Tabla 1. Paso a paso de la prueba de funcionamiento..

Load	Total movement at load cycle maximum δ_t	Residual movement at AL after cycle maximum δ_r	Elastic movement at load cycle maximum δ_e
AL 0.25 DL	δ_{t1}		$\delta_{t1} - \delta_{r1} = \delta_{e1}$
AL 0.25 DL 0.50 DL	δ_{t2}	δ_{r1}	$\delta_{t2} - \delta_{r2} = \delta_{e2}$
AL 0.25 DL 0.50 DL 0.75 DL	δ_{t3}	δ_{r2}	$\delta_{t3} - \delta_{r3} = \delta_{e3}$
AL 0.25 DL 0.50 DL 0.75 DL 1.00 DL	δ_{t4}	δ_{r3}	$\delta_{t4} - \delta_{r4} = \delta_{e4}$
AL 0.25 DL 0.50 DL 0.75 DL 1.00 DL 1.20 DL	δ_{t5}	δ_{r4}	$\delta_{t5} - \delta_{r5} = \delta_{e5}$
AL 0.25 DL 0.50 DL 0.75 DL 1.00 DL 1.20 DL 1.33 DL	δ_{t6} Test Load (zero reading for Creep Test) δ_{tn} Final Load hold reading	δ_{r5}	$\delta_{t6} - \delta_{r6} = \delta_{e6}$
AL Adjust to lock-off load		δ_{r6}	

Fuente: Tomado y adaptado del PTI, 2014.

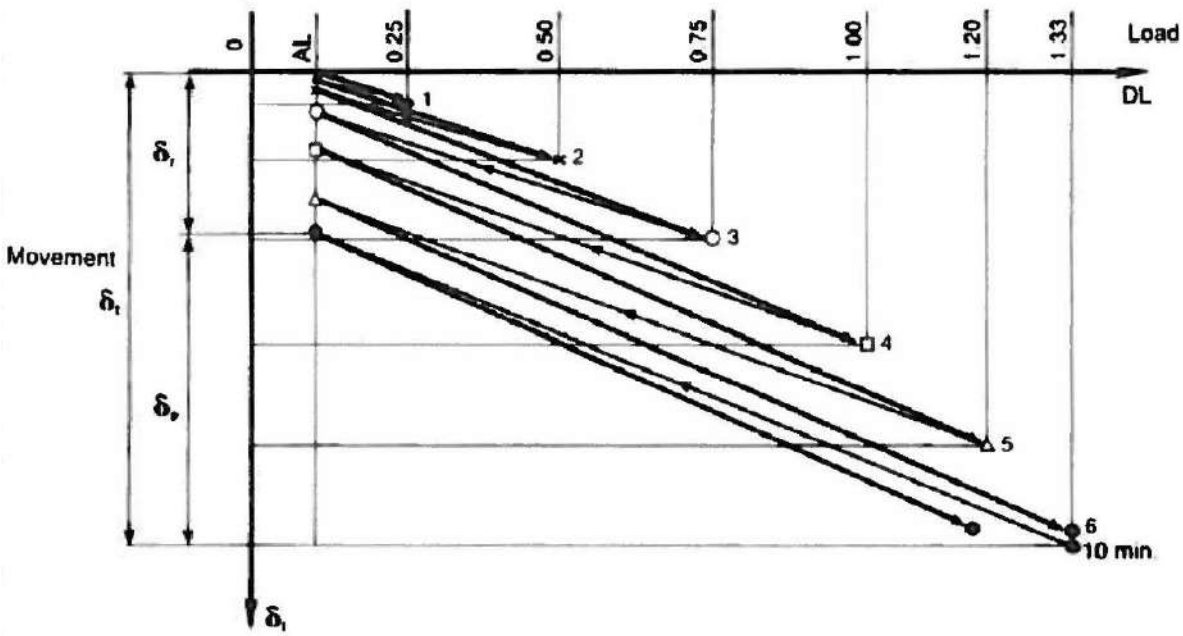
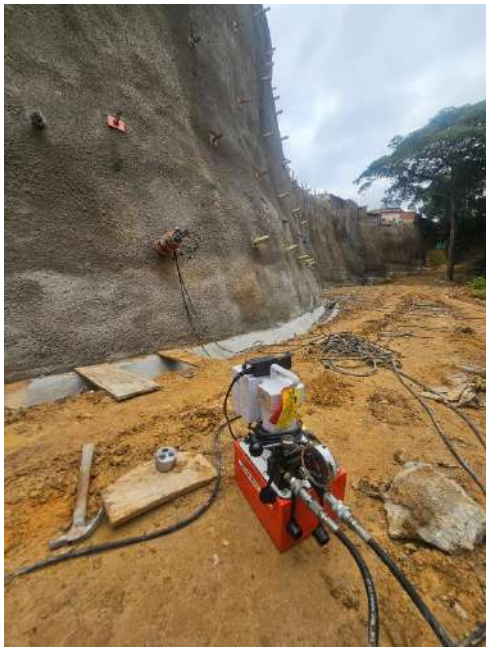


Figura 4. Interpretación de la prueba de funcionamiento.
Fuente: Tomado y adaptado del PTI, 2014.



Fotografía 1. Instalación del equipo para la prueba de carga.



Fotografía 2. Instalación del equipo para la prueba de carga.



Fotografía 3. Instalación de deformímetro en el equipo.



Fotografía 4. Prueba de carga en ejecución.

4.3 EQUIPO

Los equipos a son utilizados en el tensionamiento de anclajes (ver ficha de equipo WK-T-02) son:

CANT.	TIPO	DESCRIPCIÓN
1	Gato Hidráulico	Gato multitorón.



Fotografía 5. Bomba eléctrica.



Fotografía 6. Cilindro hidráulico.

EL EQUIPO se compone de:

- 1 EQUIPO PORTATIL (con su respectivo kit de herramientas y tubería).

5. CRITERIOS DE ACEPTACIÓN

5.1 LONGITUD LIBRE APARENTE (L_{epp}).

Los criterios de aceptación se basan en el concepto de la Longitud libre aparente $\boldsymbol{L_{epp}}$, la cual es la longitud que, con base en las mediciones efectuadas, no está ligada al medio circundante; es decir, se trata de la longitud libre inferida a partir de dichas mediciones. El criterio fue adaptado de la normativa Recommendations for Prestressed Rock a Soil Anchors (POST-TENSIONING INSTITUTE (PTI), 2014).

$$L_{epp} = \frac{A_T\, E_T}{P}\ \delta_e \qquad \text{(Ecuación 1)}$$

L_{epp} = Longitud libre aparente (m)

A_T = Sección del área transversal del acero que conforma el anclaje (mm^2)

E_T = Modulo de young del acero - torón (kPa)

δ_e = Movimiento elástico en la prueba de carga (mm)

P = Carga de prueba (kN)

El valor obtenido debe estar aplicando las leyes de la elasticidad, entre los alargamientos elásticos correspondientes a estas dos longitudes.

Límite Superior:

$$L_{epp} = L_{libre} + 0{,}5\, L_{Bulbo} \qquad \text{(Ecuación 2)}$$

Límite Inferior:

$$L_{epp} = 0{,}8\, L_{libre} \qquad \text{(Ecuación 3)}$$

Donde:

L_{epp} = Longitud libre aparente mínima (o de referencia o comparación)

L_{Libre} = Longitud libre del anclaje

L_{Bulbo} = Longitud del bulbo

Si la longitud libre aparente cae fuera de los rangos establecidos previamente, el anclaje puede ser sometido a ciclos de carga de servicio. Si el rendimiento es aceptable según lo indicado anteriormente, se considerará válido el anclaje.

5.2 VALORES PERMISIBLES DE LAS ELONGACIONES

De manera adicional se determinaron valores permisibles de las elongaciones δ_e, despejando esta variable de la ecuación 1. Para establecer valores de los límites superior e inferior de las elongaciones (deducidas), se obtuvieron las ecuaciones 4 y 5, que resultan de incluir las ecuaciones 2 y 3 en la variable L_{epp} de la ecuación 1 y posteriormente despejar la variable δ_e.

$$\delta_{e\ (Limite\ superior)} = \frac{P\ (\ L_{Libre} + 0{,}5\ L_{Bulbo}\ )}{A_T\ \ E_T} \qquad \text{(Ecuación 4)}$$

$$\delta_{e\ (Limite\ inferior)} = \frac{P\ (\ 0{,}8\ \ L_{Libre}\ )}{A_T\ \ E_T} \qquad \text{(Ecuación 5)}$$

6. CANTIDADES EJECUTADAS A LA FECHA

El día 25 de mayo del presente año, se han llevado a cabo las pruebas de carga para dos (2) anclajes. Realizando este proceso aplicamos la carga en aumento y descarga de cada anclaje seleccionado. La prueba de funcionamiento se utiliza para verificar la capacidad del anclaje, establecer el comportamiento carga-deformación, identificando las causas del movimiento del anclaje y verificar que la longitud real sea igual o mayor que la asumida en el diseño del anclaje (ver Capítulo 5).

Se podrán observar los resultados obtenidos en el Anexo 2.

Tabla 2. Cantidades ejecutadas.

Informe	Anclaje Prueba de Carga	Fecha de Ejecución	Total por Informe
1	53 – I	Mayo 25/2024	2
	60 - I	Mayo 25/2024	

A la fecha, se han realizado un total de cuatro (4) pruebas de carga a los anclajes para el sector de Nazareth.

7. BIBLIOGRAFÍA

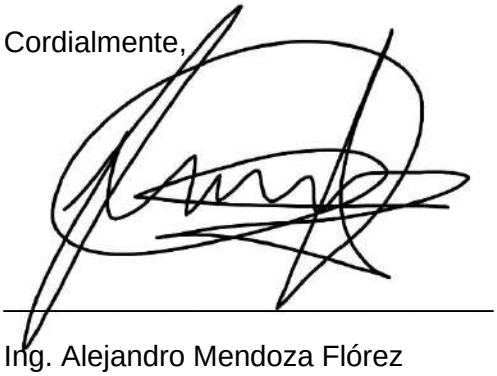
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POST-TENSIONING INSTITUTE (PTI). (2014). Recommendations for Prestressed Rock a Soil Anchors. En *PTI DC-35: Prestressed Rock and Soil Anchor Committee* (págs. 73 - 89). Farming Hills, MI.

8. FIRMA DEL ESPECIALISTA

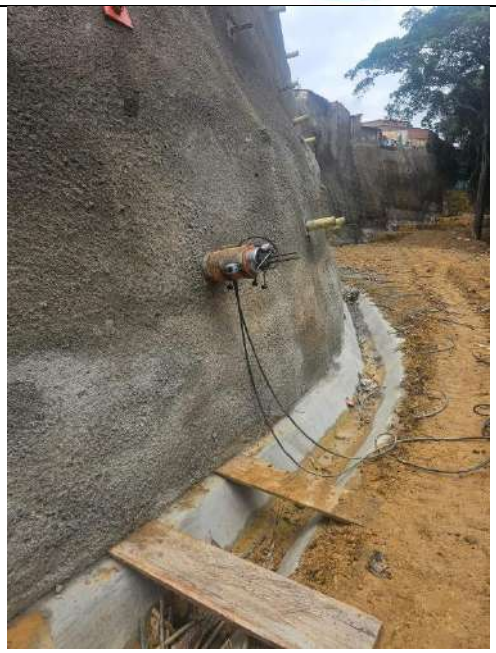
El ingeniero da fe que conoce el sitio y lo ha visitado para efectos de la elaboración del presente estudio.

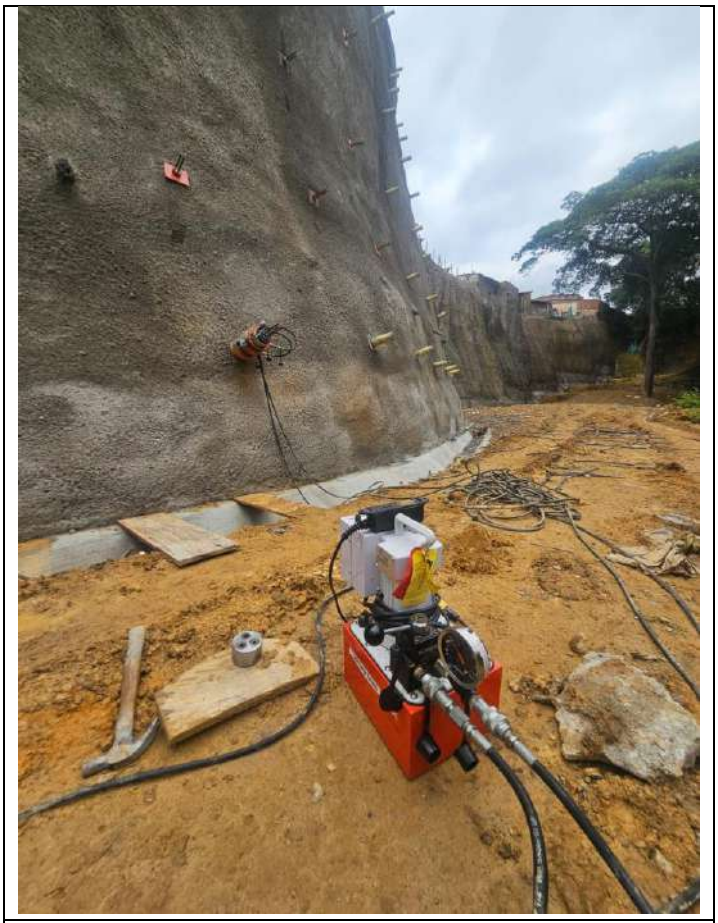
Cordialmente,



Ing. Alejandro Mendoza Flórez
Ingeniero civil

Anexo 1. Registro Fotográfico

	
1. Instalación de equipo	2. Instalación de equipo
	
3. Deformímetro	4. Ejecución de la prueba de carga



5. Ejecución de la prueba de carga

Anexo 2. Informe prueba de carga (WK-PC-01)

CARACTERISTICAS DEL TORÓN					
Anclaje No:	**53 - I**	**T1 Servicio (Ton):**	30,00	**T1 Servicio (PSI):**	2500
Ubicación:	**NAZARETH**	**T2 Prueba (Ton):**	36,00	**T2 Prueba (PSI):**	2900
Ø Torón (in):	**1/2**	**T3 Máxima (Ton):**	39,90	**T3 Máxima (PSI):**	3300

ETAPA	CICLO	TIEMPO	CARGA APLICADA			DESPLAZAMIENTO ACUMULADO		DESPLAZAMIENTO RESIDUAL		DESPLAZAMIENTO ELÁSTICO	
		min		psi	ton	mm		mm		mm	
1	Aplicar carga de alineamiento (AL) 5% de la carga de prueba Po o T2										
2	Ciclo 1	1	0,25 DL	600	7,5	δt1	19,7104			δt1-δr1=δe1	14,2748
			AL		1,5			δr1	5,4356		
3	Ciclo 2	1	0,25 DL	600	7,5	δ2	25,273			δt2-δr2=δe2	29,4386
		2	0,50 DL	1200	15	δt2	39,243				
			AL		1,5			δr2	9,8044		
4	Ciclo 3	1	0,25 DL	600	7,5	δ3	26,035			δt3-δr3=δe3	44,5262
		2	0,50 DL	1200	15	δ3	38,0492				
		3	0,75 DL	1800	22,5	δt3	63,373				
			AL		1,5			δr3	18,8468		
5	Ciclo 4	1	0,25 DL	600	7,5	δ4	28,2956			δt4-δr4=δe4	59,0042
		2	0,50 DL	1200	15	δ4	38,7096				
		3	0,75 DL	1800	22,5	δ4	64,262				
		5	1,00 DL	2500	30	δt4	87,0712				
			AL		1,5			δr4	28,067		
6	Ciclo 5	1	0,25 DL	600	7,5	δ5	34,417			δt5-δr5=δe5	70,5358
		2	0,50 DL	1200	15	δ5	51,5874				
		3	0,75 DL	1800	22,5	δ5	67,9704				
		5	1,00 DL	2500	30	δ5	84,8106				
		10	1,20 DL	2900	36	δt5	106,68				
			AL		1,5			δr5	36,1442		
7	Ciclo 6	1	0,25 DL	600	7,5	δ6	36,1188			δt6-δr6=δe6	81,1022
		2	0,50 DL	1200	15	δ6	69,9516				
		3	0,75 DL	1800	22,5	δ6	88,1634				
		5	1,00 DL	2500	30	δ6	100,4824				
		10	1,20 DL	2900	36	δ6	109,9058				
		15	1,33 DL	3300	39,9	δt6	118,6942				
8	La deformación bajo la carga aplicada al cabo de 10 min excede 1.00 mm							SI		NO	X
	Si al cabo de 10 min la deformación excede 1.0 mm, mantener la carga 60 min										
9	Ciclo 6		AL		1,5			δr6	37,592	δt6-δr6=δe6	
10	Descargar el anclaje hasta la carga de diseño T1=30 Ton										
	El anclaje cumple con criterios de aceptación							SI	X	NO	

CARACTERISTICAS DEL TORÓN							
Anclaje No:	53 - I		Ltf (m):	11,00		T1 Servicio- DL (Ton):	30,00
Ubicación:	NAZARETH		Ltb (m):	14,00		T2 Prueba (Ton):	36,00
Ø Torón (in):	1/2		Lt (m):	25,00		T3 Máxima (Ton):	39,90

DATOS DEL BULÓN	
Tipo:	Permanente
Ø Torón (mm):	12,70
Sección Torón (mm^2):	98,70
No. Torones:	3
Sección Total (mm2):	296,10

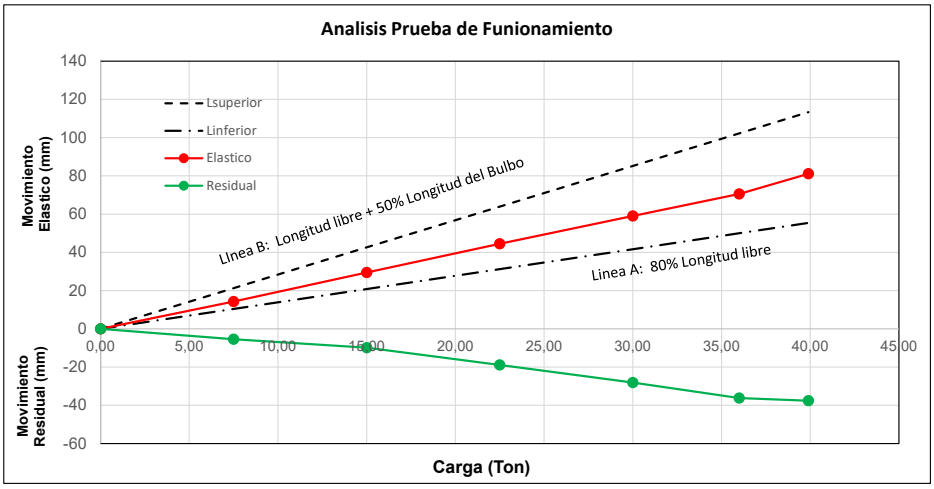
DATOS DEL ACERO	
Modulo de elasticidad (Kgf/cm^2)	2140000

L. Tensionamiento (m):	1,00
Resistencia	
Lechada	

Longitud libre aparente = Lepp

Lsuperior = 19,00 **Linferior =** 9,60

Etapa	Etapa de Carga (Ton)	Deformación Elastica Medida (mm)	Lepp Deducida (mm)	Deformaciones inferidas, limite superior e inferior		Lepp= longitud libre aparente - limites		Criterio de Aceptación
				Superior (mm)	Inferior (mm)	Superior (m)	Inferior (m)	
0	0,00	0,00	0,00	0	0	19,00	9,60	
1	7,50	14,27	12,060	21,31	10,42	19,00	9,60	CUMPLE
2	15,00	29,44	12,44	42,61	20,83	19,00	9,60	CUMPLE
3	22,50	44,53	12,54	63,92	31,25	19,00	9,60	CUMPLE
4	30,00	59,00	12,46	85,22	41,66	19,00	9,60	CUMPLE
5	36,00	70,54	12,42	102,26	50,00	19,00	9,60	CUMPLE
6	39,90	81,10	12,88	113,34	55,41	19,00	9,60	CUMPLE



CRITERIOS DE ACEPTACION

$$L_{epp} = \frac{(A_t * E_s * \delta_e)}{P}$$

L_{epp}= Longitud libre aparente (m)

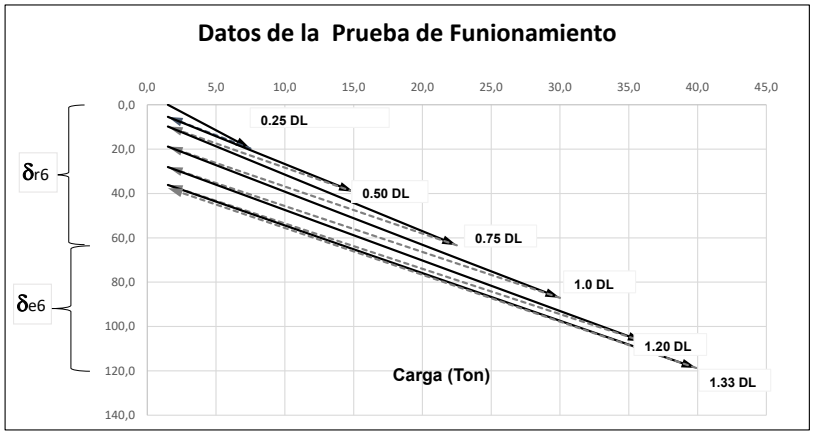
A_t= Sección del área transversal del acero que conforma el anclaje (mm2)

E_s= Modulo de Young del acero - toron (kPa)

δ_e=Movimiento elástico en la prueba de carga (mm)

P =Carga de prueba (kN)

$$L_{epp(superior)} = L_{libre} + 0.5 * L_{bulbo}$$
$$L_{epp(inferior)} = 0.8 * L_{libre}$$



$$\delta_{e(limite\ superior)} = \frac{P * (L_{libre} + 0.5 * L_{bulbo})}{A_t * E_s}$$
$$\delta_{e(limite\ inferior)} = \frac{P * (0.8 * L_{libre})}{A_t * E_s}$$

Lepp Deducida (mm)	La= longitud libre aparente - limites		Criterio de Aceptación
	Superior (m)	Inferior (m)	
12,06	19,00	9,60	CUMPLE
12,44	19,00	9,60	CUMPLE
12,54	19,00	9,60	CUMPLE
12,46	19,00	9,60	CUMPLE
12,42	19,00	9,60	CUMPLE
12,88	19,00	9,60	CUMPLE

CARACTERISTICAS DEL TORÓN					
Anclaje No:	**60 - I**	**T1 Servicio (Ton):**	30,00	**T1 Servicio (PSI):**	2500
Ubicación:	**NAZARETH**	**T2 Prueba (Ton):**	36,00	**T2 Prueba (PSI):**	2900
Ø Torón (in):	**1/2**	**T3 Máxima (Ton):**	39,90	**T3 Máxima (PSI):**	3300

ETAPA	CICLO	TIEMPO	CARGA APLICADA			DESPLAZAMIENTO ACUMULADO		DESPLAZAMIENTO RESIDUAL		DESPLAZAMIENTO ELÁSTICO	
		min		psi	ton	mm		mm		mm	
1	Aplicar carga de alineamiento (AL) 5% de la carga de prueba Po o T2										
2	Ciclo 1	1	0,25 DL	600	7,5	δt1	17,6784			δt1-δr1=δe1	15,2146
			AL		1,5			δr1	2,4638		
3	Ciclo 2	1	0,25 DL	600	7,5	δ2	23,241			δt2-δr2=δe2	31,1658
		2	0,50 DL	1200	15	δt2	41,4528				
			AL		1,5			δr2	10,287		
4	Ciclo 3	1	0,25 DL	600	7,5	δ3	23,7236			δt3-δr3=δe3	47,5488
		2	0,50 DL	1200	15	δ3	33,4772				
		3	0,75 DL	1800	22,5	δt3	62,4332				
			AL		1,5			δr3	14,8844		
5	Ciclo 4	1	0,25 DL	600	7,5	δ4	26,3652			δt4-δr4=δe4	65,6844
		2	0,50 DL	1200	15	δ4	37,211				
		3	0,75 DL	1800	22,5	δ4	64,3382				
		5	1,00 DL	2500	30	δt4	85,0392				
			AL		1,5			δr4	19,3548		
6	Ciclo 5	1	0,25 DL	600	7,5	δ5	38,989			δt5-δr5=δe5	78,09992
		2	0,50 DL	1200	15	δ5	46,1264				
		3	0,75 DL	1800	22,5	δ5	59,5884				
		5	1,00 DL	2500	30	δ5	72,4916				
		10	1,20 DL	2900	36	δt5	103,19512				
			AL		1,5			δr5	25,0952		
7	Ciclo 6	1	0,25 DL	600	7,5	δ6	42,9514			δt6-δr6=δe6	88,4936
		2	0,50 DL	1200	15	δ6	58,8518				
		3	0,75 DL	1800	22,5	δ6	65,2526				
		5	1,00 DL	2500	30	δ6	101,3968				
		10	1,20 DL	2900	36	δ6	108,8644				
		15	1,33 DL	3300	39,9	δt6	116,2304				
8	La deformación bajo la carga aplicada al cabo de 10 min excede 1.00 mm							SI		NO	X
	Si al cabo de 10 min la deformación excede 1.0 mm, mantener la carga 60 min										
9	Ciclo 6		AL		1,5			δr6	27,7368	δt6-δr6=δe6	
10	Descargar el anclaje hasta la carga de diseño T1=30 Ton										
	El anclaje cumple con criterios de aceptación							SI	X	NO	

CARACTERISTICAS DEL TORÓN							
Anclaje No:	60 - I		Ltf (m):	11,00		T1 Servicio- DL (Ton):	30,00
Ubicación:	NAZARETH		Ltb (m):	14,00		T2 Prueba (Ton):	36,00
Ø Torón (in):	1/2		Lt (m):	25,00		T3 Máxima (Ton):	39,90

DATOS DEL BULÓN	
Tipo:	Permanente
Ø Torón (mm):	12,70
Sección Torón (mm^2):	98,70
No. Torones:	3
Sección Total (mm2):	296,10

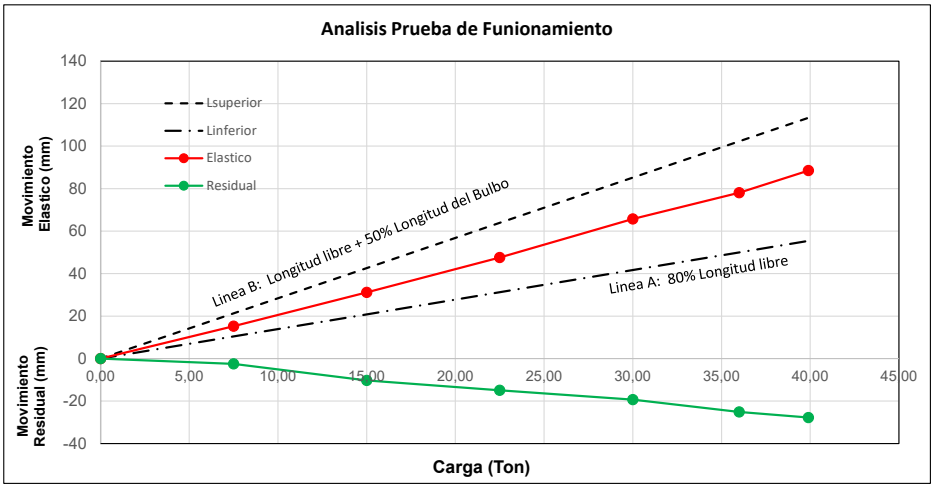
DATOS DEL ACERO	
Modulo de elasticidad (Kgf/cm^2)	2140000

L. Tensionamiento (m):	1,00
Resistencia	
Lechada	

Longitud libre aparente = Lepp

Lsuperior = 19,00 **Linferior =** 9,60

Etapa	Etapa de Carga (Ton)	Deformación Elastica Medida (mm)	Lepp Deducida (mm)	Deformaciones inferidas, limite superior e inferior		Lepp= longitud libre aparente - limites		Criterio de Aceptación
				Superior (mm)	Inferior (mm)	Superior (m)	Inferior (m)	
0	0,00	0,00	0,00	0	0	19,00	9,60	
1	7,50	15,21	12,854	21,31	10,42	19,00	9,60	CUMPLE
2	15,00	31,17	13,17	42,61	20,83	19,00	9,60	CUMPLE
3	22,50	47,55	13,39	63,92	31,25	19,00	9,60	CUMPLE
4	30,00	65,68	13,87	85,22	41,66	19,00	9,60	CUMPLE
5	36,00	78,10	13,75	102,26	50,00	19,00	9,60	CUMPLE
6	39,90	88,49	14,05	113,34	55,41	19,00	9,60	CUMPLE



CRITERIOS DE ACEPTACION

$$L_{epp} = \frac{(A_t * E_s * \delta_e)}{P}$$

L_{epp}= Longitud libre aparente (m)

A_t= Sección del área transversal del acero que conforma el anclaje (mm2)

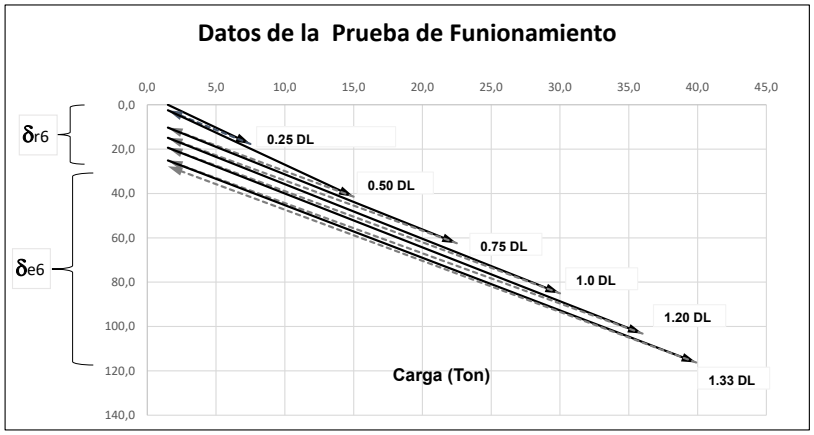
E_s= Modulo de Young del acero - toron (kPa)

δ_e=Movimiento elástico en la prueba de carga (mm)

P =Carga de prueba (kN)

$$L_{epp(superior)} = L_{libre} + 0.5 * L_{bulbo}$$

$$L_{epp(inferior)} = 0.8 * L_{libre}$$



$$\delta_{e(limite\ superior)} = \frac{P * (L_{libre} + 0.5 * L_{bulbo})}{A_t * E_s}$$

$$\delta_{e(limite\ inferior)} = \frac{P * (0.8 * L_{libre})}{A_t * E_s}$$

Lepp Deducida (mm)	La= longitud libre aparente - limites		Criterio de Aceptación
	Superior (m)	Inferior (m)	
12,85	19,00	9,60	CUMPLE
13,17	19,00	9,60	CUMPLE
13,39	19,00	9,60	CUMPLE
13,87	19,00	9,60	CUMPLE
13,75	19,00	9,60	CUMPLE
14,05	19,00	9,60	CUMPLE

Anexo 3. Calibración del equipo

SERVINTEGRAL LTDA.

ACREDITADO ONAC
ORGANISMO NACIONAL DE ACREDITACIÓN DE COLOMBIA
ISO/IEC 17025:2017
11-LAC-011

F-06-TEC V15

CERTIFICADO DE CALIBRACIÓN

Calibration Certificate

NUMERO : 7827
Number

ACREDITACIÓN ONAC: ONAC Accreditation	11 - LAC - 011 DEL 13 DE JULIO DE 2011
DIRECCIÓN Address	CARRERA 20 No 39-33 Ofic 301 BOGOTA D.C. TELÉFONOS:3152136624-3164708341-3164708340
LABORATORIO : Laboratory	SERVINTEGRAL LTDA.
INSTRUMENTO : Instrument	DINAMOMETRO
FABRICANTE : Manufacturer	POWER TEAM
MODELO : Model	C / PE554 / spx
NUMERO DE SERIE : Serial number	391115 / 206178
INTERVALO DE MEDICIÓN : Measurement Interval	123,2 kN HASTA 966,3 kN
SOLICITANTE : Customer	WK INGENIERIA S.A.S.
DIRECCIÓN : Address	CALLE 18 # 8 W - 35 TORRE 7 APTO 101
FECHA DE CALIBRACIÓN : Date of Calibration	2 de marzo de 2024
FECHA DE ELABORACIÓN : Date of Elaboration	2 de marzo de 2024
NUMERO DE PAGINAS: Number of Pages	CINCO (5)

Tnglo. CAMILO BUITRAGO
ELABORADO:
Elaborate

Ing. ANDRES FIERRO RAMIREZ.
REVISADO / AUTORIZADO
Checked / Authorized

Este certificado (informe) expresa fielmente el resultado de las mediciones realizadas. No podrá ser reproducido total o parcialmente excepto cuando se haya obtenido previamente permiso por escrito del laboratorio que lo emite.

This certificate (report) is an accurate record of the perfomed measurements results. This certificate may not be partially or totaly reproduced, except with the prior written permission of the issuing laboratory.

Los resultados contenidos en el presente certificado(Informe) se refieren al momento y condiciones en que se realizaron las mediciones. El laboratorio que lo emite no se responsabiliza de los perjuicios que puedan derivarse del uso inadecuado de los instrumentos calibrados.

The results of this certificate (Report) refer to the moment and conditions in which the measurements were made. The issuing laboratory assumes no responsability for any ensuing damages to the misuse of the calibrated instruments

El usuario es responsable de la recalibración de sus instrumentos a intervalos apropiados.
The user is responsible for having his instruments calibrated at appropiate intervals.

SERVINTEGRAL LTDA.

ACREDITADO ONAC
ORGANISMO NACIONAL DE ACREDITACIÓN DE COLOMBIA
ISO/IEC 17025:2017
11-LAC-011

CERTIFICADO DE CALIBRACIÓN

NUMERO : 7827

LABORATORIO EMISOR	**SERVINTEGRAL LTDA.**
DIRECCIÓN	CARRERA 20 No 39-33 Ofic 301 BOGOTA D.C. TELÉFONOS:3152136624-3164708341-3164708340

OBJETO DE PRUEBA	DINAMOMETRO	
FABRICANTE	POWER TEAM	
MODELO	C / PE554 / spx	
SERIE	391115 / 206178	
INDICADOR	ENERPAC	
SERIE INDICADOR	B 40.1	
ESCALA	1000 kN	(10000 div)
DIVISIÓN DE ESCALA	10 kN	(100 div)
RESOLUCIÓN	2 kN	(10 div)
TRABAJO REALIZADO	CALIBRACION	
NORMA UTILIZADA	PROCEDIMIENTO INTERNO 15-LC-TEC	
MÉTODO UTILI ZADO	COMPARACIÓN DIRECTA	
DIRECCIÓN DE LA CARGA	COMPRESION	
INTERVALO CALIBRADO	12 % AL 97 %	
TEMPERATURA DE PRUEBA	ENTRE 26,8 °C y 27,2 °C	
FECHA DE CALIBRACIÓN	2 de marzo de 2024	
UNIDAD DE MEDIDA	SISTEMA INTERNACIONAL	
TOTAL PÁGINAS INCLUIDO ANEXOS	CINCO (5)	

PATRONES DE REFERENCIA	**Indicador Digital**	**Transductores de Fuerza**
MARCA	HBM	HBM
MODELO	QUANTUM MX840A	C18/1MN
CAPACIDAD	4,00000 mV/V	1000 kN
No SELLO DE CALIBRACIÓN		7299
No IDENTIFICACIÓN INTERNA	ID-004	TFC-006
FECHA DE CALIBRACIÓN	2024/02/19	2024/02/19

SOLICITANTE	**WK INGENIERIA S.A.S.**
DIRECCIÓN	CALLE 18 # 8 W - 35 TORRE 7 APTO 101
CIUDAD - PAIS	BUCARAMANGA. / COLOMBIA
SITIO DEL OBJETO DE PRUEBA	LABORATORIO

SERVINTEGRAL LTDA.

ACREDITADO ONAC
ORGANISMO NACIONAL DE ACREDITACIÓN DE COLOMBIA
ISO/IEC 17025:2017
11-LAC-011

CERTIFICADO DE CALIBRACIÓN

NUMERO : 7827

1.- MEDICIONES REALIZADAS

Escala : 1000 kN División Escala : 10 kN Resolución : 2 kN

DINAMOMETRO		PATRÓN (kN)				
NIVEL DE CARGA (%)	INDICACIÓN DEL DINAMOMETRO div	SERIE No 1 ASCENSO (kN)	SERIE No 2 ASCENSO (kN)	REVERSIBILIDAD DESCENSO (kN)	SERIE No 3 ASCENSO (kN)	SERIE No 4 ASCENSO (kN)
12	1000	123,4	122,9	-	123,3	-
24	2000	242,3	242,2	-	242,3	-
36	3000	363,7	363,3	-	363,3	-
48	4000	486,2	486,1	-	485,7	-
60	5000	604,8	604,6	-	604,8	-
73	6000	725,9	725,3	-	725,3	-
85	7000	846,1	846,0	-	845,8	-
97	8000	966,2	966,6	-	966,1	-
INDICACIÓN DESPUES DE CARGA (FI0) :		0	0		0	

2.- RESULTADOS DE CALIBRACION

Escala : 1000 kN Dirección de Carga : COMPRESION

LECTURAS (kN)			ERRORES RELATIVOS					
NIVEL DE CARGA (%)	PROMEDIO PATRÓN (kN)	INDICACIÓN DINAMOMETRO (kN)	Exactitud q (%)	Repetibilidad b (%)	Reversibilidad v (%)	Resolución a (%)	Accesorios Acc (%)	Incertidumbre U (%)
12	123,2	123	-0,16	0,40	-	1,00	-	0,63
24	242,2	243	0,33	0,04	-	0,50	-	0,30
36	363,5	364	0,14	0,12	-	0,33	-	0,22
48	486,0	484	-0,41	0,10	-	0,25	-	0,17
60	604,7	605	0,05	0,04	-	0,20	-	0,14
73	725,5	725	-0,07	0,08	-	0,17	-	0,14
85	846,0	846	0,00	0,04	-	0,14	-	0,12
97	966,3	967	0,07	0,05	-	0,13	-	0,11
ERROR RELATIVO DE CERO fo (%) :			0,00	0,00	-	0,00	-	

*** FUERZA CALCULADA CON LA ECUACIÓN : F= A*Xa+B (Coeficientes A y B, hallados por regresión)**

A = 0,1205376

B = 2,2604888

PARA EL CALCULO DE LA INCERTIDUMBRE, EL FACTOR DE COBERTURA k = 2

"la incertidumbre expandida informada de la medicion se establece como la incertidumbre normalizada de la medicion multiplicada por el factor de cobertura k, tal que la probabilidad de cobertura corresponde a aproximadamente 95 %."

SERVINTEGRAL LTDA.

ACREDITADO ONAC ORGANISMO NACIONAL DE ACREDITACIÓN DE COLOMBIA

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CERTIFICADO DE CALIBRACIÓN

NUMERO : 7827

	ERRORES RELATIVOS (%) MÁXIMOS HALLADOS	ERRORES RELATIVOS MÁXIMOS PERMISIBLES NTC-ISO 7500-1 (Tabla No 2)			
ESCALA CALIBRADA :	**1000 kN**	CLASE 0,5	CLASE 1	CLASE 2	CLASE 3
EXACTITUD (q)	-0,41	± 0,5	± 1,0	± 2,0	± 3,0
REPETIBILIDAD (b)	0,40	0,5	1,0	2,0	3,0
REVERSIBILIDAD (v)	-	0,75	1,5	3,0	4,5
RESOLUCIÓN (a)	1,00	0,25	0,5	1,0	1,5
CERO (fo)	0,00	± 0,05	± 0,1	± 0,2	± 0,3
ACCESORIOS	-	0,75	1,5	3,0	4,5
INCERTIDUMBRE (u)	0,63				

TRAZABILIDAD METROLOGICA:

El laboratorio de calibracion de servintegral ltda, asegura el mantenimiento de la trazabilidad de los resultados obtenidos en las mediciones, por medio de institutos nacionales de metrologia que han sido sometidos a un proceso adecuado de pares cuyos servicios estan cubiertos por el ARM (Acuerdo de reconocimiento mutuo del comité internacional de pesas y medidas) hasta llegar al S.I, y por medio de laboratorios acreditados por un organismo de acreditacion que forma parte del acuerdo ILAC, o de acuerdos regionales reconocidos por ILAC demostrando trazabilidad metrologica, y que cuyos alcances acreditados estan disponibles publicamente en sus organismos de acreditacion respectivos.

EL LABORATORIO DE CALIBRACIÓN DE SERVINTEGRAL LTDA, CUSTODIA Y MANTIENE ÉSTOS PATRONES, LOS CUALES HAN SIDO CALIBRADOS POR EL INSTITUTO NACIONAL DE METROLOGIA, DE ACUERDO A LAS DISPOSICIONES DE LA NORMA ISO 376 : 2011, QUE EN COLOMBIA ES LA NORMA TECNICA COLOMBIANA NTC-ISO 376 (2013-05-15)

SERVINTEGRAL LTDA.

ACREDITADO ONAC ORGANISMO NACIONAL DE ACREDITACIÓN DE COLOMBIA
ISO/IEC 17025:2017
11-LAC-011

CERTIFICADO DE CALIBRACIÓN

NUMERO : 7827

OBSERVACIONES :

1.- De acuerdo con los resultados anteriores se concede el sello **No.** **7827**

2.- Los datos emitidos en el presente certificado, se ajustan al momento y condiciones dadas en la calibración. Servintegral ltda, no se hace responsable por daños ocasionados al equipo debido al uso inadecuado.

3. Por solicitud del cliente se calibra el dinamometro con fuerzas diferentes a las indicadas en el procedimiento interno 15-LC-TEC.

FIRMA(S) AUTORIZADA(S)

ELABORÓ

Tnglo. CAMILO BUITRAGO
Metrólogo

REVISÓ / AUTORIZÓ

Ing. ANDRES FIERRO RAMIREZ.
Director de Laboratorio

SERVINTEGRAL LTDA.

F-02-TEC-1

INSPECCIÓN GENERAL DE LA MÁQUINA DE ENSAYO O DINAMÓMETRO A COMPRESIÓN SEGÚN NORMA NTC ISO 7500-1 (2007-07-25) ANEXO A (NORMATIVO) Y ANEXO B (INFORMATIVO) LABORATORIO DE CALIBRACIÓN MAGNITUD FUERZA

NÚMERO : 7827

A.1 GENERALIDADES: Esta inspección general de la máquina de ensayos o dinamómetro a compresión debe realizarse antes de la calibración del sistema de medición de fuerza y debe comprender:

A.2 EXAMEN VISUAL:

	SI	NO	N/A
• Las vibraciones externas afectan las lecturas del indicador de fuerza?	☐	☒	☐
• La máquina está nivelada?	☒	☐	☐
• Se registra desviación entre el puntero y el registro de carga?	☐	☐	☒
• Se expone a temperaturas ≤ 10°C ≥ 35°C?	☐	☒	☐
• Su entorno es corrosivo?	☐	☒	☐
• Presenta una humedad relativa ≥90% ? 50%. HR	☐	☒	☐
• Esta protegida contra variaciones de voltaje en el suministro eléctrico?	☐	☒	☐
• En caso de ser pendular; se identifican las masas en forma apropiada?	☐	☐	☒
• El funcionamiento de la máquina está afectado negativamente por:			
- Vibraciones del motor de la bomba hidráulica.	☐	☐	☒
- Fugas de fluido hidráulico.	☐	☐	☒
- Desgastes o defectos en los elementos guías o crucetas móviles.	☐	☐	☒
- Aflojamiento en las columnas verticales del bastidor de carga.	☐	☐	☒

A.3 INSPECCIÓN DE LA ESTRUCTURA DE LA MÁQUINA O DINAMÓMETRO:

		SI	NO	N/A
• Existen ranuras para centrado?		☐	☐	☒
• El plato de compresión superior está montado sobre una rótula?		☐	☐	☒
• Escualiza fácilmente?		☐	☐	☒
• El montaje de platos permite la aplicación de fuerza en forma axial?		☐	☐	☒
• Los platos de carga están instalados en forma permanente?		☐	☐	☒
• En caso negativo, son sustituidos por componentes específicos?		☐	☐	☒
• Los platos de carga cumplen con los requerimientos de la máquina?		☐	☐	☐
• Desviación de la planitud de los platos: (medidos sobre 100 mm)	Superior: ___ mm			
	Inferior: ___ mm			
• Dureza de los platos.	Superior: ___ HRC			
	Inferior: ___ HRC			

A.4 INSPECCIÓN DEL MECANISMO DE ACCIONAMIENTO DEL CABEZAL

	SI	NO	N/A
• La velocidad de carga permite una variación lenta en ascenso?	☒	☐	☐
• La velocidad de carga permite una variación lenta en descenso?	☒	☐	☐
• La velocidad de carga puede ser ajustada con suficiente exactitud?	☒	☐	☐
• La carga puede ser accionada en forma manual?	☒	☐	☐
• Presenta mecanismo de apagado automático?	☒	☐	☐
• Es posible alcanzar el valor nominal?	☒	☐	☐
- En caso negativo, porque?			

	SI	NO	N/A
• Las velocidades de deformaciones aplicadas a las probetas cumplen con las normas técnicas aplicadas	☒	☐	☐
- En caso negativo, cuales?			

SERVINTEGRAL LTDA.

F-02-TEC-5

DATOS SUPLEMENTARIOS
LABORATORIO DE CALIBRACIÓN
MAGNITUD FUERZA

NUMERO :

DATOS TÉCNICOS:

	SI	NO	N/A
• La máquina se calibró con los dispositivos accesorios?	☐	☐	☒
• Las series de mediciones son acordes, según norma NTC ISO 7500-1 N° 6.4.5.	☒	☐	☐

DATOS DEL INDICADOR:

MARCA	—	MODELO	—	SERIE	—

Rangos de medición	Resolución a 10%	Resolución a 20%	Resoluciones relativas a 10%	Resoluciones relativas a 20%
1000div 10000div	10div	10div	1/18	0,61

• Se realizaron reparaciones o ajustes durante la calibración? ☐ ☒ ☐
En caso afirmativo cuales?

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie1 °C	Serie 4 °C
Inicio	26,8	27,1		29,1	
Fin	26,9	27,2		29,0	

DATOS ADMINISTRATIVOS:

• Dispone el laboratorio del manual de operación?	☒	☐	☐
• En caso afirmativo; se entiende fácilmente?	☒	☐	☐
• Cuantos operadores manejan la máquina? 2			
• Están todos los operadores entrenados?	☒	☐	☐
• Existen en el laboratorio programas de mantenimiento preventivos y Calibraciones periódicas?	☒	☐	☐
• Razón social de quién efectúo la calibración anterior y fecha			

—	—	—	—

Atendió la calibración:

Nombre	Miguel Roberto	Cargo	—

FECHA: 2014-03-02

FIRMA:

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

ESCALA:_____ DIRECCION DE CARGA:_____

Temperatura	Serie 1 °C	Serie 2 °C	Serie 2` °C	Serie 3 °C	Serie 4 °C
Inicio					
Fin					

FIN DE DOCUMENTO

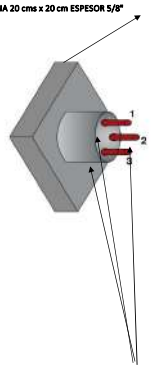

SERVINTEGRAL LTDA.
ACREDITADO
ONAC
ORGANISMO NACIONAL DE ACREDITACIÓN DE COLOMBIA
Calibrado
ISO/IEC 17025:2017
11-LAC-011
Magnitud:
FUERZA
Fecha Calibración
AÑO
MES
DIA
2024
03
02
Certificado No.
7827

CONTROL DE TENSIONAMIENTO DE ANCLAJES

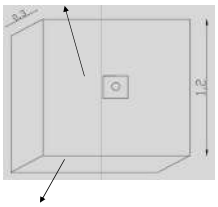
		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

PLATINA 20 cms x 20 cm ESPESOR 5/8"



GUAYA TORON 1/2"



ZAPATA ANCLAJE

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			N° ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	1	12/03/2024	1280489,76	1104135,002	935,009	A1	15	50%	42,43	11,0	14,0	25,0	29/01/2024	
							30	100%	53,09	11,0	14,0	25,0	29/01/2024	
	46	14/03/2024	1280504,823	1104125,441	935,012	A10	15	50%	49,93	11,0	14,0	25,0	29/01/2024	
							30	100%	57,48	11,0	14,0	25,0	29/01/2024	
	53	14/03/2024	1280506,406	1104124,069	935,066	A11	15	50%	48,15	11,0	14,0	25,0	29/01/2024	
							30	100%	57,09	11,0	14,0	25,0	29/01/2024	
	60	14/03/2024	1280508,049	1104122,779	935,051	A12	15	50%	47,18	11,0	14,0	25,0	29/01/2024	
							30	100%	54,59	11,0	14,0	25,0	29/01/2024	
	67	14/03/2024	1280508,56	1104120,85	935,061	A13	15	50%	50,91	11,0	14,0	25,0	29/01/2024	
							30	100%	61,70	11,0	14,0	25,0	29/01/2024	
	70	15/03/2024	1280509,19	1104118,926	934,982	A14	15	50%	47,90	11,0	14,0	25,0	29/01/2024	
							30	100%	54,75	11,0	14,0	25,0	29/01/2024	
	180	15/03/2024	1280509,66	1104116,999	935,064	A15	15	50%	48,69	11,0	14,0	25,0	29/01/2024	
							30	100%	55,53	11,0	14,0	25,0	29/01/2024	
	187	15/03/2024	1280510,27	1104114,81	935,005	A16	15	50%	46,79	11,0	14,0	25,0	13/02/2024	
							30	100%	54,08	11,0	14,0	25,0	13/02/2024	
	246	20/03/2024	1280511,315	1104113,004	934,724	A17	15	50%	50,53	11,0	14,0	25,0	13/02/2024	
							30	100%	58,87	11,0	14,0	25,0	13/02/2024	
	254	21/03/2024	1280512,399	1104110,891	934,704	A18	15	50%	48,05	11,0	14,0	25,0	13/02/2024	
							30	100%	62,29	11,0	14,0	25,0	13/02/2024	
	262	22/03/2024	1280491,301	1104133,717	935,009	A19	15	50%	50,38	11,0	14,0	25,0	13/02/2024	
							30	100%	65,00	11,0	14,0	25,0	13/02/2024	
	6	12/03/2024	1280489,76	1104135,002	935,009	A2	15	50%	48,27	11,0	14,0	25,0	29/01/2024	
							30	100%	69,53	11,0	14,0	25,0	29/01/2024	
	270	22/03/2024	1280516,01	1104107,194	934,951	A20	15	50%	52,05	11,0	14,0	25,0	13/02/2024	
							30	100%	63,78	11,0	14,0	25,0	13/02/2024	
	279	22/03/2024	1280517,004	1104105,479	934,967	A21	15	50%	47,45	11,0	14,0	25,0	13/02/2024	
							30	100%	60,82	11,0	14,0	25,0	13/02/2024	
	287	3/04/2024	1280517,871	1104103,552	934,971	A22	15	50%	43,40	11,0	14,0	25,0	13/02/2024	
							30	100%	54,72	11,0	14,0	25,0	13/02/2024	
	114	2/04/2024	1280518,046	1104101,237	935,016	A23	15	50%	41,41	11,0	14,0	25,0	13/02/2024	
							30	100%	53,90	11,0	14,0	25,0	13/02/2024	
	112	3/04/2024	1280507,835	1104113,44	925,013	A24	15	50%	39,72	11,0	14,0	25,0	13/02/2024	
							30	100%	56,11	11,0	14,0	25,0	13/02/2024	
	130	3/04/2024	1280519,485	1104097,338	935,102	A25	15	50%	44,02	11,0	14,0	25,0	13/02/2024	
							30	100%	55,07	11,0	14,0	25,0	13/02/2024	
	138	5/04/2024	1280520,457	1104095,564	935,017	A26	15	50%	47,04	11,0	14,0	25,0	13/02/2024	
							30	100%	56,40	11,0	14,0	25,0	13/02/2024	
	195	5/04/2024	1280521,224	1104093,716	935,000	A27	15	50%	42,51	11,0	14,0	25,0	13/02/2024	
							30	100%	54,12	11,0	14,0	25,0	13/02/2024	
	352	5/04/2024	1280522,356	1104092,053	934,985	A28	15	50%	45,02	11,0	14,0	25,0	13/02/2024	
							30	100%	59,80	11,0	14,0	25,0	13/02/2024	
	353	5/04/2024	1280522,847	1104090,123	935,036	A29	15	50%	37,10	11,0	14,0	25,0	5/03/2024	
							30	100%	55,03	11,0	14,0	25,0	5/03/2024	
	11	12/03/2024	1280489,76	1104135,002	935,009	A3	15	50%	45,58	11,0	14,0	25,0	29/01/2024	
							30	100%	55,27	11,0	14,0	25,0	29/01/2024	
	222	8/04/2024	1280523,63	1104088,223	935,218	A30	15	50%	40,00	11,0	14,0	25,0	5/03/2024	
							30	100%	59,10	11,0	14,0	25,0	5/03/2024	
	208	8/04/2024	1280523,98	1104086,296	934,977	A31	15	50%	37,52	11,0	14,0	25,0	5/03/2024	
							30	100%	55,12	11,0	14,0	25,0	5/03/2024	
	230	8/04/2024	1280524,528	1104084,332	934,731	A32	15	50%	45,07	11,0	14,0	25,0	5/03/2024	
							30	100%	53,41	11,0	14,0	25,0	5/03/2024	
	232	8/04/2024	1280524,613	1104082,461	934,758	A33	15	50%	44,08	11,0	14,0	25,0	5/03/2024	
							30	100%	54,33	11,0	14,0	25,0	5/03/2024	
	361	9/04/2024	1280524,95	1104080,534	934,703	A34	15	50%	43,40	11,0	14,0	25,0	5/03/2024	
							30	100%	57,14	11,0	14,0	25,0	5/03/2024	
0	16	11/03/2024	1280489,76	1104135,002	935,009	A4	15	50%	43,27	11,0	14,0	25,0	29/01/2024	
							30	100%	53,27	11,0	14,0	25,0	29/01/2024	
	349	11/03/2024	1280489,76	1104135,002	935,009	A5	15	50%	27,20	11,0	14,0	25,0	29/01/2024	
							30	100%	55,90	11,0	14,0	25,0	29/01/2024	
	383	20/04/2024	1280498,266	1104129,619	935,492	A6	15	50%	46,11	11,0	14,0	25,0	5/03/2024	
							30	100%	54,82	11,0	14,0	25,0	5/03/2024	
	39	13/03/2024	1280489,76	1104135,002	935,009	A9	15	50%	45,90	11,0	14,0	25,0	29/01/2024	
							30	100%	53,52	11,0	14,0	25,0	29/01/2024	
	2	12/03/2024	1280503,102	1104126,431	934,967	B1	15	50%	44,92	11,0	14,0	25,0	29/01/2024	
							30	100%	52,47	11,0	14,0	25,0	29/01/2024	
	45	6/04/2024	1280504,395	1104124,799	932,995	B10	15	50%	43,12	11,0	14,0	25,0	29/01/2024	
							30	100%	53,93	11,0	14,0	25,0	29/01/2024	
	52	14/03/2024	1280503,102	1104126,431	934,967	B11	15	50%	46,02	11,0	14,0	25,0	29/01/2024	
							30	100%	52,43	11,0	14,0	25,0	29/01/2024	
	59	14/03/2024	1280503,102	1104126,431	934,967	B12	15	50%	46,88	11,0	14,0	25,0	29/01/2024	
							30	100%	53,28	11,0	14,0	25,0	29/01/2024	
	66	14/03/2024	1280503,102	1104126,431	934,967	B13	15	50%	48,42	11,0	14,0	25,0	29/01/2024	
							30	100%	57,75	11,0	14,0	25,0	29/01/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	69	15/03/2024	1280503,102	1104126,431	934,967	B14	15	50%	46,03	11,0	14,0	25,0	29/01/2024	
							30	100%	53,42	11,0	14,0	25,0	29/01/2024	
	181	15/03/2024	1280503,102	1104126,431	934,967	B15	15	50%	45,35	11,0	14,0	25,0	29/01/2024	
							30	100%	54,67	11,0	14,0	25,0	29/01/2024	
	188	15/03/2024	1280503,102	1104126,431	934,967	B16	15	50%	47,41	11,0	14,0	25,0	13/02/2024	
							30	100%	54,59	11,0	14,0	25,0	13/02/2024	
	247	20/03/2024	1280503,102	1104126,431	934,967	B17	15	50%	49,76	11,0	14,0	25,0	13/02/2024	
							30	100%	58,93	11,0	14,0	25,0	13/02/2024	
	255	21/03/2024	1280503,102	1104126,431	934,967	B18	15	50%	50,14	11,0	14,0	25,0	13/02/2024	
							30	100%	64,40	11,0	14,0	25,0	13/02/2024	
	263	22/03/2024	1280503,102	1104126,431	934,967	B19	15	50%	47,09	11,0	14,0	25,0	13/02/2024	
							30	100%	62,54	11,0	14,0	25,0	13/02/2024	
	7	12/03/2024	1280503,102	1104126,431	934,967	B2	15	50%	42,58	11,0	14,0	25,0	29/01/2024	
							30	100%	53,32	11,0	14,0	25,0	29/01/2024	
	271	22/03/2024	1280503,102	1104126,431	934,967	B20	15	50%	50,02	11,0	14,0	25,0	13/02/2024	
							30	100%	65,25	11,0	14,0	25,0	13/02/2024	
	280	22/03/2024	1280503,102	1104126,431	934,967	B21	15	50%	48,07	11,0	14,0	25,0	13/02/2024	
							30	100%	36,59	11,0	14,0	25,0	13/02/2024	
	288	3/04/2024	1280517,33	1104103,173	933,010	B22	15	50%	41,18	11,0	14,0	25,0	13/02/2024	
							30	100%	55,21	11,0	14,0	25,0	13/02/2024	
	115	2/04/2024	1280517,856	1104101,021	932,962	B23	15	50%	39,35	11,0	14,0	25,0	13/02/2024	
							30	100%	52,40	11,0	14,0	25,0	13/02/2024	
	123	3/04/2024	1280518,293	1104098,818	932,981	B24	15	50%	41,14	11,0	14,0	25,0	13/02/2024	
							30	100%	56,62	11,0	14,0	25,0	13/02/2024	
	131	3/04/2024	1280518,852	1104096,902	933,075	B25	15	50%	48,00	11,0	14,0	25,0	13/02/2024	
							30	100%	55,35	11,0	14,0	25,0	13/02/2024	
	139	4/04/2024	1280520,024	1104095,299	933,020	B26	15	50%	45,15	11,0	14,0	25,0	13/02/2024	
							30	100%	53,90	11,0	14,0	25,0	13/02/2024	
	196	5/04/2024	1280521,225	1104093,62	933,045	B27	15	50%	45,01	11,0	14,0	25,0	13/02/2024	
							30	100%	55,48	11,0	14,0	25,0	13/02/2024	
	350	5/04/2024	1280522,226	1104091,817	933,018	B28	15	50%	44,15	11,0	14,0	25,0	13/02/2024	
							30	100%	58,60	11,0	14,0	25,0	13/02/2024	
	354	5/04/2024	1280522,46	1104089,824	933,071	B29	15	50%	44,15	11,0	14,0	25,0	5/03/2024	
							30	100%	58,60	11,0	14,0	25,0	5/03/2024	
	12	12/03/2024	1280503,102	1104126,431	934,967	B3	15	50%	26,46	11,0	14,0	25,0	29/01/2024	
							30	100%	52,60	11,0	14,0	25,0	29/01/2024	
	223	8/04/2024	1280522,827	1104087,871	933,016	B30	15	50%	47,12	11,0	14,0	25,0	5/03/2024	
							30	100%	59,80	11,0	14,0	25,0	5/03/2024	
	209	8/04/2024	1280523,276	1104085,995	933,036	B31	15	50%	46,00	11,0	14,0	25,0	5/03/2024	
							30	100%	55,42	11,0	14,0	25,0	5/03/2024	
	231	8/04/2024	1280524,069	1104084,089	932,744	B32	15	50%	41,11	11,0	14,0	25,0	5/03/2024	
							30	100%	55,01	11,0	14,0	25,0	5/03/2024	
	233	8/04/2024	1280524,195	1104082,115	932,813	B33	15	50%	40,22	11,0	14,0	25,0	5/03/2024	
							30	100%	59,85	11,0	14,0	25,0	5/03/2024	
	362	9/04/2024	1280524,502	1104080,128	932,767	B34	15	50%	40,05	11,0	14,0	25,0	9/03/2024	
							30	100%	54,39	11,0	14,0	25,0	9/03/2024	
	368	9/04/2024	1280524,948	1104078,139	932,991	B35	15	50%	41,15	11,0	14,0	25,0	9/03/2024	
							30	100%	55,21	11,0	14,0	25,0	9/03/2024	
	375	9/04/2024	1280524,865	1104076,322	932,963	B36	15	50%	40,09	11,0	14,0	25,0	9/03/2024	
							30	100%	54,19	11,0	14,0	25,0	9/03/2024	
	146	9/04/2024	1280524,953	1104074,207	932,971	B37	15	50%	43,40	11,0	14,0	25,0	9/03/2024	
							30	100%	56,02	11,0	14,0	25,0	9/03/2024	
	153	10/04/2024	1280525,177	1104072,169	933,039	B38	15	50%	40,04	11,0	14,0	25,0	9/03/2024	
							30	100%	54,60	11,0	14,0	25,0	9/03/2024	
	160	10/04/2024	1280525,432	1104070,153	933,046	B39	15	50%	45,00	11,0	14,0	25,0	9/03/2024	
							30	100%	57,00	11,0	14,0	25,0	9/03/2024	
	17	11/03/2024	1280503,102	1104126,431	934,967	B4	15	50%	41,53	11,0	14,0	25,0	29/01/2024	
							30	100%	53,95	11,0	14,0	25,0	29/01/2024	
	167	10/04/2024	1280525,502	1104068,004	932,998	B40	15	50%	45,01	11,0	14,0	25,0	9/03/2024	
							30	100%	53,74	11,0	14,0	25,0	9/03/2024	
	174	10/04/2024	1280525,5	1104066,076	932,954	B41	15	50%	42,14	11,0	14,0	25,0	9/03/2024	
							30	100%	53,40	11,0	14,0	25,0	9/03/2024	
	296	15/04/2024	1280525,29	1104064,138	932,985	B42	15	50%	48,05	11,0	14,0	25,0	9/03/2024	
							30	100%	61,02	11,0	14,0	25,0	9/03/2024	
	303	15/04/2024	1280525,181	1104062,237	932,987	B43	15	50%	44,13	11,0	14,0	25,0	9/03/2024	
							30	100%	59,54	11,0	14,0	25,0	9/03/2024	
	310	15/04/2024	1280525,065	1104060,245	933,021	B44	15	50%	42,33	11,0	14,0	25,0	9/03/2024	
							30	100%	54,76	11,0	14,0	25,0	9/03/2024	
	317	15/04/2024	1280525,044	1104058,242	932,986	B45	15	50%	37,26	11,0	14,0	25,0	9/03/2024	
							30	100%	53,50	11,0	14,0	25,0	9/03/2024	
	324	15/04/2024	1280524,242	1104055,692	933,064	B46	15	50%	45,16	11,0	14,0	25,0	9/03/2024	
							30	100%	58,99	11,0	14,0	25,0	9/03/2024	
	331	15/04/2024	1280524,117	1104054,164	932,941	B47	15	50%	46,07	11,0	14,0	25,0	9/03/2024	
							30	100%	59,86	11,0	14,0	25,0	9/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	338	16/04/2024	1280524,55	1104052,495	932,999	B48	15	50%	45,28	11,0	14,0	25,0	9/03/2024	
							30	100%	53,72	11,0	14,0	25,0	9/03/2024	
	398	16/04/2024	1280524,72	1104050,536	933,001	B49	15	50%	46,58	11,0	14,0	25,0	18/03/2024	
							30	100%	54,98	11,0	14,0	25,0	18/03/2024	
	404	16/04/2024	1280524,887	1104048,581	932,879	B50	15	50%	47,82	11,0	14,0	25,0	18/03/2024	
							30	100%	59,55	11,0	14,0	25,0	18/03/2024	
	411	16/04/2024	1280525,234	1104046,674	932,825	B51	15	50%	43,72	11,0	14,0	25,0	18/03/2024	
							30	100%	57,88	11,0	14,0	25,0	18/03/2024	
	418	27/04/2024	1280525,283	1104045,343	932,730	B52	15	50%	42,37	11,0	14,0	25,0	18/03/2024	
							30	100%	62,50	11,0	14,0	25,0	18/03/2024	
	71	27/04/2024	1280526,377	1104044,186	932,335	B53	15	50%	41,66	11,0	14,0	25,0	18/03/2024	
							30	100%	63,75	11,0	14,0	25,0	18/03/2024	
	348	11/03/2024	1280494,64	1104129,597	931,968	B5-A	15	50%	42,31	11,0	14,0	25,0	29/01/2024	
							30	100%	54,82	11,0	14,0	25,0	29/01/2024	
	105	13/03/2024	1280496,231	1104128,572	932,048	B5-B	15	50%	38,91	11,0	14,0	25,0	29/01/2024	
							30	100%	52,51	11,0	14,0	25,0	29/01/2024	
	384	13/03/2024	1280503,102	1104126,431	934,967	B6	15	50%	39,57	11,0	14,0	25,0	29/01/2024	
							30	100%	52,59	11,0	14,0	25,0	29/01/2024	
	32	13/03/2024	1280503,102	1104126,431	934,967	B7	15	50%	38,70	11,0	14,0	25,0	29/01/2024	
							30	100%	53,60	11,0	14,0	25,0	29/01/2024	
	940					B7								
	34	13/03/2024	1280503,102	1104126,431	934,967	B8	15	50%	46,57	11,0	14,0	25,0	29/01/2024	
							30	100%	54,79	11,0	14,0	25,0	29/01/2024	
	38	13/03/2024	1280488,841	1104133,717	931,023	B9	15	50%	47,44	11,0	14,0	25,0	29/01/2024	
							30	100%	55,14	11,0	14,0	25,0	29/01/2024	
	3	12/03/2024	1280503,865	1104123,906	931,04	C1	15	50%	45,11	11,0	14,0	25,0	29/01/2024	
							30	100%	54,29	11,0	14,0	25,0	29/01/2024	
	44	6/04/2024	1280505,236	1104122,46	931,091	C10	15	50%	41,78	11,0	14,0	25,0	29/01/2024	
							30	100%	54,33	11,0	14,0	25,0	29/01/2024	
	51	14/03/2024	1280506,401	1104120,883	931,026	C11	15	50%	47,47	11,0	14,0	25,0	29/01/2024	
							30	100%	54,28	11,0	14,0	25,0	29/01/2024	
	65	14/03/2024	1280508,211	1104117,357	931,004	C13	15	50%	47,33	11,0	14,0	25,0	29/01/2024	
							30	100%	54,53	11,0	14,0	25,0	29/01/2024	
	58	14/03/2024	1280507,322	1104119,138	931,032	C12	15	50%	46,53	11,0	14,0	25,0	29/01/2024	
							30	100%	54,91	11,0	14,0	25,0	29/01/2024	
	68	15/03/2024	1280509,097	1104115,723	931,046	C14	15	50%	45,93	11,0	14,0	25,0	29/01/2024	
							30	100%	52,79	11,0	14,0	25,0	29/01/2024	
	182	15/03/2024	1280510,161	1104114	931,032	C15	15	50%	45,58	11,0	14,0	25,0	29/01/2024	
							30	100%	54,27	11,0	14,0	25,0	29/01/2024	
	190	15/03/2024	1280510,651	1104111,467	929,155	C16	15	50%	46,43	11,0	14,0	25,0	13/02/2024	
							30	100%	54,79	11,0	14,0	25,0	13/02/2024	
	248	20/03/2024	1280512,691	1104109,862	930,885	C17	15	50%	47,93	11,0	14,0	25,0	13/02/2024	
							30	100%	56,47	11,0	14,0	25,0	13/02/2024	
	256	21/03/2024	1280514,89	1104108,682	931,012	C18	15	50%	48,55	11,0	14,0	25,0	13/02/2024	
							30	100%	63,29	11,0	14,0	25,0	13/02/2024	
	264	22/03/2024	1280488,841	1104133,717	931,023	C19	15	50%	51,00	11,0	14,0	25,0	13/02/2024	
							30	100%	64,42	11,0	14,0	25,0	13/02/2024	
	8	12/03/2024	1280515,869	1104106,909	931,001	C2	15	50%	41,08	11,0	14,0	25,0	29/01/2024	
							30	100%	54,43	11,0	14,0	25,0	29/01/2024	
	272	22/03/2024	1280516,524	1104105	931,003	C20	15	50%	53,18	11,0	14,0	25,0	13/02/2024	
							30	100%	69,00	11,0	14,0	25,0	13/02/2024	
	281	2/04/2024	1280517,151	1104102,978	930,974	C21	15	50%	44,45	11,0	14,0	25,0	13/02/2024	
							30	100%	56,01	11,0	14,0	25,0	13/02/2024	
	289	3/04/2024	1280517,577	1104100,737	931,056	C22	15	50%	44,85	11,0	14,0	25,0	13/02/2024	
							30	100%	55,40	11,0	14,0	25,0	13/02/2024	
	116	2/04/2024	1280518,077	1104098,662	931,047	C23	15	50%	46,06	11,0	14,0	25,0	13/02/2024	
							30	100%	55,21	11,0	14,0	25,0	13/02/2024	
	124	3/04/2024	1280518,78	1104096,802	930,993	C24	15	50%	40,02	11,0	14,0	25,0	13/02/2024	
							30	100%	54,72	11,0	14,0	25,0	13/02/2024	
	132	4/04/2024	1280520,087	1104095,26	931,038	C25	15	50%	42,15	11,0	14,0	25,0	13/02/2024	
							30	100%	57,07	11,0	14,0	25,0	13/02/2024	
	140	4/04/2024	1280521,038	1104093,523	931,017	C26	15	50%	47,39	11,0	14,0	25,0	13/02/2024	
							30	100%	56,40	11,0	14,0	25,0	13/02/2024	
	197	4/04/2024	1280522,046	1104091,596	931,029	C27	15	50%	46,42	11,0	14,0	25,0	13/02/2024	
							30	100%	55,30	11,0	14,0	25,0	13/02/2024	
	351	5/04/2024	1280522,649	1104089,688	930,984	C28	15	50%	40,10	11,0	14,0	25,0	13/02/2024	
							30	100%	53,65	11,0	14,0	25,0	13/02/2024	
	355	5/04/2024	1280492,022	1104131,247	930,999	C29	15	50%	40,04	11,0	14,0	25,0	5/03/2024	
							30	100%	57,03	11,0	14,0	25,0	5/03/2024	
	13	12/03/2024	1280523,201	1104087,81	931,083	C3	15	50%	45,59	11,0	14,0	25,0	29/01/2024	
							30	100%	53,67	11,0	14,0	25,0	29/01/2024	
	224	8/04/2024	1280523,46	1104085,915	931,072	C30	15	50%	44,41	11,0	14,0	25,0	5/03/2024	
							30	100%	54,85	11,0	14,0	25,0	5/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	210	8/04/2024	1280524,022	1104083,963	930,885	C31	15	50%	42,85	11,0	14,0	25,0	5/03/2024	
							30	100%	53,99	11,0	14,0	25,0	5/03/2024	
	216	8/04/2024	1280524,227	1104081,997	930,905	C32	15	50%	39,90	11,0	14,0	25,0	5/03/2024	
							30	100%	56,29	11,0	14,0	25,0	5/03/2024	
	234	8/04/2024	1280524,192	1104079,831	930,904	C33	15	50%	42,21	11,0	14,0	25,0	5/03/2024	
							30	100%	54,77	11,0	14,0	25,0	5/03/2024	
	363	9/04/2024	1280524,722	1104077,938	931,019	C34	15	50%	39,90	11,0	14,0	25,0	9/03/2024	
							30	100%	56,02	11,0	14,0	25,0	9/03/2024	
	369	9/04/2024	1280524,751	1104076,034	931,042	C35	15	50%	40,03	11,0	14,0	25,0	9/03/2024	
							30	100%	54,42	11,0	14,0	25,0	9/03/2024	
	376	9/04/2024	1280524,843	1104074,021	931,058	C36	15	50%	44,88	11,0	14,0	25,0	5/03/2024	
							30	100%	56,18	11,0	14,0	25,0	5/03/2024	
	147	9/04/2024	1280524,879	1104071,982	930,998	C37	15	50%	42,70	11,0	14,0	25,0	5/03/2024	
							30	100%	54,43	11,0	14,0	25,0	5/03/2024	
	154	10/04/2024	1280525,315	1104069,973	931,02	C38	15	50%	43,18	11,0	14,0	25,0	9/04/2024	
							30	100%	56,15	11,0	14,0	25,0	9/04/2024	
	161	10/04/2024	1280493,634	1104130,087	931,023	C39	15	50%	34,90	11,0	14,0	25,0	9/04/2024	
							30	100%	52,62	11,0	14,0	25,0	9/04/2024	
	18	11/03/2024	1280525,55	1104067,896	931,067	C4	15	50%	43,12	11,0	14,0	25,0	29/01/2024	
							30	100%	55,41	11,0	14,0	25,0	29/01/2024	
	168	10/04/2024	1280525,186	1104065,924	931,014	C40	15	50%	41,02	11,0	14,0	25,0	9/04/2024	
							30	100%	54,02	11,0	14,0	25,0	9/04/2024	
	175	10/04/2024	1280525,024	1104063,922	930,978	C41	15	50%	35,74	11,0	14,0	25,0	9/04/2024	
							30	100%	54,02	11,0	14,0	25,0	9/04/2024	
	297	15/04/2024	1280525,046	1104062,067	931,032	C42	15	50%	42,70	11,0	14,0	25,0	9/04/2024	
							30	100%	58,19	11,0	14,0	25,0	9/04/2024	
	304	15/04/2024	1280524,863	1104060,102	931,030	C43	15	50%	44,32	11,0	14,0	25,0	9/04/2024	
							30	100%	57,20	11,0	14,0	25,0	9/04/2024	
	311	15/04/2024	1280524,853	1104058,222	931,078	C44	15	50%	42,07	11,0	14,0	25,0	9/04/2024	
							30	100%	54,91	11,0	14,0	25,0	9/04/2024	
	318	15/04/2024	1280524,829	1104056,445	931,084	C45	15	50%	40,64	11,0	14,0	25,0	9/04/2024	
							30	100%	55,05	11,0	14,0	25,0	9/04/2024	
	325	15/04/2024	1280523,6	1104054,306	931,031	C46	15	50%	48,08	11,0	14,0	25,0	9/04/2024	
							30	100%	60,01	11,0	14,0	25,0	9/04/2024	
	332	15/04/2024	1280523,808	1104052,299	930,995	C47	15	50%	40,01	11,0	14,0	25,0	9/03/2024	
							30	100%	54,13	11,0	14,0	25,0	9/03/2024	
	339	16/04/2024	1280523,956	1104050,364	930,983	C48	15	50%	45,48	11,0	14,0	25,0	9/03/2024	
							30	100%	56,29	11,0	14,0	25,0	9/03/2024	
	399	16/04/2024	1280495,265	1104128,886	931,010	C49	15	50%	45,09	11,0	14,0	25,0	18/03/2024	
							30	100%	54,88	11,0	14,0	25,0	18/03/2024	
	21	11/03/2024	1280523,934	1104048,358	931,037	C5	15	50%	41,97	11,0	14,0	25,0	29/01/2024	
							30	100%	53,51	11,0	14,0	25,0	29/01/2024	
	405	16/04/2024	1280524,096	1104046,388	930,997	C50	15	50%	38,50	11,0	14,0	25,0	18/03/2024	
							30	100%	55,02	11,0	14,0	25,0	18/03/2024	
	412	16/04/2024	1280524,151	1104044,703	931,000	C51	15	50%	45,89	11,0	14,0	25,0	18/03/2024	
							30	100%	58,37	11,0	14,0	25,0	18/03/2024	REPETIDO EN 11 MAYO
	419	27/04/2024	1280525,434	1104043,174	930,534	C52	15	50%	45,06	11,0	14,0	25,0	18/03/2024	
							30	100%	64,12	11,0	14,0	25,0	18/03/2024	
	72	27/04/2024	1280527,523	1104042,746	930,525	C53	15	50%	44,34	11,0	14,0	25,0	18/03/2024	
							30	100%	54,60	11,0	14,0	25,0	18/03/2024	
	78	27/04/2024	1280529,365	1104042,027	930,530	C54	15	50%	38,76	11,0	14,0	25,0	18/03/2024	
							30	100%	53,84	11,0	14,0	25,0	18/03/2024	
	84	27/04/2024	1280531,028	1104040,976	930,520	C55	15	50%	41,19	11,0	14,0	25,0	18/03/2024	
							30	100%	55,20	11,0	14,0	25,0	18/03/2024	
	90	29/04/2024	1280532,57	1104039,698	930,506	C56	15	50%	38,68	11,0	14,0	25,0	18/03/2024	
							30	100%	53,87	11,0	14,0	25,0	18/03/2024	
	96	29/04/2024	1280533,505	1104037,972	930,512	C57	15	50%	39,72	11,0	14,0	25,0	18/03/2024	
							30	100%	55,24	11,0	14,0	25,0	18/03/2024	
	102	29/04/2024	1280534,325	1104035,981	930,471	C58	15	50%	41,69	11,0	14,0	25,0	18/03/2024	
							30	100%	57,12	11,0	14,0	25,0	18/03/2024	
	426	29/04/2024	1280496,918	1104127,796	931,020	C59	15	50%	40,66	11,0	14,0	25,0	18/03/2024	
							30	100%	54,21	11,0	14,0	25,0	18/03/2024	
	24	13/03/2024	1280535,406	1104034,306	930,519	C6	15	50%	46,38	11,0	14,0	25,0	29/01/2024	
							30	100%	55,02	11,0	14,0	25,0	29/01/2024	
	432	29/04/2024	1280498,644	1104126,778	931,017	C60	15	50%	40,08	11,0	14,0	25,0	18/03/2024	
							30	100%	53,94	11,0	14,0	25,0	18/03/2024	
	27	13/03/2024	1280488,841	1104133,717	931,023	C7	15	50%	45,30	11,0	14,0	25,0	29/01/2024	
							30	100%	55,01	11,0	14,0	25,0	29/01/2024	
	33	13/03/2024	1280488,841	1104133,717	931,023	C8	15	50%	45,57	11,0	14,0	25,0	29/01/2024	
							30	100%	53,19	11,0	14,0	25,0	29/01/2024	
	37	13/03/2024	1280488,409	1104133,173	928,996	C9	15	50%	48,77	11,0	14,0	25,0	29/01/2024	
							30	100%	57,88	11,0	14,0	25,0	29/01/2024	
	4	12/03/2024	1280503,342	1104123,213	929,023	D1	15	50%	40,76	11,0	14,0	25,0	29/01/2024	
							30	100%	52,59	11,0	14,0	25,0	29/01/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	43	14/03/2024	1280504,574	1104121,664	929,009	D10	15	50%	44,80	11,0	14,0	25,0	29/01/2024	
							30	100%	53,67	11,0	14,0	25,0	29/01/2024	
	50	14/03/2024	1280505,596	1104119,973	929,029	D11	15	50%	45,72	11,0	14,0	25,0	29/01/2024	
							30	100%	54,21	11,0	14,0	25,0	29/01/2024	
	57	14/03/2024	1280506,526	1104118,203	928,988	D12	15	50%	44,58	11,0	14,0	25,0	29/01/2024	
							30	100%	52,87	11,0	14,0	25,0	29/01/2024	
	64	14/03/2024	1280507,607	1104116,529	928,993	D13	15	50%	46,34	11,0	14,0	25,0	29/01/2024	
							30	100%	53,08	11,0	14,0	25,0	29/01/2024	
	109	15/03/2024	1280508,485	1104114,721	929,047	D14	15	50%	45,32	11,0	14,0	25,0	29/01/2024	
							30	100%	52,74	11,0	14,0	25,0	29/01/2024	
	183	15/03/2024	1280509,558	1104112,992	929,035	D15	15	50%	44,67	11,0	14,0	25,0	29/01/2024	
							30	100%	53,48	11,0	14,0	25,0	29/01/2024	
	190	15/03/2024	1280510,651	1104111,467	929,155	D16	15	50%	44,11	11,0	14,0	25,0	13/02/2024	
							30	100%	53,70	11,0	14,0	25,0	13/02/2024	
	249	20/03/2024	1280512,339	1104109,492	929,011	D17	15	50%	45,36	11,0	14,0	25,0	13/02/2024	
							30	100%	53,62	11,0	14,0	25,0	13/02/2024	
	257	21/03/2024	1280514,417	1104108,131	929,061	D18	15	50%	48,01	11,0	14,0	25,0	13/02/2024	
							30	100%	64,21	11,0	14,0	25,0	13/02/2024	
	265	22/03/2024	1280488,409	1104133,173	928,996	D19	15	50%	50,02	11,0	14,0	25,0	13/02/2024	
							30	100%	65,20	11,0	14,0	25,0	13/02/2024	
	9	12/03/2024	1280515,53	1104106,525	929,035	D2	15	50%	41,20	11,0	14,0	25,0	29/01/2024	
							30	100%	52,93	11,0	14,0	25,0	29/01/2024	
	273	2/04/2024	1280516,188	1104104,658	929,033	D20	15	50%	45,20	11,0	14,0	25,0	13/02/2024	
							30	100%	58,08	11,0	14,0	25,0	13/02/2024	
	282	2/04/2024	1280516,458	1104102,552	929,008	D21	15	50%	47,00	11,0	14,0	25,0	13/02/2024	
							30	100%	57,04	11,0	14,0	25,0	13/02/2024	
	290	2/04/2024	1280517,136	1104100,409	929,032	D22	15	50%	44,08	11,0	14,0	25,0	13/02/2024	
							30	100%	53,30	11,0	14,0	25,0	13/02/2024	
	117	2/04/2024	1280517,72	1104098,403	929,038	D23	15	50%	45,16	11,0	14,0	25,0	13/02/2024	
							30	100%	56,25	11,0	14,0	25,0	13/02/2024	
	125	4/04/2024	1280518,753	1104096,663	929,011	D24	15	50%	39,85	11,0	14,0	25,0	13/02/2024	
							30	100%	56,22	11,0	14,0	25,0	13/02/2024	
	133	4/04/2024	1280519,288	1104094,815	929,022	D25	15	50%	38,72	11,0	14,0	25,0	13/02/2024	
							30	100%	55,15	11,0	14,0	25,0	13/02/2024	
	141	4/04/2024	1280520,823	1104093,316	929,047	D26	15	50%	39,40	11,0	14,0	25,0	13/02/2024	
							30	100%	52,61	11,0	14,0	25,0	13/02/2024	
	198	4/04/2024	1280522,024	1104091,568	929,040	D27	15	50%	43,72	11,0	14,0	25,0	13/02/2024	
							30	100%	54,80	11,0	14,0	25,0	13/02/2024	
	203	5/04/2024	1280522,807	1104089,714	929,022	D28	15	50%	43,51	11,0	14,0	25,0	13/02/2024	
							30	100%	54,91	11,0	14,0	25,0	13/02/2024	
	356	5/04/2024	1280491,524	1104130,656	929,001	D29	15	50%	47,00	11,0	14,0	25,0	5/03/2024	
							30	100%	56,30	11,0	14,0	25,0	5/03/2024	
	14	12/03/2024	1280523,466	1104087,868	928,983	D3	15	50%	37,87	11,0	14,0	25,0	29/01/2024	
							30	100%	57,61	11,0	14,0	25,0	29/01/2024	
	225	8/04/2024	1280523,558	1104085,64	929,032	D30	15	50%	37,09	11,0	14,0	25,0	5/03/2024	
							30	100%	55,03	11,0	14,0	25,0	5/03/2024	
	211	8/04/2024	1280523,795	1104083,706	929,018	D31	15	50%	43,85	11,0	14,0	25,0	5/03/2024	
							30	100%	55,01	11,0	14,0	25,0	5/03/2024	
	217	8/04/2024	1280524,006	1104081,744	929,037	D32	15	50%	47,00	11,0	14,0	25,0	5/03/2024	
							30	100%	56,30	11,0	14,0	25,0	5/03/2024	
	235	8/04/2024	1280524,24	1104079,747	929,056	D33	15	50%	36,73	11,0	14,0	25,0	5/03/2024	
							30	100%	55,59	11,0	14,0	25,0	5/03/2024	
	364	9/04/2024	1280524,357	1104077,674	928,990	D34	15	50%	38,63	11,0	14,0	25,0	9/03/2024	
							30	100%	54,50	11,0	14,0	25,0	9/03/2024	
	370	9/04/2024	1280524,314	1104075,768	929,024	D35	15	50%	44,00	11,0	14,0	25,0	9/03/2024	
							30	100%	53,31	11,0	14,0	25,0	9/03/2024	
	377	9/04/2024	1280524,287	1104073,772	928,978	D36	15	50%	42,05	11,0	14,0	25,0	9/03/2024	
							30	100%	55,32	11,0	14,0	25,0	9/03/2024	
	148	9/04/2024	1280524,626	1104071,84	929,014	D37	15	50%	39,20	11,0	14,0	25,0	9/03/2024	
							30	100%	52,60	11,0	14,0	25,0	9/03/2024	
	155	10/04/2024	1280525,017	1104069,862	928,989	D38	15	50%	44,16	11,0	14,0	25,0	9/03/2024	
							30	100%	54,74	11,0	14,0	25,0	9/03/2024	
	162	10/04/2024	1280493,232	1104129,634	928,996	D39	15	50%	43,22	11,0	14,0	25,0	9/03/2024	
							30	100%	53,99	11,0	14,0	25,0	9/03/2024	
	19	11/03/2024	1280525,306	1104067,735	928,99	D4	15	50%	41,98	11,0	14,0	25,0	29/01/2024	
							30	100%	54,92	11,0	14,0	25,0	29/01/2024	
	169	10/04/2024	1280524,771	1104065,831	928,973	D40	15	50%	40,76	11,0	14,0	25,0	9/03/2024	
							30	100%	52,60	11,0	14,0	25,0	9/03/2024	
	176	10/04/2024	1280525,016	1104063,865	929,005	D41	15	50%	39,19	11,0	14,0	25,0	9/03/2024	
							30	100%	52,90	11,0	14,0	25,0	9/03/2024	
	298	15/04/2024	1280525,022	1104061,866	928,955	D42	15	50%	49,19	11,0	14,0	25,0	9/03/2024	
							30	100%	55,21	11,0	14,0	25,0	9/03/2024	
	305	15/04/2024	1280524,782	1104059,933	929,034	D43	15	50%	48,41	11,0	14,0	25,0	9/03/2024	
							30	100%	59,06	11,0	14,0	25,0	9/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	312	15/04/2024	1280524,979	1104058,155	929,048	D44	15	50%	47,15	11,0	14,0	25,0	9/03/2024	
							30	100%	54,31	11,0	14,0	25,0	9/03/2024	
	319	15/04/2024	1280524,662	1104056,147	928,902	D45	15	50%	44,01	11,0	14,0	25,0	9/03/2024	
							30	100%	55,48	11,0	14,0	25,0	9/03/2024	
	326	15/04/2024	1280523,661	1104054,217	928,983	D46	15	50%	39,09	11,0	14,0	25,0	9/03/2024	
							30	100%	54,52	11,0	14,0	25,0	9/03/2024	
	333	15/04/2024	1280523,456	1104052,07	929,034	D47	15	50%	48,18	11,0	14,0	25,0	9/03/2024	
							30	100%	60,37	11,0	14,0	25,0	9/03/2024	
	340	16/04/2024	1280523,524	1104050,216	928,970	D48	15	50%	39,33	11,0	14,0	25,0	9/03/2024	
							30	100%	53,78	11,0	14,0	25,0	9/03/2024	
	400	16/04/2024	1280494,96	1104128,675	929,009	D49	15	50%	41,93	11,0	14,0	25,0	18/03/2024	
							30	100%	55,41	11,0	14,0	25,0	18/03/2024	
	22	11/03/2024	1280523,665	1104048,318	929,025	D5	15	50%	42,41	11,0	14,0	25,0	29/01/2024	
							30	100%	54,28	11,0	14,0	25,0	29/01/2024	
	406	16/04/2024	1280523,87	1104046,268	929,036	D50	15	50%	42,93	11,0	14,0	25,0	18/03/2024	
							30	100%	56,41	11,0	14,0	25,0	18/03/2024	
	413	16/04/2024	1280524,095	1104044,37	929,012	D51	15	50%	39,97	11,0	14,0	25,0	18/03/2024	
							30	100%	54,46	11,0	14,0	25,0	18/03/2024	
	420	27/04/2024	1280525,005	1104042,784	928,362	D52	15	50%	40,23	11,0	14,0	25,0	18/03/2024	
							30	100%	57,76	11,0	14,0	25,0	18/03/2024	
	73	27/04/2024	1280526,521	1104041,832	928,528	D53	15	50%	39,86	11,0	14,0	25,0	18/03/2024	
							30	100%	53,90	11,0	14,0	25,0	18/03/2024	
	79	27/04/2024	1280528,34	1104041,084	928,489	D54	15	50%	42,15	11,0	14,0	25,0	18/03/2024	
							30	100%	60,15	11,0	14,0	25,0	18/03/2024	
	85	27/04/2024	1280530,043	1104039,997	928,529	D55	15	50%	40,44	11,0	14,0	25,0	18/03/2024	
							30	100%	56,12	11,0	14,0	25,0	18/03/2024	
	91	29/04/2024	1280531,679	1104038,752	928,483	D56	15	50%	41,34	11,0	14,0	25,0	18/03/2024	
							30	100%	56,21	11,0	14,0	25,0	18/03/2024	
	97	29/04/2024	1280533,11	1104037,325	928,482	D57	15	50%	41,00	11,0	14,0	25,0	18/03/2024	
							30	100%	54,53	11,0	14,0	25,0	18/03/2024	
	103	29/04/2024	1280534,125	1104035,583	928,464	D58	15	50%	39,58	11,0	14,0	25,0	18/03/2024	
							30	100%	60,33	11,0	14,0	25,0	18/03/2024	
	427	29/04/2024	1280496,625	1104127,641	928,997	D59	15	50%	38,42	11,0	14,0	25,0	18/03/2024	
							30	100%	59,24	11,0	14,0	25,0	18/03/2024	
	25	13/03/2024	1280535,008	1104033,785	928,491	D6	15	50%	41,19	11,0	14,0	25,0	29/01/2024	
							30	100%	56,02	11,0	14,0	25,0	29/01/2024	
	433	29/04/2024	1280544,868	1104035,509	929,015	D60	15	50%	40,49	11,0	14,0	25,0	18/03/2024	
							30	100%	54,60	11,0	14,0	25,0	18/03/2024	
	475	1505/2024	1280546,337	1104034,183	928,936	D60A	15	50%	41,07	11,0	14,0	25,0	16/04/2024	
							30	100%	54,87	11,0	14,0	25,0	16/04/2024	ANCLAJE 60A-D
	474					D60B								
	478	1505/2024	1280548,968	1104030,753	928,963	D61	15	50%	41,03	11,0	14,0	25,0	16/04/2024	
							30	100%	57,11	11,0	14,0	25,0	16/04/2024	
	483	1505/2024	1280549,583	1104028,88	929,056	D62	15	50%	42,60	11,0	14,0	25,0	16/04/2024	
							30	100%	57,40	11,0	14,0	25,0	16/04/2024	
	488	1505/2024	1280550,117	1104026,982	929,054	D63	15	50%	35,16	11,0	14,0	25,0	16/04/2024	
							30	100%	53,80	11,0	14,0	25,0	16/04/2024	
	493	1505/2024	1280550,483	1104025,052	929,057	D64	15	50%	37,02	11,0	14,0	25,0	16/04/2024	
							30	100%	55,09	11,0	14,0	25,0	16/04/2024	
	500	16/05/2024	1280550,385	1104023,091	929,054	D65	15	50%	39,14	11,0	14,0	25,0	16/04/2024	
							30	100%	55,01	11,0	14,0	25,0	16/04/2024	
	505	16/05/2024	1280550,708	1104021,125	929,088	D66	15	50%	35,62	11,0	14,0	25,0	16/04/2024	
							30	100%	54,94	11,0	14,0	25,0	16/04/2024	
	510	16/05/2024	1280550,839	1104019,133	929,072	D67	15	50%	43,22	11,0	14,0	25,0	16/04/2024	
							30	100%	59,73	11,0	14,0	25,0	16/04/2024	
	515	16/05/2024	1280550,431	1104017,204	929,080	D68	15	50%	43,49	11,0	14,0	25,0	16/04/2024	
							30	100%	60,12	11,0	14,0	25,0	16/04/2024	
	520	1605/2024	1280498,25	1104126,527	929,021	D69	15	50%	40,54	11,0	14,0	25,0	16/04/2024	
							30	100%	56,41	11,0	14,0	25,0	16/04/2024	
	28	13/03/2024	1280549,857	1104015,319	929,12	D7	15	50%	45,93	11,0	14,0	25,0	29/01/2024	
							30	100%	53,75	11,0	14,0	25,0	29/01/2024	
	525	17/05/2024	1280550,293	1104013,515	928,944	D70	15	50%	42,13	11,0	14,0	25,0	16/04/2024	
							30	100%	60,07	11,0	14,0	25,0	16/04/2024	
	531	17/05/2024	1280551,251	1104011,816	929,025	D71	15	50%	43,04	11,0	14,0	25,0	16/04/2024	
							30	100%	60,01	11,0	14,0	25,0	16/04/2024	
	535	17/05/2024	1280552,694	1104010,335	929,030	D72	15	50%	43,11	11,0	14,0	25,0	16/04/2024	
							30	100%	58,65	11,0	14,0	25,0	16/04/2024	
	540	17/05/2024	1280553,347	1104008,41	928,967	D73	15	50%	44,05	11,0	14,0	25,0	16/04/2024	
							30	100%	59,46	11,0	14,0	25,0	16/04/2024	
	30	13/03/2024	1280556,534	1103996,035	929,01	D8	15	50%	43,97	11,0	14,0	25,0	29/01/2024	
							30	100%	59,42	11,0	14,0	25,0	29/01/2024	
	36	13/03/2024	1280559,264	1103977,019	929,068	D9	15	50%	50,09	11,0	14,0	25,0	29/01/2024	
							30	100%	59,42	11,0	14,0	25,0	29/01/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			N° ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	5	12/03/2024	1280502,73	1104122,385	927,017	E1	15	50%	45,50	11,0	14,0	25,0	29/01/2024	
							30	100%	53,75	11,0	14,0	25,0	29/01/2024	
	42	14/03/2024	1280503,927	1104120,84	927,008	E10	15	50%	49,51	11,0	14,0	25,0	29/01/2024	
							30	100%	58,92	11,0	14,0	25,0	29/01/2024	
	49	14/03/2024	1280504,946	1104119,068	927,015	E11	15	50%	46,31	11,0	14,0	25,0	29/01/2024	
							30	100%	53,48	11,0	14,0	25,0	29/01/2024	
	56	14/03/2024	1280506,018	1104117,398	927,021	E12	15	50%	49,56	11,0	14,0	25,0	29/01/2024	
							30	100%	53,69	11,0	14,0	25,0	29/01/2024	
	63	14/03/2024	1280506,959	1104115,685	927,018	E13	15	50%	39,95	11,0	14,0	25,0	29/01/2024	
							30	100%	54,63	11,0	14,0	25,0	29/01/2024	
	110	15/03/2024	1280489,679	1104131,385	926,975	E14	15	50%	42,59	11,0	14,0	25,0	29/01/2024	
							30	100%	52,48	11,0	14,0	25,0	29/01/2024	
	184	15/03/2024	1280489,679	1104131,385	926,975	E15	15	50%	44,47	11,0	14,0	25,0	29/01/2024	
							30	100%	52,98	11,0	14,0	25,0	29/01/2024	
	191	15/03/2024	1280489,679	1104131,385	926,975	E16	15	50%	46,70	11,0	14,0	25,0	13/02/2024	
							30	100%	52,91	11,0	14,0	25,0	13/02/2024	
	250	20/03/2024	1280489,679	1104131,385	926,975	E17	15	50%	46,55	11,0	14,0	25,0	13/02/2024	
							30	100%	53,08	11,0	14,0	25,0	13/02/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	258	21/03/2024	1280489,679	1104131,385	926,975	E18	15	50%	47,02	11,0	14,0	25,0	13/02/2024	
							30	100%	65,04	11,0	14,0	25,0	13/02/2024	
	266	21/03/2024	1280553,472	1103979,801	915,019	E19	15	50%	48,55	11,0	14,0	25,0	13/02/2024	
							30	100%	64,85	11,0	14,0	25,0	13/02/2024	
	922	1505/2024	1280489,679	1104131,385	926,975	E1-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	10,23	4,0	4,5	8,5	16/04/2024	
	10	12/03/2024	1280514,338	1104105,825	927,064	E2	15	50%	47,69	11,0	14,0	25,0	29/01/2024	
							30	100%	54,23	11,0	14,0	25,0	29/01/2024	
	274	2/04/2024	1280515,263	1104103,997	927,007	E20	15	50%	47,43	11,0	14,0	25,0	13/02/2024	
							30	100%	57,71	11,0	14,0	25,0	13/02/2024	
	283	2/04/2024	1280515,889	1104102,082	927,037	E21	15	50%	41,03	11,0	14,0	25,0	13/02/2024	
							30	100%	55,01	11,0	14,0	25,0	13/02/2024	
	291	2/04/2024	1280516,603	1104099,948	926,979	E22	15	50%	43,15	11,0	14,0	25,0	13/02/2024	
							30	100%	54,00	11,0	14,0	25,0	13/02/2024	
	118	2/04/2024	1280517,506	1104098,253	926,984	E23	15	50%	45,03	11,0	14,0	25,0	13/02/2024	
							30	100%	54,30	11,0	14,0	25,0	13/02/2024	
	126	4/04/2024	1280518,396	1104096,435	927,009	E24	15	50%	43,20	11,0	14,0	25,0	13/02/2024	
							30	100%	61,02	11,0	14,0	25,0	13/02/2024	
	134	4/04/2024	1280519,438	1104094,717	927,019	E25	15	50%	38,50	11,0	14,0	25,0	13/02/2024	
							30	100%	58,08	11,0	14,0	25,0	13/02/2024	
	142	4/04/2024	1280520,489	1104093,02	926,961	E26	15	50%	48,33	11,0	14,0	25,0	13/02/2024	
							30	100%	56,50	11,0	14,0	25,0	13/02/2024	
	199	4/04/2024	1280521,602	1104091,34	927,003	E27	15	50%	44,14	11,0	14,0	25,0	13/02/2024	
							30	100%	57,08	11,0	14,0	25,0	13/02/2024	
	204	5/04/2024	1280522,537	1104089,52	926,994	E28	15	50%	42,10	11,0	14,0	25,0	13/02/2024	
							30	100%	53,40	11,0	14,0	25,0	13/02/2024	
	357	5/04/2024	1280541,16	1104034,206	926,998	E29	15	50%	40,02	11,0	14,0	25,0	5/03/2024	
							30	100%	55,00	11,0	14,0	25,0	5/03/2024	
	927	1505/2024	1280491,235	1104130,173	926,992	E2-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	9,91	4,0	4,5	8,5	16/04/2024	
	15	12/03/2024	1280523,103	1104087,58	927,011	E3	15	50%	23,18	11,0	14,0	25,0	29/01/2024	
							30	100%	52,76	11,0	14,0	25,0	29/01/2024	
	226	8/04/2024	1280523,208	1104085,546	926,972	E30	15	50%	39,03	11,0	14,0	25,0	5/03/2024	
							30	100%	57,01	11,0	14,0	25,0	5/03/2024	
	212	8/04/2024	1280523,735	1104083,613	927,060	E31	15	50%	40,12	11,0	14,0	25,0	5/03/2024	
							30	100%	53,05	11,0	14,0	25,0	5/03/2024	
	218	8/04/2024	1280523,693	1104081,566	926,990	E32	15	50%	40,01	11,0	14,0	25,0	5/03/2024	
							30	100%	52,85	11,0	14,0	25,0	5/03/2024	
	236	8/04/2024	1280523,924	1104079,421	926,987	E33	15	50%	44,17	11,0	14,0	25,0	5/03/2024	
							30	100%	56,40	11,0	14,0	25,0	5/03/2024	
	365	9/04/2024	1280523,812	1104077,404	927,033	E34	15	50%	45,75	11,0	14,0	25,0	9/03/2024	
							30	100%	56,12	11,0	14,0	25,0	9/03/2024	
	371	9/04/2024	1280523,767	1104075,38	927,054	E35	15	50%	40,15	11,0	14,0	25,0	9/03/2024	
							30	100%	54,92	11,0	14,0	25,0	9/03/2024	
	378	10/04/2024	1280523,863	1104073,502	927,009	E36	15	50%	40,15	11,0	14,0	25,0	9/03/2024	
							30	100%	53,75	11,0	14,0	25,0	9/03/2024	
	149	10/04/2024	1280524,083	1104071,544	926,971	E37	15	50%	42,09	11,0	14,0	25,0	9/03/2024	
							30	100%	54,01	11,0	14,0	25,0	9/03/2024	
	156	10/04/2024	1280524,59	1104069,596	926,989	E38	15	50%	41,48	11,0	14,0	25,0	9/03/2024	
							30	100%	55,14	11,0	14,0	25,0	9/03/2024	
	163	10/04/2024	1280492,897	1104129,06	927,011	E39	15	50%	43,13	11,0	14,0	25,0	9/03/2024	
							30	100%	56,50	11,0	14,0	25,0	9/03/2024	
	20	11/03/2024	1280524,616	1104067,555	927,009	E4	15	50%	40,87	11,0	14,0	25,0	29/01/2024	
							30	100%	62,68	11,0	14,0	25,0	29/01/2024	
	299	15/04/2024	1280524,522	1104061,689	927,050	E42	15	50%	50,16	11,0	14,0	25,0	9/03/2024	
							30	100%	61,12	11,0	14,0	25,0	9/03/2024	
	306	15/04/2024	1280524,389	1104059,779	926,984	E43	15	50%	47,78	11,0	14,0	25,0	9/03/2024	
							30	100%	54,18	11,0	14,0	25,0	9/03/2024	
	313	15/04/2024	1280524,679	1104057,865	927,005	E44	15	50%	39,98	11,0	14,0	25,0	9/03/2024	
							30	100%	54,46	11,0	14,0	25,0	9/03/2024	
	320	15/04/2024	1280524,472	1104056,216	926,882	E45	15	50%	41,04	11,0	14,0	25,0	9/03/2024	
							30	100%	54,62	11,0	14,0	25,0	9/03/2024	
	327	15/04/2024	1280523,221	1104054,196	927,080	E46	15	50%	40,02	11,0	14,0	25,0	9/03/2024	
							30	100%	53,64	11,0	14,0	25,0	9/03/2024	
	334	15/04/2024	1280523,238	1104052,049	927,026	E47	15	50%	45,85	11,0	14,0	25,0	9/03/2024	
							30	100%	54,22	11,0	14,0	25,0	9/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	341	16/04/2024	1280523,186	1104050,04	927,045	E48	15	50%	48,79	11,0	14,0	25,0	9/03/2024	
							30	100%	60,25	11,0	14,0	25,0	9/03/2024	
	401	16/04/2024	1280494,573	1104127,981	927,007	E49	15	50%	46,04	11,0	14,0	25,0	18/03/2024	
							30	100%	54,82	11,0	14,0	25,0	18/03/2024	
	23	11/03/2024	1280523,292	1104048,132	927,027	E5	15	50%	37,89	11,0	14,0	25,0	29/01/2024	
							30	100%	54,70	11,0	14,0	25,0	29/01/2024	
	407	16/04/2024	1280523,528	1104046,143	926,995	E50	15	50%	42,69	11,0	14,0	25,0	18/03/2024	
							30	100%	54,78	11,0	14,0	25,0	18/03/2024	
	414	16/04/2024	1280523,988	1104044,286	926,997	E51	15	50%	40,61	11,0	14,0	25,0	18/03/2024	
							30	100%	53,94	11,0	14,0	25,0	18/03/2024	
	421	27/04/2024	1280524,732	1104042,563	926,501	E52	15	50%	45,17	11,0	14,0	25,0	18/03/2024	
							30	100%	60,69	11,0	14,0	25,0	18/03/2024	
	74	27/04/2024	1280526,01	1104041,27	926,505	E53	15	50%	44,61	11,0	14,0	25,0	18/03/2024	
							30	100%	64,29	11,0	14,0	25,0	18/03/2024	
	80	27/04/2024	1280527,685	1104040,328	926,549	E54	15	50%	40,79	11,0	14,0	25,0	18/03/2024	
							30	100%	59,56	11,0	14,0	25,0	18/03/2024	
	86	27/04/2024	1280529,231	1104039,092	926,474	E55	15	50%	38,23	11,0	14,0	25,0	18/03/2024	
							30	100%	63,62	11,0	14,0	25,0	18/03/2024	
	92	29/04/2024	1280530,851	1104037,922	926,537	E56	15	50%	38,80	11,0	14,0	25,0	18/03/2024	
							30	100%	53,59	11,0	14,0	25,0	18/03/2024	
	104	29/04/2024	1280533,632	1104034,944	926,491	E58	15	50%	40,19	11,0	14,0	25,0	18/03/2024	
							30	100%	59,83	11,0	14,0	25,0	18/03/2024	
	428	29/04/2024	1280496,237	1104126,9	926,994	E59	15	50%	41,03	11,0	14,0	25,0	18/03/2024	
							30	100%	58,80	11,0	14,0	25,0	18/03/2024	
	26	13/03/2024	1280534,774	1104033,305	926,514	E6	15	50%	45,78	11,0	14,0	25,0	29/01/2024	
							30	100%	56,09	11,0	14,0	25,0	29/01/2024	
	434	29/04/2024	1280545,181	1104033,792	927,023	E60	15	50%	41,35	11,0	14,0	25,0	18/03/2024	
							30	100%	54,18	11,0	14,0	25,0	18/03/2024	
	479	1505/2024	1280547,713	1104030,549	926,926	E61	15	50%	40,21	11,0	14,0	25,0	16/04/2024	
							30	100%	54,15	11,0	14,0	25,0	16/04/2024	
	484	1505/2024	1280548,614	1104028,817	927,026	E62	15	50%	41,76	11,0	14,0	25,0	16/04/2024	
							30	100%	55,18	11,0	14,0	25,0	16/04/2024	
	489	1505/2024	1280549,137	1104026,868	927,017	E63	15	50%	38,17	11,0	14,0	25,0	16/04/2024	
							30	100%	55,07	11,0	14,0	25,0	16/04/2024	
	494	1505/2024	1280549,66	1104024,958	926,975	E64	15	50%	36,44	11,0	14,0	25,0	16/04/2024	
							30	100%	54,62	11,0	14,0	25,0	16/04/2024	
	501	16/05/2024	1280549,677	1104023,017	927,008	E65	15	50%	40,02	11,0	14,0	25,0	16/04/2024	
							30	100%	54,20	11,0	14,0	25,0	16/04/2024	
	506	16/05/2024	1280549,789	1104021,009	927,003	E66	15	50%	39,67	11,0	14,0	25,0	16/04/2024	
							30	100%	54,40	11,0	14,0	25,0	16/04/2024	
	511	16/05/2024	1280549,757	1104019,04	927,019	E67	15	50%	41,80	11,0	14,0	25,0	16/04/2024	
							30	100%	58,69	11,0	14,0	25,0	16/04/2024	
	516	16/05/2024	1280549,402	1104017,074	927,038	E68	15	50%	44,19	11,0	14,0	25,0	16/04/2024	
							30	100%	61,01	11,0	14,0	25,0	16/04/2024	
	521	1605/2024	1280497,892	1104125,788	927,009	E69	15	50%	40,32	11,0	14,0	25,0	16/04/2024	
							30	100%	55,18	11,0	14,0	25,0	16/04/2024	
	29	13/03/2024	1280549,233	1104015,079	927,098	E7	15	50%	47,58	11,0	14,0	25,0	29/01/2024	
							30	100%	55,50	11,0	14,0	25,0	29/01/2024	
	526	17/05/2024	1280549,79	1104013,245	926,978	E70	15	50%	40,19	11,0	14,0	25,0	16/04/2024	
							30	100%	55,74	11,0	14,0	25,0	16/04/2024	
	532	17/05/2024	1280550,872	1104011,612	927,025	E71	15	50%	38,72	11,0	14,0	25,0	16/04/2024	
							30	100%	59,09	11,0	14,0	25,0	16/04/2024	
	536	17/05/2024	1280552,113	1104009,987	927,013	E72	15	50%	42,17	11,0	14,0	25,0	16/04/2024	
							30	100%	57,21	11,0	14,0	25,0	16/04/2024	
	541	17/05/2024	1280552,785	1104008,116	927,044	E73	15	50%	42,05	11,0	14,0	25,0	16/04/2024	
							30	100%	59,18	11,0	14,0	25,0	16/04/2024	
	31	22/03/2024	1280556,025	1103995,985	926,98	E8	15	50%	62,25	11,0	14,0	25,0	13/02/2024	
							30	100%	67,00	11,0	14,0	25,0	13/02/2024	
	31	13/03/2024	1280556,025	1103995,985	926,98	E8	15	50%	44,28	11,0	14,0	25,0	29/01/2024	
							30	100%	52,55	11,0	14,0	25,0	29/01/2024	
	35	13/03/2024	1280558,922	1103976,868	927,039	E9	15	50%	43,81	11,0	14,0	25,0	29/01/2024	
							30	100%	53,92	11,0	14,0	25,0	29/01/2024	
	345	22/03/2024	1280502,356	1104121,666	925,002	F1	15	50%	58,02	11,0	14,0	25,0	5/03/2024	
							30	100%	65,25	11,0	14,0	25,0	5/03/2024	
	41	14/03/2024	1280552,262	1103959,017	925,005	F10	15	50%	46,17	11,0	14,0	25,0	29/01/2024	
							30	100%	53,65	11,0	14,0	25,0	29/01/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	48	14/03/2024	1280552,262	1103959,017	925,005	F11	15	50%	45,48	11,0	14,0	25,0	29/01/2024	
							30	100%	53,42	11,0	14,0	25,0	29/01/2024	
	55	14/03/2024	1280502,356	1104121,666	925,002	F12	15	50%	44,32	11,0	14,0	25,0	29/01/2024	
							30	100%	52,90	11,0	14,0	25,0	29/01/2024	
	62	14/03/2024	1280502,356	1104121,666	925,002	F13	15	50%	40,57	11,0	14,0	25,0	29/01/2024	
							30	100%	52,49	11,0	14,0	25,0	29/01/2024	
	112	15/03/2024	1280502,356	1104121,666	925,002	F14	15	50%	46,19	11,0	14,0	25,0	29/01/2024	
							30	100%	53,28	11,0	14,0	25,0	29/01/2024	
	185	15/03/2024	1280502,356	1104121,666	925,002	F15	15	50%	46,61	11,0	14,0	25,0	29/01/2024	
							30	100%	53,53	11,0	14,0	25,0	29/01/2024	
	192	15/03/2024	1280502,356	1104121,666	925,002	F16	15	50%	45,37	11,0	14,0	25,0	13/02/2024	
							30	100%	53,49	11,0	14,0	25,0	13/02/2024	
	251	20/03/2024	1280502,356	1104121,666	925,002	F17	15	50%	44,69	11,0	14,0	25,0	13/02/2024	
							30	100%	53,51	11,0	14,0	25,0	13/02/2024	
	259	21/03/2024	1280502,356	1104121,666	925,002	F18	15	50%	46,12	11,0	14,0	25,0	13/02/2024	
							30	100%	61,65	11,0	14,0	25,0	13/02/2024	
	267	21/03/2024	1280553,472	1103979,801	915,019	F19	15	50%	49,08	11,0	14,0	25,0	13/02/2024	
							30	100%	67,42	11,0	14,0	25,0	13/02/2024	
	923	1505/2024	1280489,474	1104131,072	924,982	F1-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	9,75	4,0	4,5	8,5	16/04/2024	
	346	20/04/2024	1280513,301	1104104,935	925,045	F2	15	50%	43,47	11,0	14,0	25,0	5/03/2024	
							30	100%	53,51	11,0	14,0	25,0	5/03/2024	
	275	2/04/2024	1280514,239	1104103,169	925,007	F20	15	50%	42,01	11,0	14,0	25,0	13/02/2024	
							30	100%	54,00	11,0	14,0	25,0	13/02/2024	
	284	2/04/2024	1280515,151	1104101,352	925,041	F21	15	50%	40,18	11,0	14,0	25,0	13/02/2024	
							30	100%	54,02	11,0	14,0	25,0	13/02/2024	
	292	2/04/2024	1280516,04	1104099,564	924,996	F22	15	50%	43,19	11,0	14,0	25,0	13/02/2024	
							30	100%	57,01	11,0	14,0	25,0	13/02/2024	
	119	2/04/2024	1280516,947	1104097,775	925,064	F23	15	50%	40,00	11,0	14,0	25,0	13/02/2024	
							30	100%	58,15	11,0	14,0	25,0	13/02/2024	
	127	4/04/2024	1280518,008	1104096,027	925,127	F24	15	50%	39,30	11,0	14,0	25,0	13/02/2024	
							30	100%	55,82	11,0	14,0	25,0	13/02/2024	
	135	4/04/2024	1280518,914	1104094,374	925,080	F25	15	50%	39,62	11,0	14,0	25,0	13/02/2024	
							30	100%	55,70	11,0	14,0	25,0	13/02/2024	
	143	4/04/2024	1280519,852	1104092,535	924,952	F26	15	50%	48,33	11,0	14,0	25,0	13/02/2024	
							30	100%	56,50	11,0	14,0	25,0	13/02/2024	
	200	4/04/2024	1280520,746	1104090,746	924,963	F27	15	50%	39,01	11,0	14,0	25,0	13/02/2024	
							30	100%	55,20	11,0	14,0	25,0	13/02/2024	
	205	5/04/2024	1280521,525	1104088,903	924,966	F28	15	50%	44,08	11,0	14,0	25,0	13/02/2024	
							30	100%	56,12	11,0	14,0	25,0	13/02/2024	
	358	5/04/2024	1280538,474	1104032,121	925,018	F29	15	50%	44,15	11,0	14,0	25,0	5/03/2024	
							30	100%	53,61	11,0	14,0	25,0	5/03/2024	
	928	1505/2024	1280490,747	1104130,061	925,036	F2-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	10,07	4,0	4,5	8,5	16/04/2024	
	347	22/03/2024	1280502,356	1104121,666	925,002	F3	15	50%	52,00	11,0	14,0	25,0	5/03/2024	
							30	100%	64,60	11,0	14,0	25,0	5/03/2024	
	227	5/04/2024	1280522,692	1104085,1	924,990	F30	15	50%	42,72	11,0	14,0	25,0	5/03/2024	
							30	100%	54,90	11,0	14,0	25,0	5/03/2024	
	213	8/04/2024	1280522,835	1104083,043	925,052	F31	15	50%	44,21	11,0	14,0	25,0	5/03/2024	
							30	100%	55,12	11,0	14,0	25,0	5/03/2024	
	219	8/04/2024	1280523,05	1104081,085	925,031	F32	15	50%	39,77	11,0	14,0	25,0	5/03/2024	
							30	100%	53,99	11,0	14,0	25,0	5/03/2024	
	237	8/04/2024	1280523,16	1104078,978	925,051	F33	15	50%	40,15	11,0	14,0	25,0	5/03/2024	
							30	100%	55,03	11,0	14,0	25,0	5/03/2024	
	366	8/04/2024	1280523,123	1104077,025	925,051	F34	15	50%	35,70	11,0	14,0	25,0	5/03/2024	
							30	100%	54,21	11,0	14,0	25,0	5/03/2024	
	372	9/04/2024	1280523,236	1104075	925,028	F35	15	50%	46,01	11,0	14,0	25,0	9/03/2024	
							30	100%	53,80	11,0	14,0	25,0	9/03/2024	
	379	10/04/2024	1280523,242	1104073,166	925,060	F36	15	50%	41,42	11,0	14,0	25,0	9/03/2024	
							30	100%	53,56	11,0	14,0	25,0	9/03/2024	
	150	10/04/2024	1280523,46	1104071,332	925,036	F37	15	50%	44,19	11,0	14,0	25,0	9/03/2024	
							30	100%	55,51	11,0	14,0	25,0	9/03/2024	
	157	10/04/2024	1280523,683	1104069,407	925,002	F38	15	50%	40,05	11,0	14,0	25,0	9/03/2024	
							30	100%	55,60	11,0	14,0	25,0	9/03/2024	
	164	10/04/2024	1280492,744	1104128,675	924,995	F39	15	50%	41,00	11,0	14,0	25,0	9/03/2024	
							30	100%	55,22	11,0	14,0	25,0	9/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	240	6/04/2024	1280523,772	1104067,347	925,006	F4	15	50%	43,52	11,0	14,0	25,0	29/01/2024	
							30	100%	55,31	11,0	14,0	25,0	29/01/2024	
	171	12/04/2024	1280523,8	1104065,442	925,015	F40	15	50%	47,52	11,0	14,0	25,0	9/03/2024	
							30	100%	58,93	11,0	14,0	25,0	9/03/2024	
	178	12/04/2024	1280523,893	1104063,457	925,004	F41	15	50%	47,93	11,0	14,0	25,0	9/03/2024	
							30	100%	59,80	11,0	14,0	25,0	9/03/2024	
	300	15/04/2024	1280523,847	1104061,444	925,030	F42	15	50%	44,81	11,0	14,0	25,0	9/03/2024	
							30	100%	58,90	11,0	14,0	25,0	9/03/2024	
	307	15/04/2024	1280523,728	1104059,646	925,017	F43	15	50%	45,55	11,0	14,0	25,0	9/03/2024	
							30	100%	58,85	11,0	14,0	25,0	9/03/2024	
	314	15/04/2024	1280523,699	1104057,697	925,040	F44	15	50%	45,15	11,0	14,0	25,0	9/03/2024	
							30	100%	60,33	11,0	14,0	25,0	9/03/2024	
	321	15/04/2024	1280523,603	1104056,105	925,054	F45	15	50%	46,54	11,0	14,0	25,0	9/03/2024	
							30	100%	61,85	11,0	14,0	25,0	9/03/2024	
	328	15/04/2024	1280522,608	1104053,943	925,052	F46	15	50%	42,13	11,0	14,0	25,0	9/03/2024	
							30	100%	56,19	11,0	14,0	25,0	9/03/2024	
	335	15/04/2024	1280522,97	1104051,862	925,022	F47	15	50%	41,16	11,0	14,0	25,0	9/03/2024	
							30	100%	55,21	11,0	14,0	25,0	9/03/2024	
	342	16/04/2024	1280522,823	1104049,887	924,986	F48	15	50%	42,95	11,0	14,0	25,0	9/03/2024	
							30	100%	56,43	11,0	14,0	25,0	9/03/2024	
	402	16/04/2024	1280494,296	1104127,466	924,988	F49	15	50%	37,45	11,0	14,0	25,0	18/03/2024	
							30	100%	54,12	11,0	14,0	25,0	18/03/2024	
	241	11/03/2024	1280522,949	1104047,956	925,008	F5	15	50%	38,90	11,0	14,0	25,0	29/01/2024	
							30	100%	56,15	11,0	14,0	25,0	29/01/2024	
	408	16/04/2024	1280523,233	1104046	924,997	F50	15	50%	43,23	11,0	14,0	25,0	18/03/2024	
							30	100%	54,87	11,0	14,0	25,0	18/03/2024	
	415	16/04/2024	1280523,679	1104044,176	925,053	F51	15	50%	48,29	11,0	14,0	25,0	18/03/2024	
							30	100%	57,46	11,0	14,0	25,0	18/03/2024	
	75	27/04/2024	1280525,711	1104040,917	924,488	F53	15	50%	41,03	11,0	14,0	25,0	18/03/2024	
							30	100%	54,56	11,0	14,0	25,0	18/03/2024	
	81	27/04/2024	1280527,049	1104039,602	924,508	F54	15	50%	44,16	11,0	14,0	25,0	18/03/2024	
							30	100%	57,49	11,0	14,0	25,0	18/03/2024	
	87	27/04/2024	1280528,73	1104038,469	924,545	F55	15	50%	41,08	11,0	14,0	25,0	18/03/2024	
							30	100%	54,43	11,0	14,0	25,0	18/03/2024	
	93	29/04/2024	1280530,263	1104037,206	924,536	F56	15	50%	40,16	11,0	14,0	25,0	18/03/2024	
							30	100%	58,04	11,0	14,0	25,0	18/03/2024	
	99	29/04/2024	1280531,652	1104035,841	924,505	F57	15	50%	43,43	11,0	14,0	25,0	18/03/2024	
							30	100%	60,26	11,0	14,0	25,0	18/03/2024	
	429	29/04/2024	1280533,061	1104034,328	924,456	F59	15	50%	43,07	11,0	14,0	25,0	18/03/2024	
							30	100%	60,01	11,0	14,0	25,0	18/03/2024	
	242	13/03/2024	1280487,978	1104132,331	924,995	F6	15	50%	50,12	11,0	14,0	25,0	29/01/2024	
							30	100%	56,20	11,0	14,0	25,0	29/01/2024	
	435	29/04/2024	1280534,623	1104033,056	924,475	F60	15	50%	42,04	11,0	14,0	25,0	18/03/2024	
							30	100%	57,21	11,0	14,0	25,0	18/03/2024	
	477	1505/2024	1280535,986	1104031,681	924,486	F60A	15	50%	42,86	11,0	14,0	25,0	16/04/2024	
							30	100%	55,15	11,0	14,0	25,0	16/04/2024	
	439	29/04/2024	1280544,1	1104033,374	925,010	F60B	15	50%	38,83	11,0	14,0	25,0	18/03/2024	
							30	100%	54,18	11,0	14,0	25,0	18/03/2024	
	480	1505/2024	1280545,524	1104031,953	925,041	F61	15	50%	38,06	11,0	14,0	25,0	16/04/2024	
							30	100%	53,63	11,0	14,0	25,0	16/04/2024	
	485	1505/2024	1280546,785	1104030,457	925,027	F62	15	50%	39,56	11,0	14,0	25,0	16/04/2024	
							30	100%	54,70	11,0	14,0	25,0	16/04/2024	
	490	1505/2024	1280547,544	1104028,583	925,045	F63	15	50%	40,19	11,0	14,0	25,0	16/04/2024	
							30	100%	53,90	11,0	14,0	25,0	16/04/2024	
	495	1505/2024	1280548,175	1104026,708	924,968	F64	15	50%	42,00	11,0	14,0	25,0	16/04/2024	
							30	100%	54,70	11,0	14,0	25,0	16/04/2024	
	502	16/05/2024	1280548,66	1104024,8	924,936	F65	15	50%	40,19	11,0	14,0	25,0	16/04/2024	
							30	100%	53,61	11,0	14,0	25,0	16/04/2024	
	507	16/05/2024	1280548,707	1104022,788	925,016	F66	15	50%	42,13	11,0	14,0	25,0	16/04/2024	
							30	100%	54,12	11,0	14,0	25,0	16/04/2024	
	512	16/05/2024	1280548,686	1104020,797	925,012	F67	15	50%	39,17	11,0	14,0	25,0	16/04/2024	
							30	100%	54,92	11,0	14,0	25,0	16/04/2024	
	517	16/05/2024	1280549,036	1104018,876	925,002	F68	15	50%	41,86	11,0	14,0	25,0	16/04/2024	
							30	100%	55,54	11,0	14,0	25,0	16/04/2024	
	522	1605/2024	1280548,564	1104016,758	924,998	F69	15	50%	41,18	11,0	14,0	25,0	16/04/2024	
							30	100%	55,37	11,0	14,0	25,0	16/04/2024	
	243	13/03/2024	1280487,978	1104132,331	924,995	F7	15	50%	42..23	11,0	14,0	25,0	29/01/2024	
							30	100%	56,19	11,0	14,0	25,0	29/01/2024	
	527	17/05/2024	1280548,697	1104014,804	925,064	F70	15	50%	41,03	11,0	14,0	25,0	16/04/2024	
							30	100%	57,59	11,0	14,0	25,0	16/04/2024	
	533	17/05/2024	1280549,322	1104013,066	925,066	F71	15	50%	40,16	11,0	14,0	25,0	16/04/2024	
							30	100%	58,16	11,0	14,0	25,0	16/04/2024	
	537	17/05/2024	1280550,338	1104011,339	924,998	F72	15	50%	39,23	11,0	14,0	25,0	16/04/2024	
							30	100%	56,34	11,0	14,0	25,0	16/04/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	542	17/05/2024	1280551,449	1104009,638	924,981	F73	15	50%	39,92	11,0	14,0	25,0	16/04/2024	
							30	100%	55,50	11,0	14,0	25,0	16/04/2024	
	244	13/03/2024	1280487,978	1104132,331	924,995	F8	15	50%	45,93	11,0	14,0	25,0	29/01/2024	
							30	100%	57,40	11,0	14,0	25,0	29/01/2024	
	245	13/03/2024	1280487,978	1104132,331	924,995	F9	15	50%	47,68	11,0	14,0	25,0	29/01/2024	
							30	100%	58,27	11,0	14,0	25,0	29/01/2024	
	40	14/03/2024	1280501,769	1104120,913	922,999	G10	15	50%	45,39	11,0	14,0	25,0	29/01/2024	
							30	100%	54,55	11,0	14,0	25,0	29/01/2024	
	47	14/03/2024	1280501,769	1104120,913	922,999	G11	15	50%	44,88	11,0	14,0	25,0	29/01/2024	
							30	100%	52,93	11,0	14,0	25,0	29/01/2024	
	54	14/03/2024	1280501,769	1104120,913	922,999	G12	15	50%	47,41	11,0	14,0	25,0	29/01/2024	
							30	100%	53,38	11,0	14,0	25,0	29/01/2024	
	61	14/03/2024	1280501,769	1104120,913	922,999	G13	15	50%	45,88	11,0	14,0	25,0	29/01/2024	
							30	100%	54,43	11,0	14,0	25,0	29/01/2024	
	113	15/03/2024	1280501,769	1104120,913	922,999	G14	15	50%	43,24	11,0	14,0	25,0	29/01/2024	
							30	100%	52,92	11,0	14,0	25,0	29/01/2024	
	186	15/03/2024	1280501,769	1104120,913	922,999	G15	15	50%	44,75	11,0	14,0	25,0	29/01/2024	
							30	100%	53,29	11,0	14,0	25,0	29/01/2024	
	193	20/03/2024	1280501,769	1104120,913	922,999	G16	15	50%	47,02	11,0	14,0	25,0	13/02/2024	
							30	100%	54,33	11,0	14,0	25,0	13/02/2024	
	252	20/03/2024	1280501,769	1104120,913	922,999	G17	15	50%	48,14	11,0	14,0	25,0	13/02/2024	
							30	100%	55,46	11,0	14,0	25,0	13/02/2024	
	260	21/03/2024	1280501,769	1104120,913	922,999	G18	15	50%	46,01	11,0	14,0	25,0	13/02/2024	
							30	100%	64,09	11,0	14,0	25,0	13/02/2024	
	268	21/03/2024	1280501,769	1104120,913	922,999	G19	15	50%	49,82	11,0	14,0	25,0	13/02/2024	
							30	100%	65,98	11,0	14,0	25,0	13/02/2024	
	924	1505/2024	1280538,536	1104031,241	923,020	G1-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	10,50	4,0	4,5	8,5	16/04/2024	
	276	2/04/2024	1280512,607	1104104,284	923,013	G20	15	50%	42,32	11,0	14,0	25,0	13/02/2024	
							30	100%	54,85	11,0	14,0	25,0	13/02/2024	
	285	2/04/2024	1280513,573	1104102,555	923,031	G21	15	50%	44,52	11,0	14,0	25,0	13/02/2024	
							30	100%	55,04	11,0	14,0	25,0	13/02/2024	
	293	2/04/2024	1280514,547	1104100,81	923,019	G22	15	50%	45,20	11,0	14,0	25,0	13/02/2024	
							30	100%	55,38	11,0	14,0	25,0	13/02/2024	
	120	2/04/2024	1280515,454	1104099,041	923,039	G23	15	50%	48,04	11,0	14,0	25,0	13/02/2024	
							30	100%	56,05	11,0	14,0	25,0	13/02/2024	
	128	4/04/2024	1280516,347	1104097,262	923,041	G24	15	50%	39,00	11,0	14,0	25,0	13/02/2024	
							30	100%	53,58	11,0	14,0	25,0	13/02/2024	
	136	4/04/2024	1280517,297	1104095,525	923,024	G25	15	50%	40,01	11,0	14,0	25,0	13/02/2024	
							30	100%	56,50	11,0	14,0	25,0	13/02/2024	
	144	4/04/2024	1280518,261	1104093,789	923,042	G26	15	50%	43,00	11,0	14,0	25,0	13/02/2024	
							30	100%	55,40	11,0	14,0	25,0	13/02/2024	
	201	4/04/2024	1280519,175	1104092,051	923,047	G27	15	50%	44,02	11,0	14,0	25,0	13/02/2024	
							30	100%	54,85	11,0	14,0	25,0	13/02/2024	
	206	5/04/2024	1280519,914	1104090,227	923,026	G28	15	50%	36,21	11,0	14,0	25,0	13/02/2024	
							30	100%	54,85	11,0	14,0	25,0	13/02/2024	
	929	1505/2024	1280541,211	1104032,573	923,005	G2-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	10,13	4,0	4,5	8,5	16/04/2024	
	228	5/04/2024	1280521,212	1104086,464	923,012	G30	15	50%	43,70	11,0	14,0	25,0	5/03/2024	
							30	100%	56,09	11,0	14,0	25,0	5/03/2024	
	214	5/04/2024	1280521,674	1104084,522	923,037	G31	15	50%	45,08	11,0	14,0	25,0	5/03/2024	
							30	100%	56,19	11,0	14,0	25,0	5/03/2024	
	220	8/04/2024	1280521,993	1104082,551	923,026	G32	15	50%	36,89	11,0	14,0	25,0	5/03/2024	
							30	100%	55,50	11,0	14,0	25,0	5/03/2024	
	238	8/04/2024	1280522,185	1104080,566	923,048	G33	15	50%	43,15	11,0	14,0	25,0	5/03/2024	
							30	100%	57,00	11,0	14,0	25,0	5/03/2024	
	367	8/04/2024	1280522,248	1104078,586	923,024	G34	15	50%	40,01	11,0	14,0	25,0	5/03/2024	
							30	100%	59,03	11,0	14,0	25,0	5/03/2024	
	373	8/04/2024	1280522,446	1104076,59	922,983	G35	15	50%	42,03	11,0	14,0	25,0	5/03/2024	
							30	100%	60,00	11,0	14,0	25,0	5/03/2024	
	380	10/04/2024	1280522,6	1104074,595	923,049	G36	15	50%	40,09	11,0	14,0	25,0	9/03/2024	
							30	100%	53,48	11,0	14,0	25,0	9/03/2024	
	151	10/04/2024	1280522,772	1104072,849	923,022	G37	15	50%	41,71	11,0	14,0	25,0	9/03/2024	
							30	100%	54,78	11,0	14,0	25,0	9/03/2024	
	158	10/04/2024	1280522,924	1104071,005	922,999	G38	15	50%	38,01	11,0	14,0	25,0	5/03/2024	
							30	100%	53,30	11,0	14,0	25,0	5/03/2024	
	165	10/04/2024	1280523,117	1104069,111	922,999	G39	15	50%	39,05	11,0	14,0	25,0	5/03/2024	
							30	100%	54,01	11,0	14,0	25,0	5/03/2024	
	386	22/03/2024	1280552,262	1103959,017	925,005	G4	15	50%	49,35	11,0	14,0	25,0	5/03/2024	
							30	100%	59,58	11,0	14,0	25,0	5/03/2024	
	172	10/04/2024	1280523,073	1104067,084	922,999	G40	15	50%	39,16	11,0	14,0	25,0	9/03/2024	
							30	100%	54,00	11,0	14,0	25,0	9/03/2024	
	179	10/04/2024	1280523,143	1104065,162	922,999	G41	15	50%	40,07	11,0	14,0	25,0	9/03/2024	
							30	100%	52,91	11,0	14,0	25,0	9/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	301	15/04/2024	1280523,205	1104063,193	923,003	G42	15	50%	45,13	11,0	14,0	25,0	9/03/2024	
							30	100%	53,89	11,0	14,0	25,0	9/03/2024	
	308	15/04/2024	1280523,112	1104061,203	923,030	G43	15	50%	43,12	11,0	14,0	25,0	9/03/2024	
							30	100%	59,63	11,0	14,0	25,0	9/03/2024	
	315	15/04/2024	1280523,161	1104059,311	923,016	G44	15	50%	48,80	11,0	14,0	25,0	9/03/2024	
							30	100%	56,14	11,0	14,0	25,0	9/03/2024	
	322	15/04/2024	1280522,923	1104057,417	923,021	G45	15	50%	43,00	11,0	14,0	25,0	9/03/2024	
							30	100%	55,18	11,0	14,0	25,0	9/03/2024	
	329	15/04/2024	1280522,782	1104055,782	923,025	G46	15	50%	40,05	11,0	14,0	25,0	9/03/2024	
							30	100%	58,60	11,0	14,0	25,0	9/03/2024	
	336	15/04/2024	1280522,075	1104053,691	923,009	G47	15	50%	39,92	11,0	14,0	25,0	9/03/2024	
							30	100%	58,66	11,0	14,0	25,0	9/03/2024	
	343	16/04/2024	1280522,389	1104051,686	922,991	G48	15	50%	46,28	11,0	14,0	25,0	9/03/2024	
							30	100%	59,54	11,0	14,0	25,0	9/03/2024	
	403	16/04/2024	1280522,394	1104049,745	922,992	G49	15	50%	40,85	11,0	14,0	25,0	18/03/2024	
							30	100%	53,69	11,0	14,0	25,0	18/03/2024	
	387	22/03/2024	1280552,262	1103959,017	925,005	G5	15	50%	58,03	11,0	14,0	25,0	5/03/2024	
							30	100%	70,01	11,0	14,0	25,0	5/03/2024	
	409	16/04/2024	1280522,746	1104047,807	923,014	G50	15	50%	46,04	11,0	14,0	25,0	18/03/2024	
							30	100%	55,67	11,0	14,0	25,0	18/03/2024	
	416	16/04/2024	1280523,156	1104045,872	923,026	G51	15	50%	44,24	11,0	14,0	25,0	18/03/2024	
							30	100%	55,08	11,0	14,0	25,0	18/03/2024	
	423					G52								
	76	27/04/2024	1280524,299	1104042,149	922,482	G53	15	50%	39,80	11,0	14,0	25,0	18/03/2024	
							30	100%	56,18	11,0	14,0	25,0	18/03/2024	
	82	27/04/2024	1280525,378	1104040,664	922,494	G54	15	50%	40,24	11,0	14,0	25,0	18/03/2024	
							30	100%	59,21	11,0	14,0	25,0	18/03/2024	
	88	27/04/2024	1280526,743	1104039,317	922,555	G55	15	50%	40,81	11,0	14,0	25,0	18/03/2024	
							30	100%	57,62	11,0	14,0	25,0	18/03/2024	
	94	29/04/2024	1280528,303	1104038,121	922,521	G56	15	50%	43,15	11,0	14,0	25,0	18/03/2024	
							30	100%	58,42	11,0	14,0	25,0	18/03/2024	
	100	29/04/2024	1280529,907	1104036,88	922,545	G57	15	50%	42,06	11,0	14,0	25,0	18/03/2024	
							30	100%	59,68	11,0	14,0	25,0	18/03/2024	
	106	29/04/2024	1280531,338	1104035,543	922,508	G58	15	50%	40,00	11,0	14,0	25,0	18/03/2024	
							30	100%	57,99	11,0	14,0	25,0	18/03/2024	
	430	29/04/2024	1280532,951	1104034,051	922,464	G59	15	50%	37,84	11,0	14,0	25,0	18/03/2024	
							30	100%	55,74	11,0	14,0	25,0	18/03/2024	
	388	22/03/2024	1280552,262	1103959,017	925,005	G6	15	50%	51,29	11,0	14,0	25,0	5/03/2024	
							30	100%	63,59	11,0	14,0	25,0	5/03/2024	
	436	29/04/2024	1280534,232	1104032,541	922,478	G60	15	50%	37,96	11,0	14,0	25,0	18/03/2024	
							30	100%	53,81	11,0	14,0	25,0	18/03/2024	
	440	29/04/2024	1280535,68	1104031,209	922,480	G60A	15	50%	41,17	11,0	14,0	25,0	18/03/2024	
							30	100%	55,69	11,0	14,0	25,0	18/03/2024	EN REPORTE 60B-G
	481	1505/2024	1280544,469	1104031,715	923,034	G61	15	50%	40,04	11,0	14,0	25,0	16/04/2024	
							30	100%	60,86	11,0	14,0	25,0	16/04/2024	
	486	1505/2024	1280545,459	1104030,089	923,055	G62	15	50%	40,40	11,0	14,0	25,0	16/04/2024	
							30	100%	61,70	11,0	14,0	25,0	16/04/2024	
	491	1505/2024	1280546,541	1104028,401	923,019	G63	15	50%	42,16	11,0	14,0	25,0	16/04/2024	
							30	100%	54,71	11,0	14,0	25,0	16/04/2024	
	496	1505/2024	1280547,25	1104026,559	923,086	G64	15	50%	40,81	11,0	14,0	25,0	16/04/2024	
							30	100%	55,82	11,0	14,0	25,0	16/04/2024	
	503	16/05/2024	1280547,653	1104024,612	923,070	G65	15	50%	41,44	11,0	14,0	25,0	16/04/2024	
							30	100%	53,80	11,0	14,0	25,0	16/04/2024	
	508	16/05/2024	1280547,866	1104022,638	923,036	G66	15	50%	42,04	11,0	14,0	25,0	16/04/2024	
							30	100%	54,32	11,0	14,0	25,0	16/04/2024	
	513	16/05/2024	1280547,869	1104020,661	923,077	G67	15	50%	40,05	11,0	14,0	25,0	16/04/2024	
							30	100%	54,16	11,0	14,0	25,0	16/04/2024	
	518	16/05/2024	1280548,024	1104018,613	923,032	G68	15	50%	40,14	11,0	14,0	25,0	16/04/2024	
							30	100%	54,09	11,0	14,0	25,0	16/04/2024	
	523	16/05/2024	1280547,746	1104016,542	923,052	G69	15	50%	42,54	11,0	14,0	25,0	16/04/2024	
							30	100%	56,12	11,0	14,0	25,0	16/04/2024	
	389	22/03/2024	1280552,262	1103959,017	925,005	G7	15	50%	52,15	11,0	14,0	25,0	5/03/2024	
							30	100%	66,20	11,0	14,0	25,0	5/03/2024	
	528	17/05/2024	1280548,235	1104014,565	922,975	G70	15	50%	39,95	11,0	14,0	25,0	16/04/2024	
							30	100%	56,11	11,0	14,0	25,0	16/04/2024	
	534	17/05/2024	1280548,902	1104012,872	923,052	G71	15	50%	38,82	11,0	14,0	25,0	16/04/2024	
							30	100%	54,23	11,0	14,0	25,0	16/04/2024	
	391	1/04/2024	1280552,262	1103959,017	925,005	G9	15	50%	53,00	11,0	14,0	25,0	5/03/2024	
							30	100%	64,39	11,0	14,0	25,0	5/03/2024	
	392	1/04/2024	1280501,694	1104120,54	921,011	H10	15	50%	49,24	11,0	14,0	25,0	5/03/2024	
							30	100%	63,29	11,0	14,0	25,0	5/03/2024	
	393	1/04/2024	1280501,694	1104120,54	921,011	H11	15	50%	50,01	11,0	14,0	25,0	5/03/2024	
							30	100%	62,19	11,0	14,0	25,0	5/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	394	1/04/2024	1280501,694	1104120,54	921,011	H12	15	50%	51,18	11,0	14,0	25,0	5/03/2024	
							30	100%	64,00	11,0	14,0	25,0	5/03/2024	
	395	1/04/2024	1280501,694	1104120,54	921,011	H13	15	50%	50,00	11,0	14,0	25,0	5/03/2024	
							30	100%	59,54	11,0	14,0	25,0	5/03/2024	
	396	1/04/2024	1280501,694	1104120,54	921,011	H14	15	50%	49,20	11,0	14,0	25,0	5/03/2024	
							30	100%	61,22	11,0	14,0	25,0	5/03/2024	
	397	1/04/2024	1280501,694	1104120,54	921,011	H15	15	50%	50,01	11,0	14,0	25,0	5/03/2024	
							30	100%	63,04	11,0	14,0	25,0	5/03/2024	
	253	20/03/2024	1280501,694	1104120,54	921,011	H17	15	50%	47,28	11,0	14,0	25,0	13/02/2024	
							30	100%	56,44	11,0	14,0	25,0	13/02/2024	
	261	21/03/2024	1280501,694	1104120,54	921,011	H18	15	50%	46,05	11,0	14,0	25,0	13/02/2024	
							30	100%	62,28	11,0	14,0	25,0	13/02/2024	
	269	21/03/2024	1280501,694	1104120,54	921,011	H19	15	50%	50,01	11,0	14,0	25,0	13/02/2024	
							30	100%	66,12	11,0	14,0	25,0	13/02/2024	
	925	1505/2024	1280541,169	1104031,785	921,003	H1-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	9,12	4,0	4,5	8,5	16/04/2024	
	277	2/04/2024	1280511,963	1104103,678	920,990	H20	15	50%	45,42	11,0	14,0	25,0	13/02/2024	
							30	100%	55,12	11,0	14,0	25,0	13/02/2024	
	286	2/04/2024	1280513,002	1104101,984	920,999	H21	15	50%	45,50	11,0	14,0	25,0	13/02/2024	
							30	100%	56,12	11,0	14,0	25,0	13/02/2024	
	294	2/04/2024	1280513,99	1104100,234	921,037	H22	15	50%	44,58	11,0	14,0	25,0	13/02/2024	
							30	100%	54,40	11,0	14,0	25,0	13/02/2024	
	121	2/04/2024	1280514,884	1104098,464	921,040	H23	15	50%	47,30	11,0	14,0	25,0	13/02/2024	
							30	100%	53,51	11,0	14,0	25,0	13/02/2024	
	129	4/04/2024	1280515,734	1104096,678	920,989	H24	15	50%	42,12	11,0	14,0	25,0	13/02/2024	
							30	100%	57,03	11,0	14,0	25,0	13/02/2024	
	447	4/04/2024	1280516,679	1104094,926	920,990	H25	15	50%	43,15	11,0	14,0	25,0	13/02/2024	
							30	100%	58,10	11,0	14,0	25,0	13/02/2024	
	145	4/04/2024	1280517,76	1104093,254	921,006	H26	15	50%	39,30	11,0	14,0	25,0	13/02/2024	
							30	100%	52,40	11,0	14,0	25,0	13/02/2024	
	202	4/04/2024	1280518,575	1104091,389	921,044	H27	15	50%	45,00	11,0	14,0	25,0	13/02/2024	
							30	100%	55,35	11,0	14,0	25,0	13/02/2024	
	207	5/04/2024	1280519,314	1104089,547	921,062	H28	15	50%	40,00	11,0	14,0	25,0	13/02/2024	
							30	100%	53,20	11,0	14,0	25,0	13/02/2024	
	360	5/04/2024	1280520,277	1104088,163	921,105	H29	15	50%	44,85	11,0	14,0	25,0	5/03/2024	
							30	100%	56,50	11,0	14,0	25,0	5/03/2024	
	229	5/04/2024	1280520,72	1104086,03	921,068	H30	15	50%	41,14	11,0	14,0	25,0	5/03/2024	
							30	100%	52,35	11,0	14,0	25,0	5/03/2024	
	215	5/04/2024	1280521,189	1104084,073	921,060	H31	15	50%	43,40	11,0	14,0	25,0	5/03/2024	
							30	100%	54,60	11,0	14,0	25,0	5/03/2024	
	221	8/04/2024	1280521,446	1104082,108	920,979	H32	15	50%	40,19	11,0	14,0	25,0	5/03/2024	
							30	100%	55,11	11,0	14,0	25,0	5/03/2024	
	239	8/04/2024	1280521,588	1104080,114	920,980	H33	15	50%	40,83	11,0	14,0	25,0	5/03/2024	
							30	100%	55,85	11,0	14,0	25,0	5/03/2024	
	278	8/04/2024	1280521,715	1104078,158	920,992	H34	15	50%	41,72	11,0	14,0	25,0	5/03/2024	
							30	100%	54,80	11,0	14,0	25,0	5/03/2024	
	374	8/04/2024	1280521,866	1104076,206	920,980	H35	15	50%	44,00	11,0	14,0	25,0	5/03/2024	
							30	100%	56,32	11,0	14,0	25,0	5/03/2024	
	381	10/04/2024	1280522,115	1104074,422	921,016	H36	15	50%	42,15	11,0	14,0	25,0	9/03/2024	
							30	100%	54,12	11,0	14,0	25,0	9/03/2024	
	152	10/04/2024	1280522,399	1104072,66	921,014	H37	15	50%	36,64	11,0	14,0	25,0	9/03/2024	
							30	100%	55,00	11,0	14,0	25,0	9/03/2024	
	159	10/04/2024	1280522,495	1104070,79	920,995	H38	15	50%	42,09	11,0	14,0	25,0	9/03/2024	
							30	100%	54,74	11,0	14,0	25,0	9/03/2024	
	166	10/04/2024	1280522,605	1104068,798	921,025	H39	15	50%	39,78	11,0	14,0	25,0	9/03/2024	
							30	100%	53,86	11,0	14,0	25,0	9/03/2024	
	173	12/04/2024	1280522,544	1104066,787	921,022	H40	15	50%	47,13	11,0	14,0	25,0	9/03/2024	
							30	100%	51,11	11,0	14,0	25,0	9/03/2024	
	295	12/04/2024	1280522,57	1104064,854	920,997	H41	15	50%	37,16	11,0	14,0	25,0	9/03/2024	
							30	100%	53,75	11,0	14,0	25,0	9/03/2024	
	302	15/04/2024	1280522,591	1104062,87	921,017	H42	15	50%	41,11	11,0	14,0	25,0	9/03/2024	
							30	100%	54,17	11,0	14,0	25,0	9/03/2024	
	309	15/04/2024	1280522,516	1104060,871	920,999	H43	15	50%	42,97	11,0	14,0	25,0	9/03/2024	
							30	100%	54,00	11,0	14,0	25,0	9/03/2024	
	316	15/04/2024	1280522,346	1104058,989	920,998	H44	15	50%	47,28	11,0	14,0	25,0	9/03/2024	
							30	100%	56,19	11,0	14,0	25,0	9/03/2024	
	323	15/04/2024	1280522,221	1104057,171	921,009	H45	15	50%	39,02	11,0	14,0	25,0	9/03/2024	
							30	100%	53,95	11,0	14,0	25,0	9/03/2024	
	330	15/04/2024	1280522,405	1104055,449	920,948	H46	15	50%	40,21	11,0	14,0	25,0	9/03/2024	
							30	100%	59,29	11,0	14,0	25,0	9/03/2024	
	337	15/04/2024	1280521,591	1104053,422	920,996	H47	15	50%	37,77	11,0	14,0	25,0	9/03/2024	
							30	100%	58,01	11,0	14,0	25,0	9/03/2024	
	344	16/04/2024	1280521,839	1104051,516	921,045	H48	15	50%	42,33	11,0	14,0	25,0	9/03/2024	
							30	100%	55,60	11,0	14,0	25,0	9/03/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	382	16/04/2024	1280521,903	1104049,572	921,024	H49	15	50%	43,75	11,0	14,0	25,0	18/03/2024	
							30	100%	54,38	11,0	14,0	25,0	18/03/2024	
	410	16/04/2024	1280522,189	1104047,573	921,040	H50	15	50%	43,56	11,0	14,0	25,0	18/03/2024	
							30	100%	54,67	11,0	14,0	25,0	18/03/2024	
	417	16/04/2024	1280522,477	1104045,636	921,017	H51	15	50%	41,38	11,0	14,0	25,0	18/03/2024	
							30	100%	54,82	11,0	14,0	25,0	18/03/2024	
	424	27/04/2024	1280523,005	1104043,8	921,028	H52	15	50%	44,19	11,0	14,0	25,0	18/03/2024	
							30	100%	64,05	11,0	14,0	25,0	18/03/2024	
	77	27/04/2024	1280523,735	1104041,956	920,502	H53	15	50%	46,01	11,0	14,0	25,0	18/03/2024	
							30	100%	54,12	11,0	14,0	25,0	18/03/2024	
	83	27/04/2024	1280524,846	1104040,3	920,530	H54	15	50%	39,60	11,0	14,0	25,0	18/03/2024	
							30	100%	59,16	11,0	14,0	25,0	18/03/2024	
	89	27/04/2024	1280526,231	1104038,871	920,504	H55	15	50%	41,61	11,0	14,0	25,0	18/03/2024	
							30	100%	60,02	11,0	14,0	25,0	18/03/2024	
	95	29/04/2024	1280527,746	1104037,544	920,484	H56	15	50%	40,86	11,0	14,0	25,0	18/03/2024	
							30	100%	60,18	11,0	14,0	25,0	18/03/2024	
	101	29/04/2024	1280529,316	1104036,294	920,506	H57	15	50%	44,31	11,0	14,0	25,0	18/03/2024	
							30	100%	59,96	11,0	14,0	25,0	18/03/2024	
	107	29/04/2024	1280530,846	1104035,027	920,507	H58	15	50%	41,10	11,0	14,0	25,0	18/03/2024	
							30	100%	58,72	11,0	14,0	25,0	18/03/2024	
	108	29/04/2024	1280532,462	1104033,506	920,533	H59	15	50%	42,16	11,0	14,0	25,0	18/03/2024	
							30	100%	58,66	11,0	14,0	25,0	18/03/2024	
	437	29/04/2024	1280533,898	1104032,104	920,523	H60	15	50%	42,05	11,0	14,0	25,0	18/03/2024	
							30	100%	56,39	11,0	14,0	25,0	18/03/2024	
	441	29/04/2024	1280535,307	1104030,745	920,507	H60A	15	50%	41,43	11,0	14,0	25,0	18/03/2024	
							30	100%	56,05	11,0	14,0	25,0	18/03/2024	EN REPORTE 60B-H
	482	1505/2024	1280543,481	1104031,232	921,032	H61	15	50%	41,01	11,0	14,0	25,0	16/04/2024	
							30	100%	53,81	11,0	14,0	25,0	16/04/2024	
	487	1505/2024	1280544,729	1104029,68	921,025	H62	15	50%	42,30	11,0	14,0	25,0	16/04/2024	
							30	100%	54,78	11,0	14,0	25,0	16/04/2024	
	482	1505/2024	1280543,481	1104031,232	921,032	H63	15	50%	41,43	11,0	14,0	25,0	16/04/2024	
							30	100%	56,05	11,0	14,0	25,0	16/04/2024	
	499	1505/2024	1280546,495	1104026,139	921,033	H64	15	50%	40,05	11,0	14,0	25,0	16/04/2024	
							30	100%	54,56	11,0	14,0	25,0	16/04/2024	
	504	16/05/2024	1280546,889	1104024,173	921,076	H65	15	50%	39,77	11,0	14,0	25,0	16/04/2024	
							30	100%	54,56	11,0	14,0	25,0	16/04/2024	
	509	16/05/2024	1280547,06	1104022,202	921,003	H66	15	50%	40,08	11,0	14,0	25,0	16/04/2024	
							30	100%	53,70	11,0	14,0	25,0	16/04/2024	
	514	16/05/2024	1280547,057	1104020,22	921,000	H67	15	50%	39,87	11,0	14,0	25,0	16/04/2024	
							30	100%	53,57	11,0	14,0	25,0	16/04/2024	
	519	16/05/2024	1280547,056	1104018,226	920,987	H68	15	50%	41,22	11,0	14,0	25,0	16/04/2024	
							30	100%	55,30	11,0	14,0	25,0	16/04/2024	
	524	16/05/2024	1280547,027	1104016,229	920,993	H69	15	50%	39,98	11,0	14,0	25,0	16/04/2024	
							30	100%	54,22	11,0	14,0	25,0	16/04/2024	
	529	17/05/2024	1280547,584	1104014,291	920,939	H70	15	50%	37,59	11,0	14,0	25,0	16/04/2024	
							30	100%	54,36	11,0	14,0	25,0	16/04/2024	
	530	17/05/2024	1280548,36	1104012,634	921,023	H71	15	50%	36,75	11,0	14,0	25,0	16/04/2024	
							30	100%	53,88	11,0	14,0	25,0	16/04/2024	
	539	17/05/2024	1280549,325	1104010,872	920,999	H72	15	50%	40,15	11,0	14,0	25,0	16/04/2024	
							30	100%	55,58	11,0	14,0	25,0	16/04/2024	
	425	21/03/2024	1280551,392	1103958,797	921	I16	15	50%	49,00	11,0	14,0	25,0	13/02/2024	
							30	100%	63,50	11,0	14,0	25,0	13/02/2024	
	111	21/03/2024	1280551,392	1103958,797	921	I17	15	50%	49,10	11,0	14,0	25,0	13/02/2024	
							30	100%	64,00	11,0	14,0	25,0	13/02/2024	
	497	21/03/2024	1280551,392	1103958,797	921	I18	15	50%	47,02	11,0	14,0	25,0	13/02/2024	
							30	100%	63,85	11,0	14,0	25,0	13/02/2024	
	593	21/03/2024	1280551,392	1103958,797	921	I19	15	50%	49,22	11,0	14,0	25,0	13/02/2024	
							30	100%	64,08	11,0	14,0	25,0	13/02/2024	
	926	1505/2024	1280538,626	1104029,654	919,005	I1-ZONA L	0	50%	0,00	4,0	4,5	8,5	16/04/2024	
							8	100%	9,73	4,0	4,5	8,5	16/04/2024	
	498	1/04/2024	1280551,392	1103958,797	921	I20	15	50%	52,18	11,0	14,0	25,0	13/02/2024	
							30	100%	63,21	11,0	14,0	25,0	13/02/2024	
	443	1/04/2024	1280551,392	1103958,797	921	I21	15	50%	49,38	11,0	14,0	25,0	13/02/2024	
							30	100%	59,52	11,0	14,0	25,0	13/02/2024	
	444	1/04/2024	1280551,392	1103958,797	921	I22	15	50%	52,01	11,0	14,0	25,0	13/02/2024	
							30	100%	61,40	11,0	14,0	25,0	13/02/2024	
	445	1/04/2024	1280551,392	1103958,797	921	I23	15	50%	52,15	11,0	14,0	25,0	13/02/2024	
							30	100%	64,00	11,0	14,0	25,0	13/02/2024	
	446	1/04/2024	1280551,392	1103958,797	921	I24	15	50%	50,20	11,0	14,0	25,0	13/02/2024	
							30	100%	63,68	11,0	14,0	25,0	13/02/2024	
	448	1/04/2024	1280551,392	1103958,797	921	I26	15	50%	49,85	11,0	14,0	25,0	13/02/2024	
							30	100%	63,66	11,0	14,0	25,0	13/02/2024	
	449	1/04/2024	1280551,392	1103958,797	921	I27	15	50%	51,16	11,0	14,0	25,0	13/02/2024	
							30	100%	64,20	11,0	14,0	25,0	13/02/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			Nº ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	450	1/04/2024	1280551,392	1103958,797	921	I28	15	50%	51,05	11,0	14,0	25,0	13/02/2024	
							30	100%	62,90	11,0	14,0	25,0	13/02/2024	
	451	1/04/2024	1280551,392	1103958,797	921	I29	15	50%	52,19	11,0	14,0	25,0	5/03/2024	
							30	100%	63,48	11,0	14,0	25,0	5/03/2024	
	452	1/04/2024	1280551,392	1103958,797	921	I30	15	50%	51,22	11,0	14,0	25,0	5/03/2024	
							30	100%	64,08	11,0	14,0	25,0	5/03/2024	
	453	1/04/2024	1280551,392	1103958,797	921	I31	15	50%	50,03	11,0	14,0	25,0	5/03/2024	
							30	100%	62,90	11,0	14,0	25,0	5/03/2024	
	454	1/04/2024	1280551,392	1103958,797	921	I32	15	50%	52,02	11,0	14,0	25,0	5/03/2024	
							30	100%	63,21	11,0	14,0	25,0	5/03/2024	
	455	1/04/2024	1280551,392	1103958,797	921	I33	15	50%	54,80	11,0	14,0	25,0	5/03/2024	
							30	100%	64,00	11,0	14,0	25,0	5/03/2024	
	456	1/04/2024	1280551,392	1103958,797	921	I34	15	50%	50,07	11,0	14,0	25,0	5/03/2024	
							30	100%	63,85	11,0	14,0	25,0	5/03/2024	
	458	2/04/2024	1280521,391	1104074,409	918,935	I36	15	50%	44,05	11,0	14,0	25,0	5/03/2024	
							30	100%	55,52	11,0	14,0	25,0	5/03/2024	
	459	1/04/2024	1280551,392	1103958,797	921	I37	15	50%	54,14	11,0	14,0	25,0	5/03/2024	
							30	100%	69,75	11,0	14,0	25,0	5/03/2024	
	460	10/04/2024	1280521,906	1104070,691	921	I38	15	50%	42,30	11,0	14,0	25,0	9/03/2024	
							30	100%	59,62	11,0	14,0	25,0	9/03/2024	
	461	10/04/2024	1280522,037	1104068,601	921	I39	15	50%	36,46	11,0	14,0	25,0	9/03/2024	
							30	100%	55,15	11,0	14,0	25,0	9/03/2024	
	462	12/04/2024	1280522,042	1104066,736	919,006	I40	15	50%	45,64	11,0	14,0	25,0	9/03/2024	
							30	100%	55,77	11,0	14,0	25,0	9/03/2024	
	463	12/04/2024	1280522,12	1104064,799	919,019	I41	15	50%	49,17	11,0	14,0	25,0	9/03/2024	
							30	100%	61,11	11,0	14,0	25,0	9/03/2024	
	464	15/04/2024	1280522,255	1104062,891	918,979	I42	15	50%	44,80	11,0	14,0	25,0	9/03/2024	
							30	100%	55,05	11,0	14,0	25,0	9/03/2024	
	465	15/04/2024	1280522,197	1104060,895	919,054	I43	15	50%	43,00	11,0	14,0	25,0	9/03/2024	
							30	100%	56,20	11,0	14,0	25,0	9/03/2024	
	466	15/04/2024	1280522,035	1104059,008	919,016	I44	15	50%	41,20	11,0	14,0	25,0	9/03/2024	
							30	100%	54,00	11,0	14,0	25,0	9/03/2024	
	467	15/04/2024	1280521,854	1104057,137	919,017	I45	15	50%	46,73	11,0	14,0	25,0	9/03/2024	
							30	100%	60,67	11,0	14,0	25,0	9/03/2024	
	468	15/04/2024	1280521,701	1104055,274	918,982	I46	15	50%	37,98	11,0	14,0	25,0	9/03/2024	
							30	100%	54,12	11,0	14,0	25,0	9/03/2024	
	469	15/04/2024	1280521,516	1104053,367	919,012	I47	15	50%	38,16	11,0	14,0	25,0	9/03/2024	
							30	100%	54,42	11,0	14,0	25,0	9/03/2024	
	919	16/04/2024	1280521,316	1104051,402	919,023	I48	15	50%	38,87	11,0	14,0	25,0	9/03/2024	
							30	100%	55,18	11,0	14,0	25,0	9/03/2024	
	918	16/04/2024	1280521,384	1104049,241	919,012	I49	15	50%	45,36	11,0	14,0	25,0	18/03/2024	
							30	100%	58,93	11,0	14,0	25,0	18/03/2024	
	917	16/04/2024	1280521,546	1104047,271	919,016	I50	15	50%	39,51	11,0	14,0	25,0	18/03/2024	
							30	100%	53,73	11,0	14,0	25,0	18/03/2024	
	916	16/04/2024	1280521,839	1104045,38	919,037	I51	15	50%	42,64	11,0	14,0	25,0	18/03/2024	
							30	100%	54,12	11,0	14,0	25,0	18/03/2024	
	470	11/05/2024	1280522,983	1104041,43	918,496	I53	15	50%	41,75	11,0	14,0	25,0	18/03/2024	
							30	100%	56,90	11,0	14,0	25,0	18/03/2024	
	471	27/04/2024	1280524,184	1104039,893	918,515	I54	15	50%	41,22	11,0	14,0	25,0	18/03/2024	
							30	100%	59,60	11,0	14,0	25,0	18/03/2024	
	472	27/04/2024	1280525,601	1104038,079	918,483	I55	15	50%	38,86	11,0	14,0	25,0	18/03/2024	
							30	100%	53,74	11,0	14,0	25,0	18/03/2024	
	920	29/04/2024	1280527,08	1104036,718	918,531	I56	15	50%	41,19	11,0	14,0	25,0	18/03/2024	
							30	100%	55,13	11,0	14,0	25,0	18/03/2024	
	921	29/04/2024	1280528,76	1104035,448	918,519	I57	15	50%	42,05	11,0	14,0	25,0	18/03/2024	
							30	100%	60,20	11,0	14,0	25,0	18/03/2024	
	473	29/04/2024	1280530,255	1104034,156	918,496	I58	15	50%	40,52	11,0	14,0	25,0	18/03/2024	
							30	100%	59,47	11,0	14,0	25,0	18/03/2024	
	431	29/04/2024	1280531,908	1104032,852	918,528	I59	15	50%	40,12	11,0	14,0	25,0	18/03/2024	
							30	100%	59,50	11,0	14,0	25,0	18/03/2024	
	438	11/05/2024	1280533,405	1104031,571	918,511	I60	15	50%	39,56	11,0	14,0	25,0	18/03/2024	
							30	100%	55,89	11,0	14,0	25,0	18/03/2024	
	442	29/04/2024	1280534,787	1104030,175	918,514	I60A	15	50%	38,51	11,0	14,0	25,0	18/03/2024	
							30	100%	54,70	11,0	14,0	25,0	18/03/2024	EN REPORTE 60B-I
	914	1505/2024	1280542,25	1104030,897	918,985	I61	15	50%	39,46	11,0	14,0	25,0	16/04/2024	
							30	100%	54,19	11,0	14,0	25,0	16/04/2024	
	913	1505/2024	1280543,806	1104029,586	918,960	I62	15	50%	40,19	11,0	14,0	25,0	16/04/2024	
							30	100%	53,86	11,0	14,0	25,0	16/04/2024	
	912	1505/2024	1280545,011	1104027,963	919,009	I63	15	50%	38,34	11,0	14,0	25,0	16/04/2024	
							30	100%	56,35	11,0	14,0	25,0	16/04/2024	
	911	1505/2024	1280545,815	1104026,166	919,030	I64	15	50%	39,98	11,0	14,0	25,0	16/04/2024	
							30	100%	55,18	11,0	14,0	25,0	16/04/2024	
	910	16/05/2024	1280546,13	1104024,284	919,017	I65	15	50%	38,81	11,0	14,0	25,0	16/04/2024	
							30	100%	54,88	11,0	14,0	25,0	16/04/2024	

CONTROL DE TENSIONAMIENTO DE ANCLAJES

		INSTRUMENTO	DINAMOMETRO	**CALIBRE TORON:**	**1/2"**
OBRA:	CONSTRUCCIÓN DE OBRAS DE MITIGACIÓN Y ESTABILIZACION SECTORES LA GLORIA, NAZARETH Y PABLO VI	**FABRICANTE Y MODELO**	POWER TEAM C / PE554 / spx	**CARGA TENSION C/U:**	**30 Ton**
LOCALIZACION OBRA:	SECTOR NAZARETH	**CERTIFICADO CALIBRACION:**	No.7827 ACREDITADO POR ONAC	**CARGA TENSION (PSI):**	

	REALIZADO POR:	**APROBADO POR:**
FIRMA		
NOMBRE	**YAINER FERNANDO ALMARIO**	**LUIS FERNANDO RODRIGUEZ**
CARGO	**INGENIERO RESIDENTE SECTOR NAZARETH**	**RESIDENTE DE INTERVENTORÍA SECTOR NAZARETH**

ESQUEMA ANCLAJE	ITEM	FECHA TENSIONAMIENTO	UBICACIÓN DEL ELEMENTO			N° ANCLAJE	CARGA DE TENSION (TN)	%	ELONGACIÓN FÍSICA (mm)	LONGITUD LIBRE (m)	LONGITUD BULBO (m)	LONGITUD TOTAL (m)	FECHA FUNDIDA ZAPATA	OBSERVACIONES
			NORTE	ESTE	ELEVACIÓN									
	908	16/05/2024	1280546,218	1104020,41	918,982	I67	15	50%	40,04	11,0	14,0	25,0	16/04/2024	
							30	100%	53,51	11,0	14,0	25,0	16/04/2024	
	907	16/05/2024	1280546,277	1104018,574	919,012	I68	15	50%	42,10	11,0	14,0	25,0	16/04/2024	
							30	100%	54,90	11,0	14,0	25,0	16/04/2024	
	906	16/05/2024	1280546,416	1104016,341	918,981	I69	15	50%	40,70	11,0	14,0	25,0	16/04/2024	
							30	100%	54,46	11,0	14,0	25,0	16/04/2024	
	903	17/05/2024	1280547,529	1104012,153	917,039	J71	15	50%	43,18	11,0	14,0	25,0	16/04/2024	
							30	100%	55,45	11,0	14,0	25,0	16/04/2024	