higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

QUANTITY SURVEYING N6

23 April 2021

This marking guideline consists of 12 pages.

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QUESTION 1

1.1 1.1.1 m² – In stages not exceeding 500 mm; exceeding 500 not exceeding 1,5 m; then in stages of 1,5 m

1.1.2 m² – Not exceeding 300 mm wide

1.1.3 No – In stages exceeding 200 mm; not exceeding 500 mm girth; then in stages of 500 mm

1.1.4 m² – Not exceeding 1,5 m or exceeding 1,5 m from ground level

1.1.5 M – In stages not exceeding 10 m; then in successive depths of 5 m

(5 × 2) (10)

1.2
- Retention is a fund established with a reputable financial institution.
- The client and the contractor have signatory powers.
- Every month 10% of the interim valuation paid to the contractor is held back and paid into the fund.
- The total value of the fund may not exceed 5% of the original contract amount.
- Money withheld is used as a deterrent for contractors to work strictly in accordance with the contract program.
- Contractors must use materials of good quality.
- Contractors must deliver work of good quality.
- The contractor must rectify structural defects at his/her own cost.
- A substitute contractor will be appointed in the event that the main contractor neglects to return to the site.
- All repairs are funded with the money in the retention fund.
- Retention money will only be released after the final account is signed off.

(Any 10 × 1) (10)

1.3
- Contingencies
- Prime cost sums
- Provisional sums
- Provisional quantities
- Overheads
- Materials and labour cost escalations
- Day works (Any 5 × 1) (5)

[25]

QUESTION 2

2.1

			Wall plate				
2	8,75		114 x 38 mm S.S.A.P. tbr.✓ w.p.				
2	8,75 0,30		Treat tbr. w.p. exce. 300 mm girth.✓ 2/114 = 0,228 2/38 = 0,076 0,304 m				(2)

2.2

			Full trusses				
			The following in measurement of 9 No. full bolted trusses.				
9 / 2	1,17		114 x 38 mm S.S.A.P. tbr. n.e. 2,4m long.✓	9	14		10mm Ø stl. bolt & nuts 100mm long.✓
9	0,79		Diag. struts Collar				Length = 2/38 = 0,076 tbr. 2/2 0,004 washers 0,010 nut 0,010 extra 0,100 m
9 / 2	2,54		Ditto, but exce. 2,4m n.e. 3,9m long.✓ Diag. strut				&
9	6,28		Ditto, but exce. 3,9m n.e. 6,6m long.✓ Tie 6,500 – 2/0,110 = 6,280 m				Stl. tbr connector.✓
9 / 2	4,83		Rafter				
			Wrt. tbr. rafter ends.✓	9	2		Vert. & hor.cut to rafter ends.✓
9	2						(7)

2.3

			Half truss				
	1,17		114 x 38 mm S.S.A.P. tbr. n.e. 2,4m ng.✓		1		Wrt. tbr. rafter ends.✓
	0,40		Diag. strut 0,786 ÷ 2 = 0,393 m				
			Collar		7		10mmØ stl. bolt & nuts 100mm long.✓ & Stl. tbr connector.✓
	2,64		Ditto, but exce. 2,4m n.e. 3,9m long.✓				
	3,14		Diag. strut 6,280 ÷ 2 = 3,140 m				
			Tie		1		Vert. & hor. cut to rafter ends.✓
							(6)

2.4

			Jack trusses				
4	0,37		114 x 38 mm S.S.A.P. tbr. n.e. 2,4m ng.✓		12		Wrt. tbr. rafter ends.✓
4	1,19		J1(R)				
4	1,17		J2 (T)	4			10mm Ø stl. bolt & nuts 100mm long.✓
4	2,15		J3 (D/Str.)	4	1		J2 & J3
			J2 (T)		3		Stl. tbr connector.✓
4	2,54		Ditto, but exce. 2,4m n.e. 3,9m long.✓				
4	3,71		J2 (R)				
			J3 (R)		12		Vert. & hor. cut to rafter ends.✓
							(6)

2.5

			Hip rafter				
2	6,00		225 x 38 mm S.S.A.P. tbr. exce. 3,9m n.e. 6,6m long. ✓				
	2		Twice vert. splayed cut to top ends. ✓ & Twice vert. & once hor. to bot. ends. ✓ & Wrot tbr. ends. ✓				(4)

[25]

QUESTION 3

	Item	✓	Allow to establish plant on site. ✓ & Testing plant on site. ✓	9	4,	✓	Ditto, but exce. 20 n.e. 25 m. ✓ *Pile C* *24,00 – 20,00= 4,00m* ✓
	25		Setting up plant at pile positions. ✓ 3+7+ 9 +6 = 25 No. ✓	13	10,00	✓	Ditto, but for drilling 650-850 mm Ø mm in firm grnd. n.e. 10m. ✓ *Pile B. D. 7 + 6= 13No.* ✓
3 6 9 6	22,00 23,00	✓ ✓	12mm Dia. h.s. reinf. ✓ *Pile A* *Pile C*	13	5,00	✓	Ditto, but exce. 10m n.e. 15m ✓ Piles B. D.
7 6 5 6	18,50 21,00	✓ ✓	16 mm Dia. h.s. reinf. ✓ *Pile B.* *Pile D*	6 7	3,50 5,00	✓ ✓	Ditto, but exce. 15m n.e.20m ✓ Pile D. 18,50 – 15,00=3,50m ✓ Pile B.
12	10,00	✓	Aug. drill 400 – 750 mm Ø in firm grnd. n.e 10m. ✓ *Pile A,C, 3 + 9 = 12No* ✓	7	0,50	✓	Ditto,but exce. 20m n.e. 25m. ✓ PileB 20,50 – 20,00= 0,50m ✓
12	5,00	✓	Ditto, but exce. 10 n.e. 15 m. ✓ *Pile A,C,*		12	✓	E.o. drilling for under-reaming for piles ✓ 400 – 750 mm Ø. *Pile A,C,.*
3 9	3,50 5,00	✓ ✓	Ditto, but exce 15m n.e. 20m ✓ Pile A, 18,50 – 15,00= 3,50m ✓ Pile C		13	✓	Ditto, but for piles 650-850mm Ø. ✓ Piles B.D.

3 9	18,85 24,35	✓ ✓	25 Mpa reinf. conc. in 400mm Ø pile. ✓ *Pile A.* *18,50 + 0,300 + 0,050 = 18,85m* ✓ *Pile C.* 24,00 + 0,300 + 0,050=24,35m✓				
7 6	20,85 18,85	✓ ✓	25 Mpa reinf. conc. in 650 mm Ø pile. ✓ Pile B 20,50 + 0,300 + 0,050=20,85m ✓				
	25	✓	Pile D				
			25 Mpa conc. in enlarged feet of piles. ✓				**50 ÷ 2 = 25**

[25]

QUESTION 4

4.1

19,00 15,50	294,50	C.s. & prep. site for bldrs. wrk. 1000 – 350 = 650 ÷2 = 0,325m 15,000 x 11,500 +2/2m 4,000 4,000 19,000 x 15,500
15,65 12,15 2,00	380,30	Excav. in ord. earth for bsmnt. Hole n.e. 2m dp. 15,000 x 11,500 +2/325 0,650 0,650 15,650 12,150
15,65 12,15 1,35	256,70	Ditto, but exc. 2m n.e 4m dp. 3,000+350=3,350-2,000 = 1,350m
49,00 1,00 0,30	14,70	Excav. for bsmnt. trench n.e. 2m dp. from bmnt.flr 2/15,000=30,000 2/11,500=23,000 53,000 Less 4/1,000 4,000 49,000m
		(1)

53,00 0,50	26,50	Exc. back from bsmnt. wl. for w.s. n.e 500m dp. for w.s.
53,00 1,00	53,00	Ditto, but exc. 500mm n.e. 1,5m dp from g.l.
53,00 1,50	79,50	Ditto, but exc. 1,5m n.e. 3m dp. 3,000 – 1,500 = 1,500 m
53,00 3,70	196,10	R.o.c to sides of bsmnt. Hole exc. 1,5m dp. from g.l. 3.000+ 2/0,350=3,700m
45,00 0,70	31,50	Ditto,but to int. sides of bsmnt. trench n.e. 1,5m dp. from bmnt. flr. 49,000- 4/1,000= 45,000m
		Keep excav. free of water.
Item		25Mpa mass conc. in bsmnt. ftg.
49,00 1,00 0,35		
		(2)

	49,00 0,50		350mm Thk. bk.bsmnt. wl. 0,350+0,150=0,500m		14,65 11,15 0,15		H.c. in bsmnt flr. 15,000 x 11,500 - 0,350 0,350 14,650 x11,150m
	52,56 3,10		110mm Thk. bsmnt. Skin wl. 3,000+0,250-0,150 = 3,100m 53,000 -4/0,110= 0,440 52,560m		14,78 11,28 0,15		25Mpa mass conc. in bsmnt. flr. incl. s.o.c. hor. top surf. 15,000 x 11,500 -2/110 0,220 0,220 14,780 x 11,280
	51,82 2,93		220mm Thk. bk. bsmnt. wl. 3,100-(0,150+0,020)=2,930 m 52,560- 4(55+20+110) =51,820 m		14,78 11,28		20mm Thk. hor. mastic asphalt. Length= 15,000-2/0,110 = 14,780m Width = 11,500-2/0,110 =11,280m
	54,30 0,33 3,35		Ext. b/fl. To sides of bsmnt. wl. 2/15,650 =31,300 2/12,150 =24,300 55,600 4/0,325 1,300 54,300 m 3,000+0,350=3,350m	2 2	52,04 3,05 14,78 11,28		Ditto, but vert. 2/14,780 =29,560 2/11,280 =22,560 52,120 -4/0,020 0,080 52,040 m Extra for triangular mastic asphalt fillet.
	43,70 0,33 0,35		Int. b.fl. to sides of 250mm thk. bk. wl. 45,000 – 4/325=43,700m				
			(3)				(4)

(8)

4.2

BASEMENT

Earthworks

Site clearance

M² bmnt.flr.

C.s. of all deb. & prep.
For bldrs. wrk.

294,50 1

295 M²

Excavations

M³ 196,10 2

Bulk excav. in ord. earth
For bmnt. Hole n.e. 2m
dp.

380,30 1

380M³

M³

Ditto, ditto, but exce. 2m
n.e. 4m dp.

256,70 1

257M³

M³ ITEM

Excav. a.b. but for bmnt.
trench n.e. 2m dp.from

M² M²

14,70 1

15M³

R.c.c to ext. side of bmnt.
hole exce. 1,5m from g.l.

196M²

M²

R.c.c. to int. side of bmnt.
trench n.e. 2m dp. from
Bmnt. flr.

31,50 2

32M²

Item 2

Excav. back from bmnt.
wl. n.e. 500mm dp. from
g.l. for w.s.

26,50 2

27M²

M²

Excav. a.b.for w.s.exce.
500mm n.e. 1,5m.

53,00 2

53M²

M²

Excav. a.b. for w.s. exce.
1,5m n.e. 3m dp.

79,50 2

80M²

Keep excav. free of
water.

(8)

4.3

	BASEMENT				
	Bill no. 1				
	Earthworks				
	Site clearance				
1.	Clear site of all debris and prepare site for building work.	M²	295		
	Excavations				
2.	Bulk excavation in ordinary earth for basement hole not exceeding 2 metres deep from ground level	M³	380		
3.	Bulk excavation in ordinary earth for basement hole exceeding 2 metres not exceeding 4 metres deep from ground level	M³	257		
4.	Excavate for basement trench not exceeding 2 metres deep from basement floor	M³	15		
5.	External risk of collapse to basement hole exceeding 1,5 metres deep from ground level	M²	196		
6.	Internal risk of collapse to basement trench not exceeding 1,5 metres deep from basement floor	M²	32		
7.	Excavate back from basement wall for working space not exceeding 500 mm deep from the ground level	M²	27		
8.	Ditto but for working space exceeding 500 mm not exceeding 1,5 metres deep from ground level	M²	53		
9.	Ditto but for working space exceeding 1,5 metres deep not exceeding 3 metres deep from ground level	M²	80		
10.	Keep excavations free of water		Item		
	Carried to summary			R	

(9)

WORKING-UP MARK ALLOCATION

Squaring		
Check side casts	2	
Check dimensioning (ticks)	1	
Square dimensions	1	
Check squaring answers (ticks)	1	
Check final answers	1	
Transfers to abstract	1	
Check transfers	1	(8)
Abstracting		
Section of work	1	
Trade	1	
Subdivisions	1	
Units	1	
Page referencing	1	
Use of columns	1	(8)
Reducing	1	
Transfers to bill	2	
Billing		
Section of work	1	
Bill number	1	
Trade.	1	
Subdivisions	1	
Item number	1	
Descriptions (no abbreviations)	1	
Units	1	
Quantities	1	
Summary	1	(9)

[25]

TOTAL: 100

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