	9214
	+0	3210	6760	4540	9561
	+1.5	3456	7006	4887	9907
	+3	3701	7251	5234	10254
	+4.5	3946	7496	5580	10601
	+6	4191	7741	5927	10948
BE+3	**-3**	3210	6760	4540	9561
	-1.5	3456	7006	4887	9907
	+0	3701	7251	5234	10254
	+1.5	3946	7496	5580	10601
	+3	4191	7741	5927	10948
	+4.5	4436	7986	6274	11294
	+6	4681	8231	6621	11641
BE+6	**-3**	3701	7251	5234	10254
	-1.5	3946	7496	5580	10601
	+0	4191	7741	5927	10948
	+1.5	4436	7986	6274	11294
	+3	4681	8231	6621	11641
	+4.5	4927	8477	6967	11988
	+6	5172	8722	7314	12334
BE+9	**-3**	4191	7741	5927	10948
	-1.5	4436	7986	6274	11294
	+0	4681	8231	6621	11641
	+1.5	4927	8477	6967	11988
	+3	5172	8722	7314	12334
	+4.5	5417	8967	7661	12681
	+6	5662	9212	8007	13028
BE+12	**-3**	4681	8231	6621	11641
	-1.5	4927	8477	6967	11988
	+0	5172	8722	7314	12334
	+1.5	5417	8967	7661	12681
	+3	5662	9212	8007	13028
	+4.5	5907	9457	8354	13375
	+6	6152	9702	8701	13721

* All dimensions and quantities shall be checked prior to construction

REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ
1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

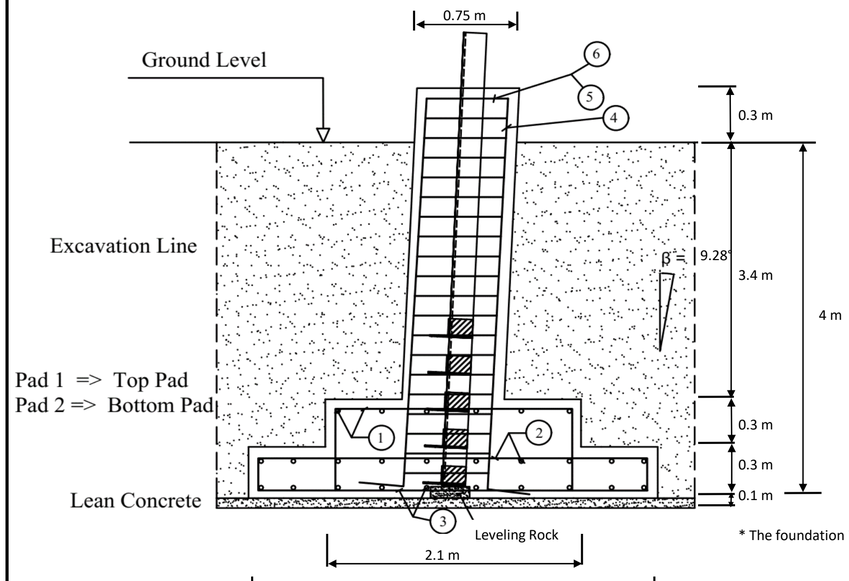
ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
info@fichtner.de

CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
info@mitastower.com

APPROVAL AREA / შეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	'' 12A-LC ''	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 4-Normal Soil-Dry	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Pad & Chimney Foundation	

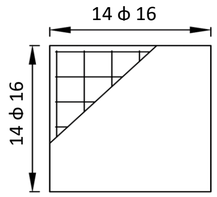
SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	7 of 10

Soil Type:	Type 4-Normal Soil-Submerge
Foundation Type:	Pad & Chimney
Tower Type:	12A-LC

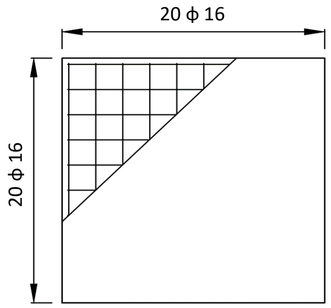


* The foundation is cast inside formwork.

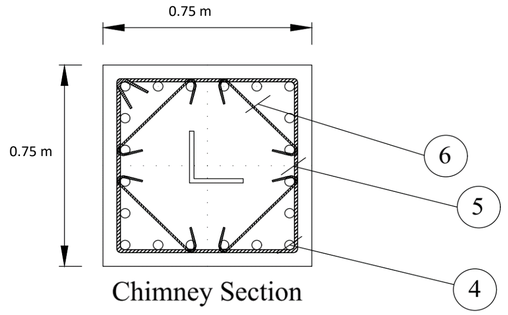
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	195, 45, 15	315	16	4.98	28	139.4
2	465, 15, 15	525	12	4.66	54	251.7
3	465	465	16	7.35	40	293.9
4	40, 415	455	16	7.19	20	143.8
5	62, 62	270	8	1.06	29	30.9
6	35	50	8	0.20	116	22.9
					SUM	882.5



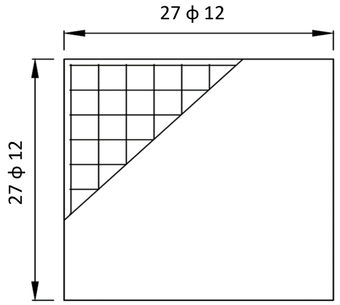
Top of Pad 1



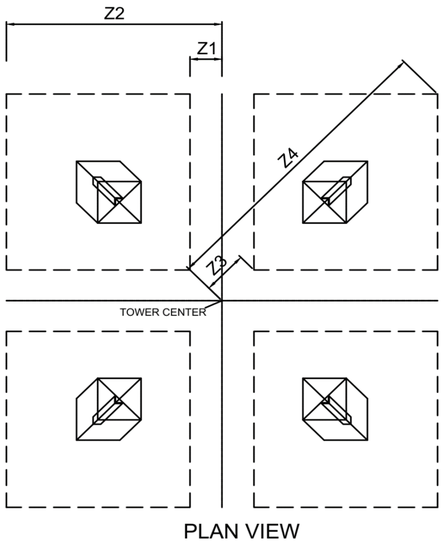
Bottom of Pad 2



Chimney Section



Top of Pad 2



PLAN VIEW

Dimensions (m)

Width of Pad1	bp1 =	2.10
Width of Pad2	bp2 =	4.80
Height of Pad1	hp1 =	0.30
Height of Pad2	hp2 =	0.30
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	10.3	41.3
Excavation	m3	137.9	551.7
Backfill	m3	127.6	510.4
Lean Concrete	m3	2.9	11.7
Formwork	m2	19.4	77.5
Reinforcement	kg	882.5	3530.1

Material and Soil Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	1.02	ton/m3
Backfill Density	1.02	ton/m3
Bearing Capacity of Soils	2.04	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	1605	6405	2270	9058
	-1.5	1850	6650	2616	9405
	+0	2095	6895	2963	9751
	+1.5	2340	7140	3310	10098
	+3	2585	7385	3656	10445
	+4.5	2831	7631	4003	10791
	+6	3076	7876	4350	11138
BE+0	**-3**	2095	6895	2963	9751
	-1.5	2340	7140	3310	10098
	+0	2585	7385	3656	10445
	+1.5	2831	7631	4003	10791
	+3	3076	7876	4350	11138
	+4.5	3321	8121	4697	11485
	+6	3566	8366	5043	11832
BE+3	**-3**	2585	7385	3656	10445
	-1.5	2831	7631	4003	10791
	+0	3076	7876	4350	11138
	+1.5	3321	8121	4697	11485
	+3	3566	8366	5043	11832
	+4.5	3811	8611	5390	12178
	+6	4056	8856	5737	12525
BE+6	**-3**	3076	7876	4350	11138
	-1.5	3321	8121	4697	11485
	+0	3566	8366	5043	11832
	+1.5	3811	8611	5390	12178
	+3	4056	8856	5737	12525
	+4.5	4302	9102	6083	12872
	+6	4547	9347	6430	13218
BE+9	**-3**	3566	8366	5043	11832
	-1.5	3811	8611	5390	12178
	+0	4056	8856	5737	12525
	+1.5	4302	9102	6083	12872
	+3	4547	9347	6430	13218
	+4.5	4792	9592	6777	13565
	+6	5037	9837	7123	13912
BE+12	**-3**	4056	8856	5737	12525
	-1.5	4302	9102	6083	12872
	+0	4547	9347	6430	13218
	+1.5	4792	9592	6777	13565
	+3	5037	9837	7123	13912
	+4.5	5282	10082	7470	14258
	+6	5527	10327	7817	14605

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
JSC Georgian State Electrosystem (GSE)
Baratashvili Street, Tbilisi, Georgia, 0105
info@gse.com.ge

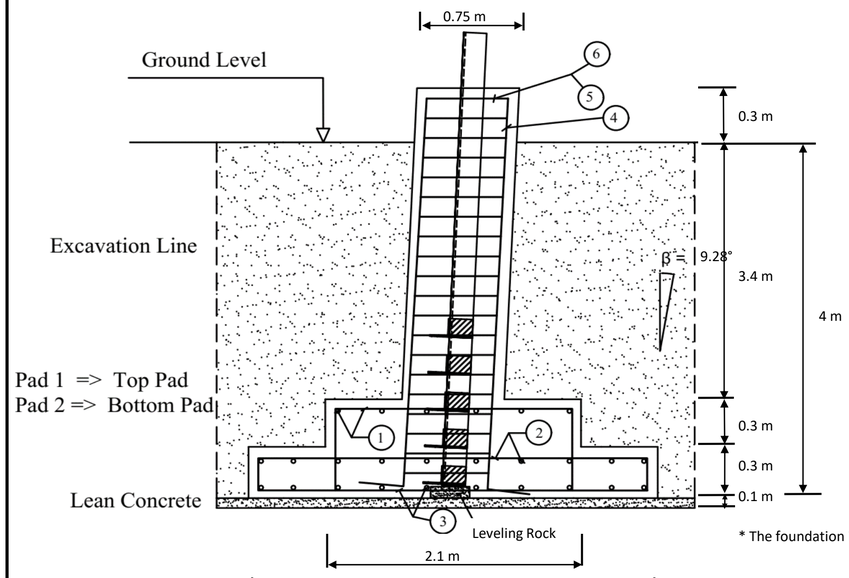
ENGINEER / ინჟინერი :
Fichtner GmbH & Co. KG
Sarweystrasse 370191 Stuttgart / Germany
info@fichtner.de

CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
info@mitastower.com

APPROVAL AREA / შეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	'' 12A-LC ''	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 4-Normal Soil-Submerge	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Pad & Chimney Foundation	

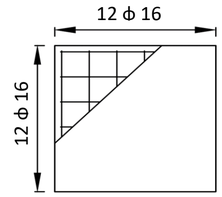
SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
N.A.	7145A07-EG-FND-DWG-0607_01	1	8 of 10

Soil Type:	Type 5-Poor Soil-Dry
Foundation Type:	Pad & Chimney
Tower Type:	12A-LC

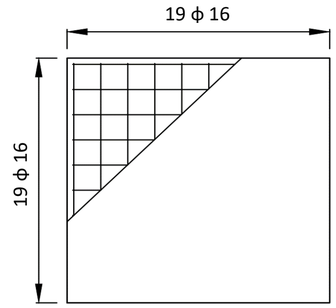


* The foundation is cast inside formwork.

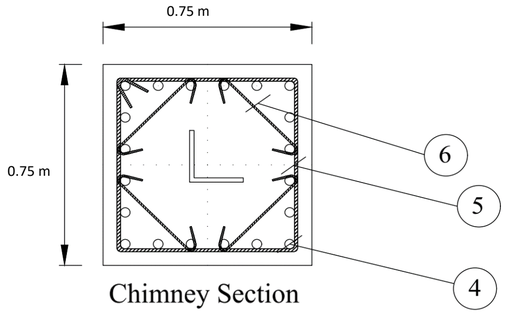
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	195, 45, 15	315	16	4.98	24	119.4
2	440, 15, 15	500	12	4.44	44	195.4
3	440	440	16	6.95	38	264.2
4	40, 415	455	16	7.19	20	143.8
5	62, 62	270	8	1.06	29	30.9
6	35	50	8	0.20	116	22.9
					SUM	776.5



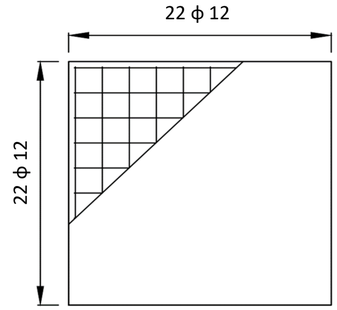
Top of Pad 1



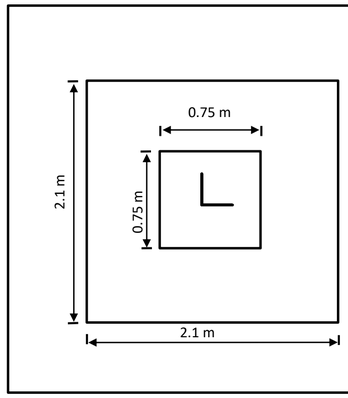
Bottom of Pad 2

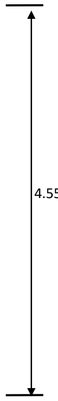


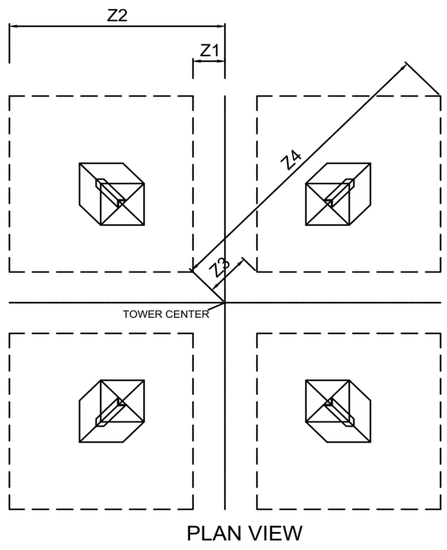
Chimney Section



Top of Pad 2







PLAN VIEW

Dimensions (m)

Width of Pad1	bp1 =	2.10
Width of Pad2	bp2 =	4.55
Height of Pad1	hp1 =	0.30
Height of Pad2	hp2 =	0.30
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	9.6	38.5
Excavation	m3	126.3	505.2
Backfill	m3	116.7	466.7
Lean Concrete	m3	2.7	10.6
Formwork	m2	19.1	76.3
Reinforcement	kg	776.5	3106.1

Material and Soil Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	1.63	ton/m3
Backfill Density	1.63	ton/m3
Bearing Capacity of Soils	1.53	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	1730	6280	2446	8881
	-1.5	1975	6525	2793	9228
	+0	2220	6770	3140	9574
	+1.5	2465	7015	3486	9921
	+3	2710	7260	3833	10268
	+4.5	2956	7506	4180	10615
	+6	3201	7751	4527	10961
BE+0	**-3**	2220	6770	3140	9574
	-1.5	2465	7015	3486	9921
	+0	2710	7260	3833	10268
	+1.5	2956	7506	4180	10615
	+3	3201	7751	4527	10961
	+4.5	3446	7996	4873	11308
	+6	3691	8241	5220	11655
BE+3	**-3**	2710	7260	3833	10268
	-1.5	2956	7506	4180	10615
	+0	3201	7751	4527	10961
	+1.5	3446	7996	4873	11308
	+3	3691	8241	5220	11655
	+4.5	3936	8486	5567	12001
	+6	4181	8731	5913	12348
BE+6	**-3**	3201	7751	4527	10961
	-1.5	3446	7996	4873	11308
	+0	3691	8241	5220	11655
	+1.5	3936	8486	5567	12001
	+3	4181	8731	5913	12348
	+4.5	4427	8977	6260	12695
	+6	4672	9222	6607	13042
BE+9	**-3**	3691	8241	5220	11655
	-1.5	3936	8486	5567	12001
	+0	4181	8731	5913	12348
	+1.5	4427	8977	6260	12695
	+3	4672	9222	6607	13042
	+4.5	4917	9467	6954	13388
	+6	5162	9712	7300	13735
BE+12	**-3**	4181	8731	5913	12348
	-1.5	4427	8977	6260	12695
	+0	4672	9222	6607	13042
	+1.5	4917	9467	6954	13388
	+3	5162	9712	7300	13735
	+4.5	5407	9957	7647	14082
	+6	5652	10202	7994	14428

* All dimensions and quantities shall be checked prior to construction

REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ
1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz

PROJECT NAME / პროექტის დასახელება:
Open Programme Extension of the Transmission Network II
BMZ No. 2015 68 286
Contract Identification No. KfW/DSI/OHL-TD-Lot 2

EMPLOYER / დამკვეთი:
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CONTRACTOR / კონტრაქტორი :
Mitas Energy and Metal Constuction Inc.
Eski Güvercinlik Yolu No: 113 - Gazi Ankara / Turkey
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APPROVAL AREA / შეთანხმებულია		STATUS / სტატუსი AP ☐ AC ☐ NA ☐	STAMP / ბეჭედი:
REVIEWED BY / განხილულია:			
DATE OF REVIEW / განხილვის თარიღი:			
APPROVED BY / დამტკიცებულია:	K.KARAGOZ		
CHECKED BY / შემოწმებულია:	H.O.BULUT	Foundation Drawings of Tower Type	
DESIGNED BY / ავტორი:	D. Nezamolmolki	" 12A-LC "	
DRAWN BY / შემსრულებელი:	D. Nezamolmolki	Soil Type 5-Poor Soil-Dry	
DATE OF ISSUE / გამოცემის თარიღი:	21.07.22	Pad & Chimney Foundation	

SCALE/ მასშტაბი	DOC NO./ დოკუმენტის ნომერი	REV./ რედაქცია	PAGE/ გვერდი
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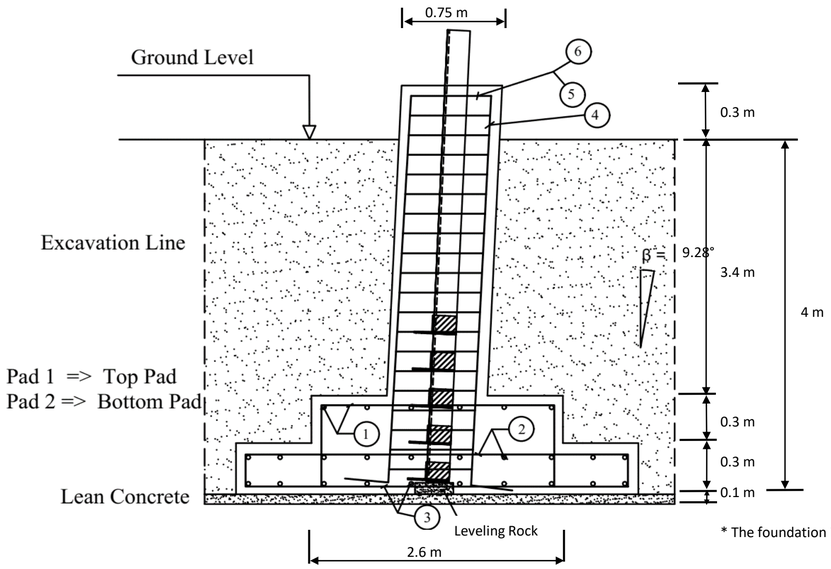
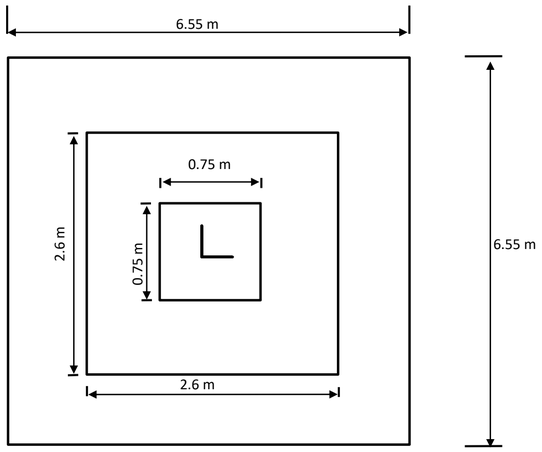
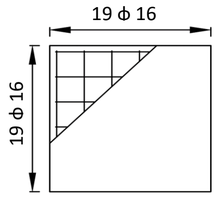
Soil Type:	Type 5-Poor Soil-Submerge
Foundation Type:	Pad & Chimney
Tower Type:	12A-LC



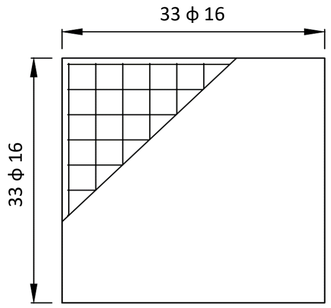
* The foundation is cast inside formwork.



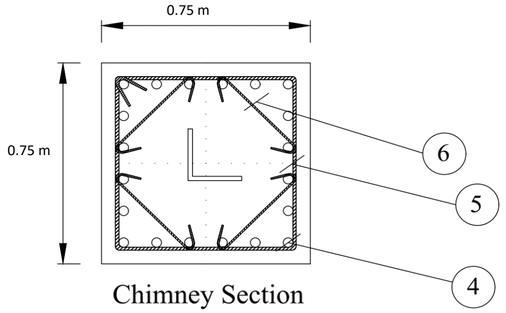
Mark	Pattern	Length cm	Diameter mm	Unit Weight (kg)	QTY	Total Weight (kg)
1	245, 45, 15	365	16	5.77	38	219.1
2	640, 15, 15	700	12	6.22	74	460.0
3	640	640	16	10.11	66	667.4
4	40, 415	455	16	7.19	20	143.8
5	62, 62	270	8	1.06	29	30.9
6	35	50	8	0.20	116	22.9
					SUM	1544.1



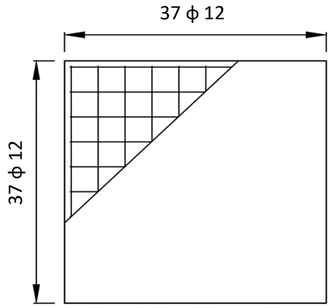
Top of Pad 1



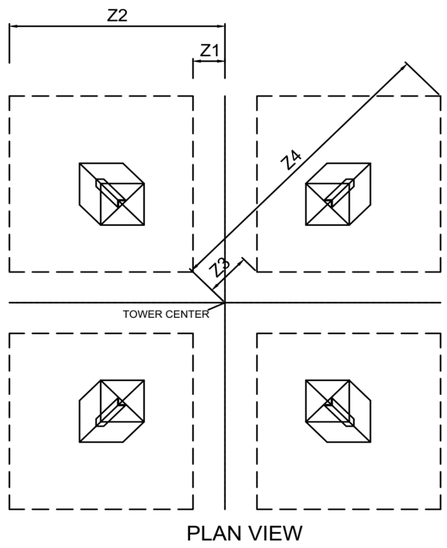
Bottom of Pad 2



Chimney Section



Top of Pad 2



PLAN VIEW

Dimensions (m)

Width of Pad1	bp1 =	2.60
Width of Pad2	bp2 =	6.55
Height of Pad1	hp1 =	0.30
Height of Pad2	hp2 =	0.30
Width of Chimney	bc =	0.75
Height of Chimney above ground level	hc1 =	0.30
Height of Chimney under ground level	hc2 =	3.40
Depth of Pad	H =	4.00

Quantities

Item	Volumes		
	Unit	Per Leg	Per Tower
Concrete	m3	17.0	67.9
Excavation	m3	233.7	934.8
Backfill	m3	216.7	866.9
Lean Concrete	m3	5.1	20.4
Formwork	m2	22.1	88.3
Reinforcement	kg	1544.1	6176.3

Material and Soil Specifications

Characteristic Compressive Strength of Concrete	20	Mpa
Characteristic Strength of Steel Rebar	500	Mpa
Natual Soil Density	0.82	ton/m3
Backfill Density	0.82	ton/m3
Bearing Capacity of Soils	0.82	kg/cm2

NOTES :
1- Concrete Class : C20/25
2- Steel Reinforcement Class : S500
3- Concrete Cover : 75 mm
4- Soil Layer Shall Be Compacted To Maintain Soil Density.
5- Sulphate resistant concrete shall be used in case of aggressive soil conditions.
6- In case of high soil resistance, filling shall be done using soil with low resistance.
7- Concrete surface shall be covered with bitumen in case of aggressive soil conditions

BODY	LEG EXTENSIONS	Z1	Z2	Z3	Z4
		mm	mm	mm	mm
BE-3	**-3**	730	7280	1032	10295
	-1.5	975	7525	1379	10642
	+0	1220	7770	1726	10989
	+1.5	1465	8015	2072	11335
	+3	1710	8260	2419	11682
	+4.5	1956	8506	2766	12029
	+6	2201	8751	3112	12376
BE+0	**-3**	1220	7770	1726	10989
	-1.5	1465	8015	2072	11335
	+0	1710	8260	2419	11682
	+1.5	1956	8506	2766	12029
	+3	2201	8751	3112	12376
	+4.5	2446	8996	3459	12722
	+6	2691	9241	3806	13069
BE+3	**-3**	1710	8260	2419	11682
	-1.5	1956	8506	2766	12029
	+0	2201	8751	3112	12376
	+1.5	2446	8996	3459	12722
	+3	2691	9241	3806	13069
	+4.5	2936	9486	4152	13416
	+6	3181	9731	4499	13762
BE+6	**-3**	2201	8751	3112	12376
	-1.5	2446	8996	3459	12722
	+0	2691	9241	3806	13069
	+1.5	2936	9486	4152	13416
	+3	3181	9731	4499	13762
	+4.5	3427	9977	4846	14109
	+6	3672	10222	5193	14456
BE+9	**-3**	2691	9241	3806	13069
	-1.5	2936	9486	4152	13416
	+0	3181	9731	4499	13762
	+1.5	3427	9977	4846	14109
	+3	3672	10222	5193	14456
	+4.5	3917	10467	5539	14803
	+6	4162	10712	5886	15149
BE+12	**-3**	3181	9731	4499	13762
	-1.5	3427	9977	4846	14109
	+0	3672	10222	5193	14456
	+1.5	3917	10467	5539	14803
	+3	4162	10712	5886	15149
	+4.5	4407	10957	6233	15496
	+6	4652	11202	6579	15843

* All dimensions and quantities shall be checked prior to construction

1	Revised as per Consultant Comments	01.11.22	D.Nz
0	First Submission	21.07.22	D.Nz
REV./ რედაქცია	DESCRIPTION/ აღწერილობა	DATE/ თარიღი	BY/ ვის მიერ

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