GROUND ANCHOR STRESSING RECORD (FORM GATR)Rev.3

Type of Test: ON-SITE ACCEPTANCE TEST (√) OR ON-SITE SUITABILITY TEST ( )

PROJECT :Pembaikan Cerun Jalan Penampang-Tambunan-Keningau-Tenom, Pakej 2C

SLOPE NO. : KM56.97	ANCHOR NO. : BP-6	LEVEL NO. : L-1	DATE : 8/11/2011

Design Working Load (Tw)	: 700 KN	Dia. Of Strand (Ds)	: 15.24	mm	Tendon Length (Lt)	: 20.00	m
Specified Preload (Tp)	: 250 KN	Area Of Strand (As)	: 140	mm^2	Bond Length (Lb)	: 6.30	m
Proof Load (150% of Tw)	: 1050 KN	Nos. Of Strands (Ns)	: 6	nos.	Free Length (Lf)	: 12.73	m
Angle Of Inclination	: 20 deg.	Elastic Modulus (Es)	: 200	KN/mm^2	Design Free Length	13.00	m

Displacement Measurement System :	By Steel Ruler.	Jack Type / Capacity :	RHR 2508/150 tons
Load Measurement System :	By ***Pressure Gauge (P.G.)** [Yes]	AND ****Load Cell (L.C.)**	[ ]
*Effective Ram Area :	346.5 (cm^2) 53.71 (in^2)	*Correlated Factor :	4.18 (psi per KN)
**Load Cell Ref. No. :		**Gauge Factor :	KN/digit
		**Zero Reading :	

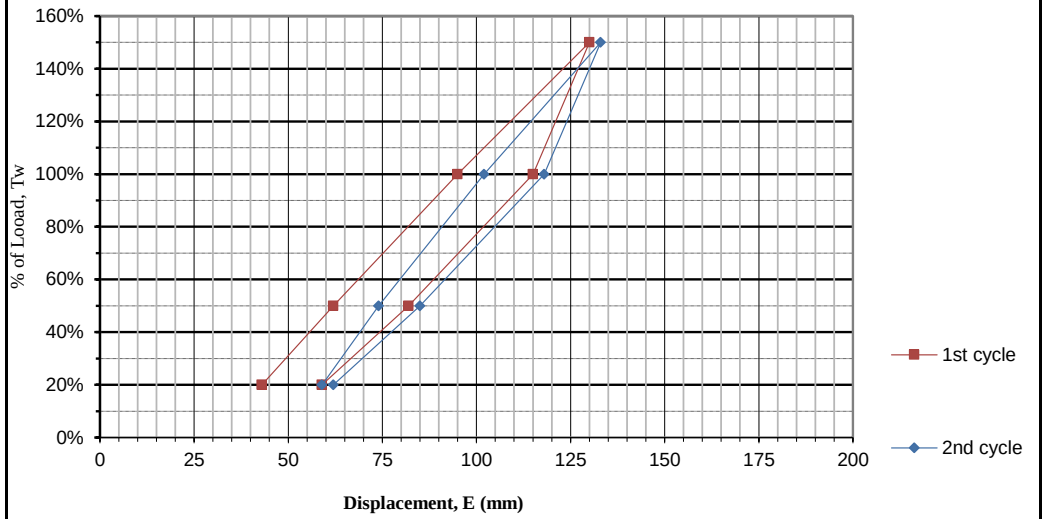
(1) APPARENT FREE LENGTH COMPLIANCE :- MONITORING OF "LOAD - DISPLACEMENT DATA"

Extrusion (from bearing plate) : 0.97 m

(a) Unused "Stressing" Length (***Lu**) :	0.28 m	(b) Cal. Free Tendon Length (Lfs) = (Lt - Lb - Lu) :	13.42 m
(c) **Min.** App. Free Tendon Length (90% Lf):	11.46 m	(d) **Max.** App. Free Tendon Length (Lf + 50% of Lb) :	15.88 m
		(e) OR **Max.** App. Free Tendon Length (110% of Lfs):	14.76 m

% of Tw	Load (Ta) (KN)		* P.G. (psi)	** L.C. (Reading)	Ram Displacement, E (mm) 0 min.	1 min.	5 min.	15 min.	Remark
1st Cycle					36 (Ram displacement at zero initial reading)				
20%	144	21%	600		43	-	-	-	
50%	359	51%	1500		62	-	-	-	Plastic
100%	718	103%	3000		95	-	-	-	Disp. (ΔEp)
150%	1053	150%	4400		130	-	-	-	23 mm
100%	718	103%	3000		115	-	-	-	
50%	359	51%	1500		82	-	-	-	
20%	144	21%	600		59	-	-	-	
2nd Cycle									
20%	144	21%	600		59	59	-	-	Plastic
50%	359	51%	1500		74	74	-	-	Disp. (ΔEp)
100%	718	103%	3000		102	102	-	-	3 mm
150%	1053	150%	4400		133	133	133	133	
100%	718	103%	3000		118	118	-	-	Elastic
50%	359	51%	1500		85	85	-	-	Disp. (ΔEe)
20%	144	21%	600		62	62	-	-	71 mm

APPARENT FREE LENGTH = $\frac{(\Delta Ee \times Es \times Ns \times As)}{(\Delta Ta) \times 1000}$ = **13.12 m**



(***Lu** : Extruded length as measured from end plate of jack with strands straightened by the application of a minimum tension load.)

% of Tw	Load (Ta) (KN)		* P.G. (psi)	** L.C. (Reading)	Ram Displacement, E (mm) 0 min.	1 min.	5 min.	15 min.	Remark
3rd Cycle					Note: use additional sheet if test required more than 3 cycles				
20%	0	0%					-	-	Plastic
50%	0	0%					-	-	Disp. (ΔEp)
100%	0	0%					-	-	0 mm
150%	0	0%							
100%	0	0%					-	-	Elastic
50%	0	0%					-	-	Disp. (ΔEe)
20%	0	0%					-	-	0 mm

REMARK : **COMPLIED [√] / NOT COMPLIED [ ] / FAILED [ ]**

(2) COMPLIANCE OF EITHER "RESIDUAL LOAD - TIME DATA" OR "DISPLACEMENT - TIME DATA" (Note: Test method depends on the accuracy of the test equipments that can measured within 0.5% change in load or displacement)

(4) EXTENDED RESIDUAL LOAD - TIME MONITORING (Further monitoring to be carried out on the anchor using load cell if the permissible loss of load or displacement exceed the 1% per interval as directed by the Engineer)

MONITORING OF "DISPLACEMENT - TIME DATA" AT DESIGN WORKING LOAD. - *(Remark : The Applied Load is taken as 110% of Tw, OR otherwise as directed by Engineer.)*

Time	Load		Ram Disp. (mm)	Net Ram Disp. (mm)	**L.C. Or #D.G. (Reading)		Loss of Load/ change in Disp. (%)		% Permissible (should be <1% per interval)	Remark
	psi	kN	62		mm	mm	Total	Interval	-	-
0 min.	3200	766	109	47	27		-	-	-	-
5 min.	3200	766	109	47	27.14	0.14	0.23%	0.23%	1 %	O.K./ Not Acceptable
15 min.	3200	766	109	47	27.5	0.5	0.82%	0.59%	2 %	O.K./ Not Acceptable
50 min.	3200	766	109	47	27.75	0.75	1.23%	0.41%	3 %	O.K./ Not Acceptable

Time	Load		Ram Disp. (mm)	Net Ram Disp. (mm)	**L.C. Or #D.G. (Reading)		Loss of Load/ change in Disp. (%)		% Permissible (should be <1% per interval)	Remark
2 1/2 hrs.									4 %	O.K./ Not Acceptable
8 hrs.									5 %	O.K./ Not Acceptable
1 day									6 %	O.K./ Not Acceptable
3 days									7 %	O.K./ Not Acceptable
10 days									8 %	O.K./ Not Acceptable

Note : The rate of displacement (% of Change) should reduce to 1% or less per time interval of observation period.

(3) ANCHOR LOCKED-OFF TEST & MEASUREMENT OF RESIDUAL LOAD. - *(Remark : The Locked-Off Load is taken as 110% of Tp OR otherwise as directed by the Engineer if the load loss at lock-off is higher than 10%.)*

% of Load	Load (KN)	* P.G. (psi)	** L.C. (Reading)		Displacement (mm)
0%	0	0			40
20% Tw	144	600			48
110% Tp	287	1200			66

RESIDUAL LOAD (By Immediate Lift-Off)		
* P.G. :	1200	(psi)
** L.C. :		(Reading)
LOAD :	287.1	**(KN)**

Remarks :

Δe = 61.2 mm

STRESSED BY : GONISIN SIMON (APG/Sri Jutaya)

RECORDED BY : EDWARD F. L. (COW/JWGC)

ENGINEER : **CHESTER CHEE (RE/JWGC)**