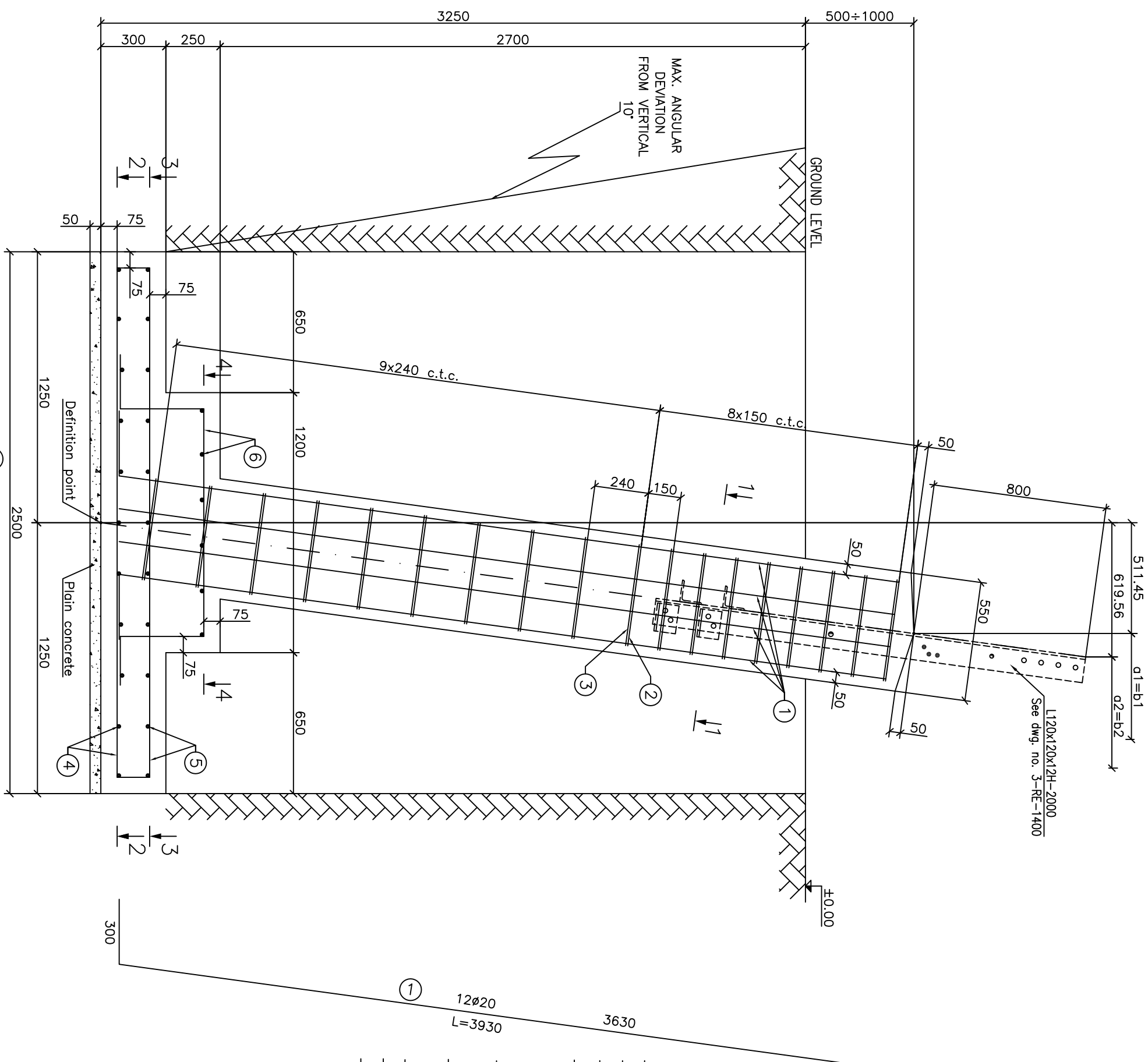


SECTION A-A



MATERIAL LIST PER TOWER

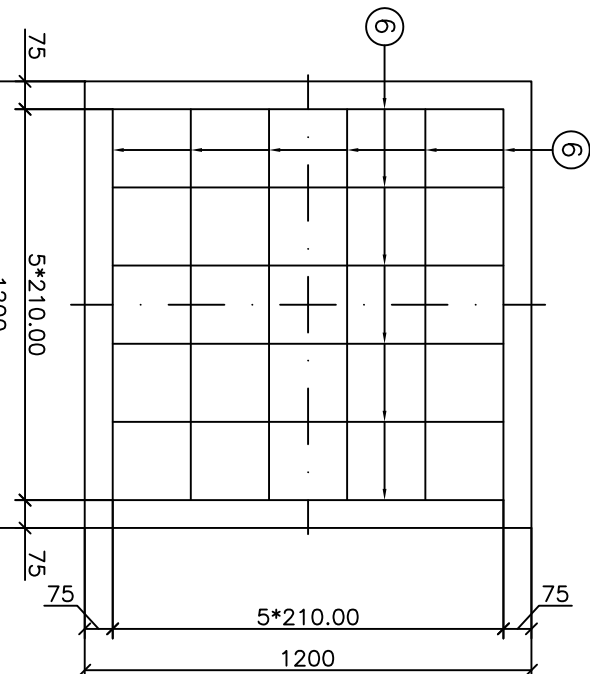
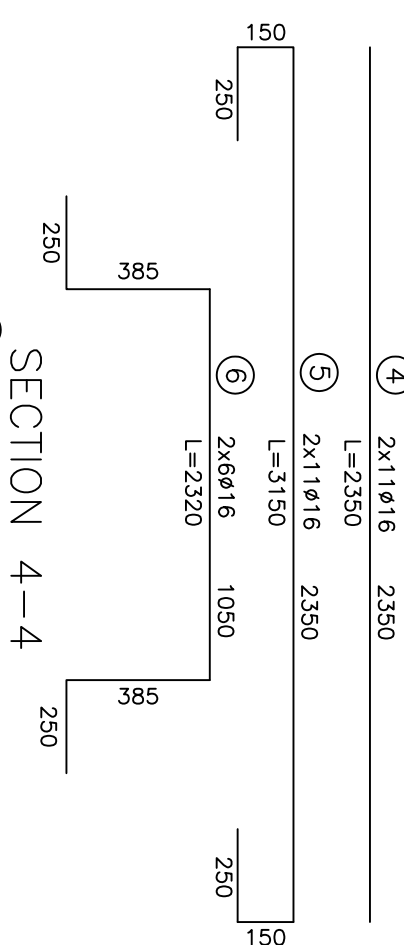
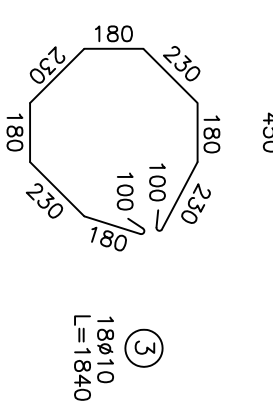
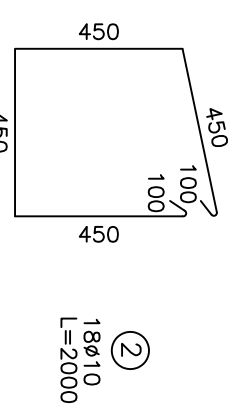
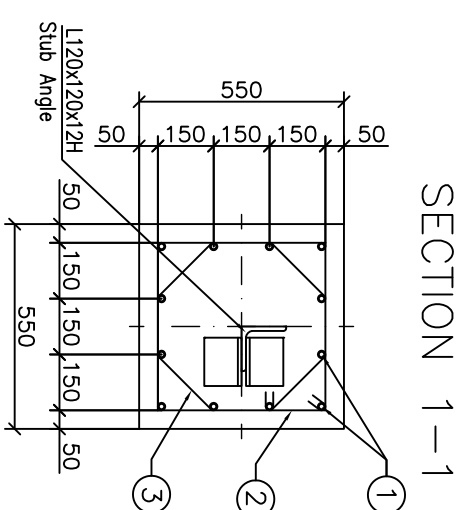
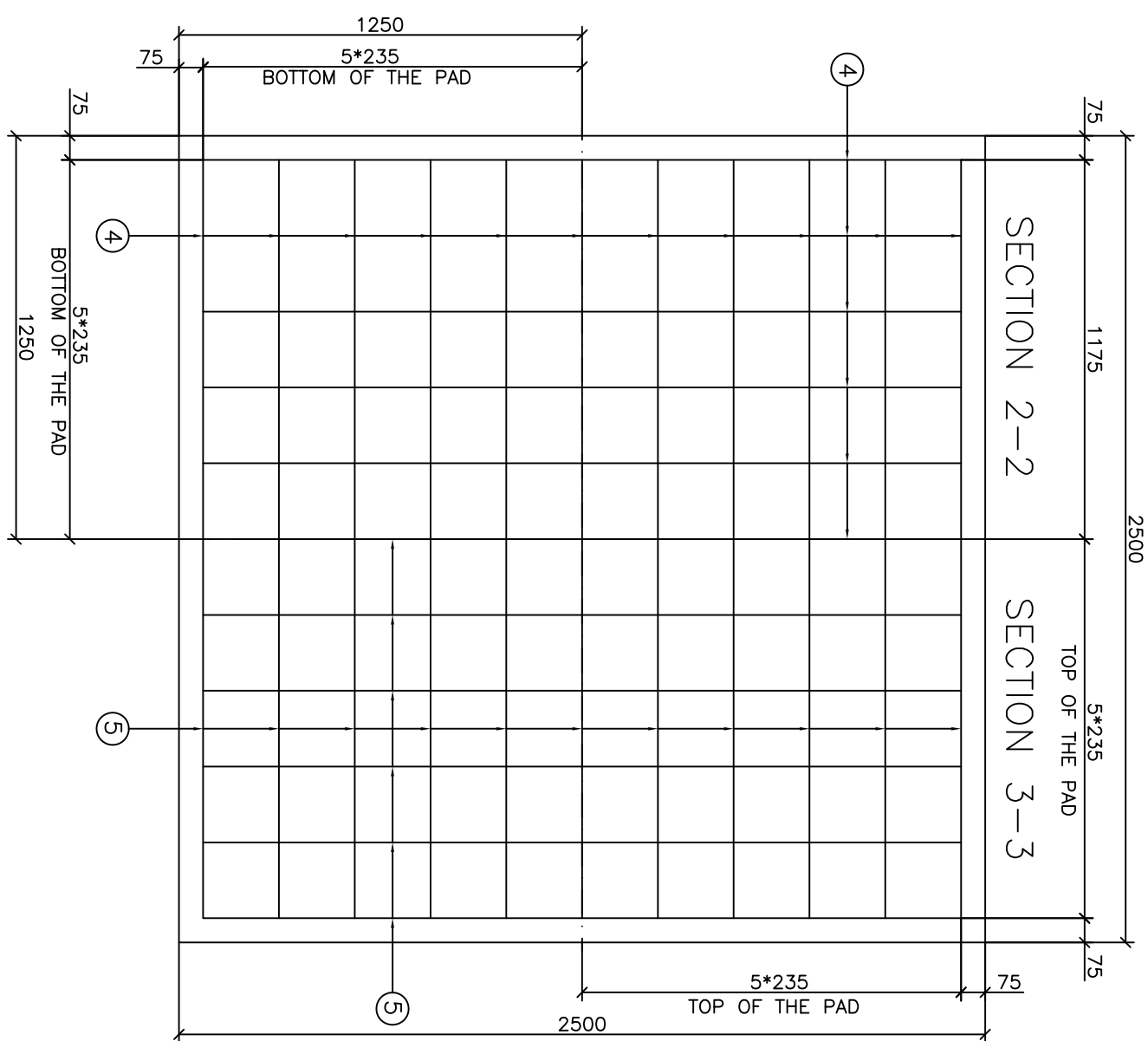
Element	Number of bars	Length of bars (m)								
Den.	Quantity	Steel quality								
		Mark	Ø (mm)	For one element elements	For one bar					
NSK	4 pcs.	1	Ø20	12	48	3.93			188.64	
		2	Ø10	18	72	2.00	144.00			
		3	Ø10	18	72	1.84	132.48			
		4	Ø16	22	88	2.35		206.80		
		5	Ø16	22	88	3.15		277.20		
		6	Ø16	12	48	2.32		111.36		
LENGTH PER DIAMETER (m)							276.48	595.36	188.64	
WEIGHT PER DIAMETER (kg/m)							0.617	1.580	2.470	
WEIGHT (kg)							170.58	940.67	465.94	
VOLUME OF CONCRETE = 3.35x4 = 13.40mc								TOTAL WEIGHT		
VOLUME OF PLAN CONCRETE = 0.313x4 = 1.25mc								OF STEEL = 1577.19kg		
VOLUME OF EXCAVATION = 20.625x4 = 82.50mc								VOLUME OF BACKFILLING = 69.04mc		

NOTE:

- DESIGN ACCORDING TO EN 1992-1-1.
- ULTIMATE SOIL BEARING CAPACITY – 300 kPa.
- CONCRETE C20/25 COMPRESSIVE CYLINDER STRENGTH – 200 daN/cm.
- STEEL REINFORCEMENT:
 - DEFORMED BARS GRADE 60 (yield strength = 5000 daN/cm²),
 - TIES BARS–MILD STEEL (yield strength = 2200 daN/cm²).
- COVER TO REINFORCEMENT 75 mm IN PAD AND 50 mm IN CHIMNEY.
- FOR STUB ANGLE SEE DRG. No. 3–RE–1400.
- KET/ST/033/2014–74104637–NSK–000
- ALL DIMENSIONS ARE IN mm.
- α1, α2, α3, b1, b2, b3, d ARE ACCORDING TO TABLE 1.
- FOR "TOLERANCES OF TOWER ERECTION" see dwg. 4–RE–1226.
- KET/ST/033/2014–74104637–NSK–001

TABLE 1

TOWER	$a_1=b_1$ [mm]	$a_2=b_2$ [mm]	d [mm]	$a_3=b_3$ [mm]	LENGTH OF STUB [mm]	MARK
NSK-6	9931.86	9715.60	13739.90	10954.86	2000.00	NSK-11
NSK-3	10758.06	10541.80	14908.30	11781.06	2000.00	NSK-11
NSK±0	11584.26	11368.00	16076.80	12607.26	2000.00	NSK-11
NSK+3	12410.46	12194.20	17245.20	13453.46	2000.00	NSK-11
NSK+6	13256.66	13020.40	18413.60	14259.66	2000.00	NSK-11



3	31.08.2015	Revised concrete compressive strength.		
2	17.08.2015	Revised stirrup spacing		
1	30.07.2015	Revised back to back dimensions.		
0	07.2015	First Issue		
REV.	DATE	DESCRIPTION	CKE	APR.

CLIENT



KENYA ELECTRICITY TRANSMISSION Co.Ltd
(KETRACO)




CONSULTING ENGINEER:

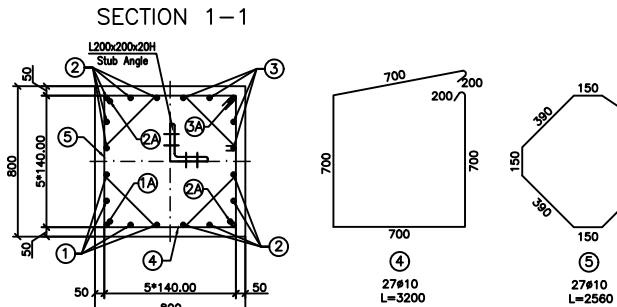
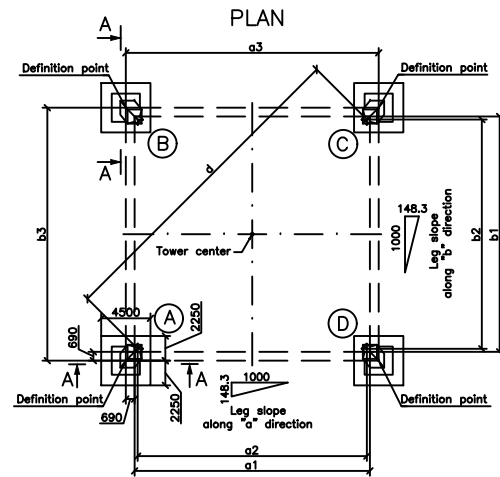


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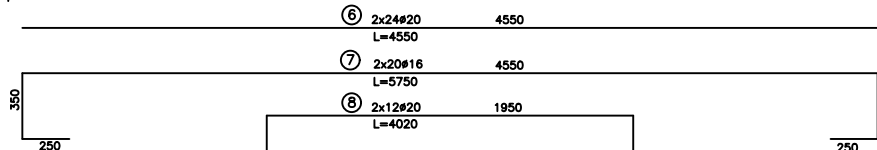
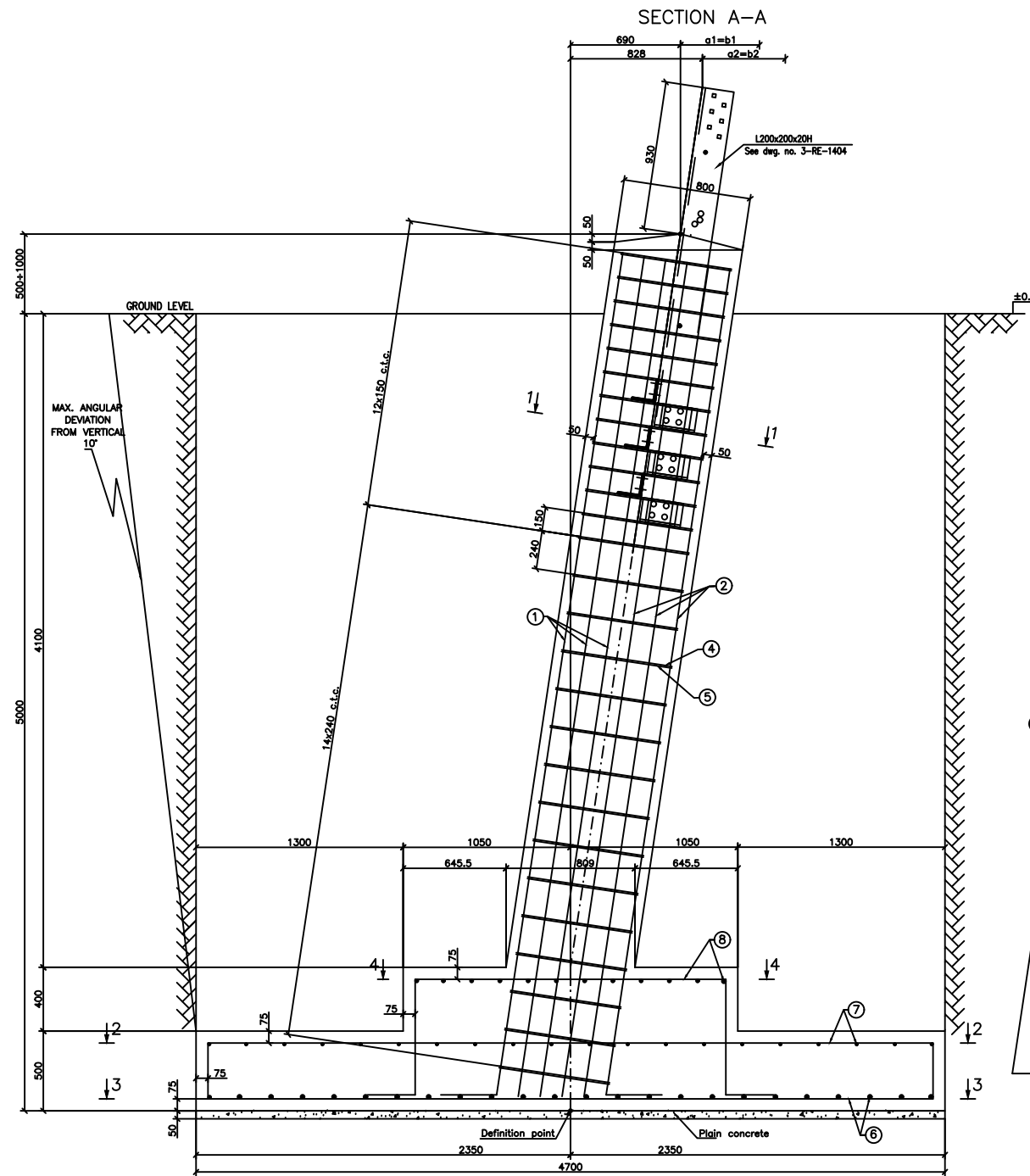
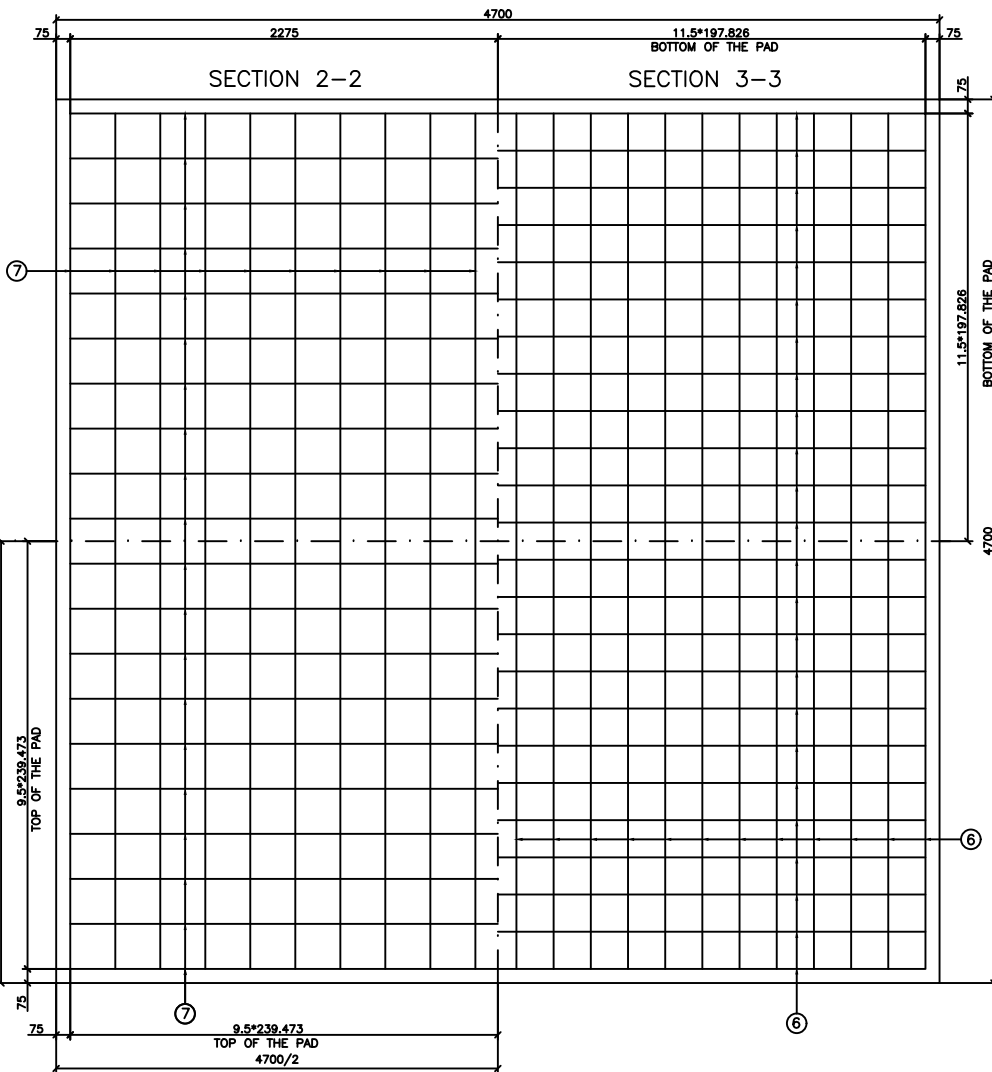
**SUSPENSION TOWER TYPE "NSK"
FOUNDATION FOR SOIL TYPE 3 GOOD SOIL
VERY STIFF COHESIVE SOIL
WITHOUT UNDERCUT**

PREPARED BY:	ENG. M.N.			DRAWN No.:	2-RE-908	REV.
DRAWN BY:	TEH. J.I.	DATE	DIM. IN	SCALE:		
CHECKED BY:	ENG. A.C.					
APPROVED BY:	ENG. G.G.	07.2015	mm	A2	1/20	CLIENT No. DWG:
						3
						KET/IST03/2014-74/10687-ANSK-004

0	12.2015	First Issue							
REV.	DATE	DESCRIPTION						CKE	APR.
CLIENT:									
		KENYA ELECTRICITY TRANSMISSION Co.Ltd (KETRACO)							
									
CONSULTING ENGINEER:		CONTRACTOR:							
									
Title: TENSION TOWER TYPE "LAK" (0°–15°) ANGLE LINE FOUNDATION TYPE 3 GOOD SOIL VERY STIFF COHESIVE SOIL. WITHOUT UNDERCUT									
PREPARED BY:	ENG. M.N.			DATE	DIM. IN	SIZES:	SCALE:	DRAWN No.: 1-RE-2168	REV.
DRAWN BY:	ENG. D.C.								
CHECKED BY:	ENG. A.C.			12..2015	mm	A1	1/20	CLIENT No. DWG.: KET/SB/033/2016-74104637-LAK-004	0
APPROVED BY:	ENG. G.G.								



PAD REINFORCEMENT



MATERIAL LIST PER TOWER

Element			Number of bars			Length of bars (m)				
Den.	Quantity	Mark	Ø (mm)	For one element	For all elements	For one bar	Steel quality			
							MILD STEEL #10	#16	#20	#25
MAK	4 pcs.	1	Ø25	4	16	5.70				91.20
		1A	Ø20	2	8	5.70			45.60	
		2	Ø25	8	32	5.60				179.20
		2A	Ø20	4	16	5.60			89.60	
		3	Ø25	4	16	5.50				88.00
		3A	Ø20	2	8	5.50			44.00	
		4	Ø10	27	108	3.20	345.60			
		5	Ø10	27	108	2.56	276.48			
		6	Ø20	48	192	4.55			873.6	
		7	Ø16	40	160	5.75			920.00	
8	Ø20	24	96	4.02				385.92		
LENGTH PER DIAMETER (m)							622.08	920.00	1438.72	358.40
WEIGHT PER DIAMETER (kg/m)							0.617	1.580	2.470	3.850
WEIGHT (kg)							383.82	1453.60	3553.64	1379.84
VOLUME OF CONCRETE = 16.07x4 = 64.28mc							TOTAL WEIGHT OF STEEL = 6770.90kg			
VOLUME OF PLAIN CONCRETE = 1.10x4 = 4.40mc							VOLUME OF BACKFILLING = 373.12mc			
VOLUME OF EXCAVATION = 110.45x4 = 441.80mc										

TABLE 1

TOWER	a1=b1 [mm]	a2=b2 [mm]	d [mm]	a3=b3 [mm]	LENGTH OF STUB OF STUB [mm]	MARK
MAK-6	10013	9737	13770	11393	2750.00	MAK-1
MAK-3	10913	10637	15043	12293	2750.00	MAK-1
MAK±0	11813	11537	16316	13193	2750.00	MAK-1
MAK+3	12713	12437	17589	14093	2750.00	MAK-1
MAK+6	13613	13337	18861	14993	2750.00	MAK-1

NOTE:

- DESIGN ACCORDING TO EN 1992-1-1.
- ULTIMATE SOIL BEARING CAPACITY - 300 kPa.
- CONCRETE C25/30 COMPRESSIVE CYLINDER STRENGTH - 250 daN/cm².
- STEEL REINFORCEMENT:
 - DEFORMED BARS GRADE 60 (yield strength = 5000 daN/cm²).
 - TIES BARS-MILD STEEL (yield strength = 2200 daN/cm²).
- COVER TO REINFORCEMENT 75 mm IN PAD AND 50 mm IN CHIMNEY.
- FOR STUB ANGLE SEE DRG. No. 3-RE-1404
- ALL DIMENSIONS ARE IN mm.
- a1, a2, a3, b1, b2, b3, d ARE ACCORDING TO TABLE 1.
- FOR "TOLERANCES OF TOWER ERECTION" see dwg. 4-RE-1226.

0	12.2015	First Issue		
REV.	DATE	DESCRIPTION	CKE	APR.
CLIENT: KENYA ELECTRICITY TRANSMISSION Co.Ltd (KETRACO)				
CONSULTING ENGINEER: DNV-GL		CONTRACTOR: ISOLUX CORSAN		
Title: 15°-30° MEDIUM ANGLE TENSION TOWER TYPE "MAK" FOUNDATION TYPE 3 GOOD SOIL Cohesiveless soil. Dense sand. WITHOUT UNDERCUT				
PREPARED BY: ENG. M.N.	DATE: 12.2015	DIM. IN: mm	SIZE: A1	SCALE: 1/20
DRAWN BY: TEH. E.S.				
CHECKED BY: ENG. A.C.				
APPROVED BY: ENG. G.G.				
DRAWN No.: 1-RE-2163		REV. 0		
CLIENT No. DWG.: 1-RE-2163				