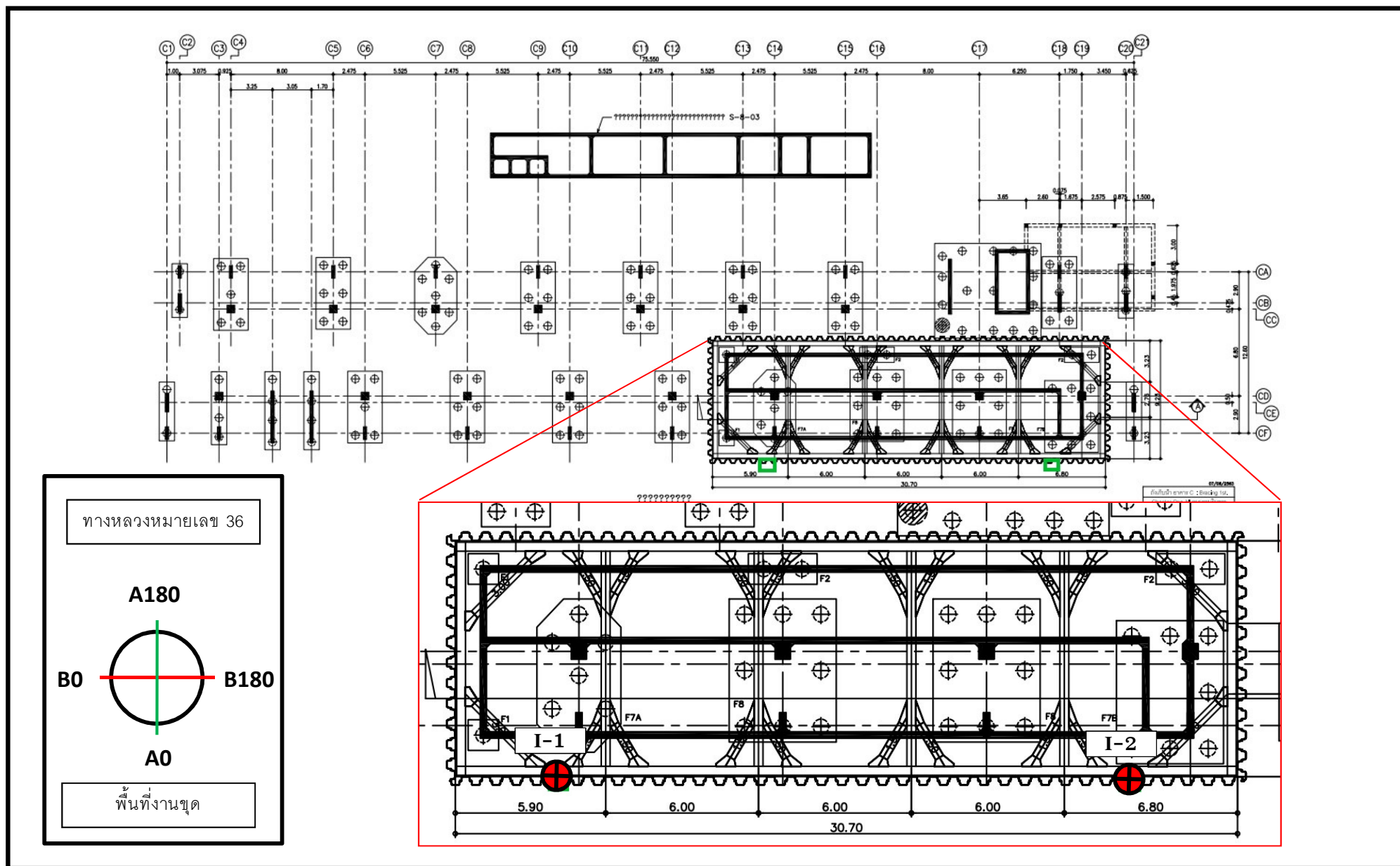


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การตรวจวัดและติดตามการเคลื่อนตัวของชั้นดิน โดยเครื่อง Inclinator



รูปที่ 1.2 แผนผังตำแหน่งท่อ Inclinator



# INCLINOMETER READING RESULTS

INCLINOMETER MONITORING RESULTS		
PROJECT	: Chapter One All Ramintra (Phase 1)	
LOCATION	: แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพมหานคร	
TUBE NO.	: I-1	DEPTH : 15.0 m
DESCRIPTION	: หลังรื้อถอน Bracing	
	<u>Initial reading</u>	<u>Current reading</u>
DATA SET #	: 0	: 5
DATE	: 27-Jul-2023	: 6-Sep-2023

DEPTH	INITIAL DATA			CURRENT DATA			INCR.DISP	CUM.DISP
m.	A0	A180	INCR.DEV. mm.	A0	A180	INCR.DEV. mm.	mm.	mm.
0.5	29	16	0.17	-93	128	-2.77	-2.93	-9.30
1.0	82	-70	1.90	-34	41	-0.95	-2.85	-6.37
1.5	55	-28	1.03	-64	94	-1.98	-3.01	-3.52
2.0	-14	37	-0.64	-136	162	-3.73	-3.10	-0.51
2.5	-51	72	-1.53	-167	191	-4.49	-2.96	2.59
3.0	-78	100	-2.23	-187	212	-4.99	-2.76	5.55
3.5	-128	146	-3.42	-227	247	-5.94	-2.52	8.31
4.0	-163	189	-4.41	-250	280	-6.63	-2.23	10.83
4.5	-181	196	-4.72	-256	274	-6.63	-1.91	13.05
5.0	-185	211	-4.95	-240	270	-6.39	-1.43	14.96
5.5	-211	231	-5.53	-244	267	-6.40	-0.86	16.39
6.0	-242	264	-6.33	-246	273	-6.51	-0.18	17.26
6.5	-309	330	-7.99	-295	319	-7.69	0.30	17.43
7.0	-330	349	-8.50	-295	320	-7.70	0.80	17.13
7.5	-306	329	-7.96	-258	284	-6.79	1.17	16.34
8.0	-289	305	-7.44	-230	250	-6.02	1.43	15.17
8.5	-272	295	-7.09	-213	239	-5.66	1.44	13.74
9.0	-269	290	-6.99	-206	230	-5.46	1.53	12.30
9.5	-247	268	-6.45	-181	209	-4.88	1.57	10.77
10.0	-216	243	-5.75	-155	185	-4.25	1.50	9.20
10.5	-222	240	-5.78	-179	198	-4.72	1.06	7.70
11.0	-226	239	-5.82	-182	207	-4.86	0.96	6.64
11.5	-222	225	-5.60	-176	198	-4.68	0.92	5.67
12.0	-219	237	-5.71	-184	205	-4.87	0.84	4.75
12.5	-185	180	-4.57	-142	169	-3.89	0.68	3.91
13.0	-153	153	-3.83	-98	130	-2.85	0.98	3.23
13.5	-107	125	-2.90	-76	98	-2.18	0.71	2.26
14.0	-71	84	-1.94	-53	77	-1.62	0.31	1.54
14.5	-61	76	-1.73	-30	50	-1.00	0.73	1.23
15.0	-33	45	-0.98	-8	30	-0.47	0.50	0.50

END OF RECORDS

RECORDED BY : Chayangkun



# INCLINOMETER READING RESULTS

INCLINOMETER MONITORING RESULTS			
PROJECT	: Chapter One All Ramintra (Phase 1)		
LOCATION	: แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพมหานคร		
TUBE NO.	: I-1	DEPTH :	15.0 m
DESCRIPTION	: หลังรื้อถอน Bracing		
	<u>Initial reading</u>	<u>Current reading</u>	
DATA SET #	: 0	: 5	
DATE	: 27-Jul-2023	: 6-Sep-2023	

DEPTH	INITIAL DATA			CURRENT DATA			INCR.DISP	CUM.DISP
m.	B0	B180	INCR.DEV. mm.	B0	B180	INCR.DEV. mm.	mm.	mm.
0.5	-176	109	-3.57	-108	128	-2.95	0.62	1.38
1.0	-102	83	-2.31	-47	68	-1.44	0.87	0.76
1.5	-56	55	-1.39	-31	52	-1.03	0.35	-0.11
2.0	-32	55	-1.08	-9	29	-0.48	0.60	-0.46
2.5	-20	41	-0.76	2	20	-0.23	0.54	-1.07
3.0	-9	31	-0.51	11	10	0.02	0.53	-1.60
3.5	-28	46	-0.92	-8	26	-0.42	0.49	-2.13
4.0	-69	94	-2.04	-51	71	-1.53	0.51	-2.62
4.5	-129	140	-3.37	-105	124	-2.87	0.50	-3.13
5.0	-163	190	-4.41	-147	169	-3.96	0.45	-3.63
5.5	-222	240	-5.78	-206	227	-5.41	0.37	-4.08
6.0	-278	300	-7.24	-270	290	-7.01	0.23	-4.46
6.5	-330	354	-8.57	-332	354	-8.60	-0.03	-4.69
7.0	-351	373	-9.06	-353	375	-9.12	-0.05	-4.66
7.5	-348	370	-8.99	-353	375	-9.12	-0.13	-4.61
8.0	-333	349	-8.54	-338	359	-8.72	-0.19	-4.48
8.5	-302	325	-7.85	-314	335	-8.13	-0.27	-4.29
9.0	-284	304	-7.36	-296	317	-7.67	-0.31	-4.02
9.5	-247	267	-6.44	-263	285	-6.86	-0.42	-3.71
10.0	-257	282	-6.75	-274	293	-7.11	-0.35	-3.29
10.5	-277	291	-7.11	-291	312	-7.55	-0.44	-2.94
11.0	-297	321	-7.74	-306	328	-7.94	-0.21	-2.50
11.5	-311	332	-8.04	-320	340	-8.26	-0.22	-2.29
12.0	-315	334	-8.12	-321	342	-8.30	-0.19	-2.07
12.5	-335	361	-8.72	-343	365	-8.86	-0.14	-1.88
13.0	-364	399	-9.55	-379	401	-9.77	-0.22	-1.74
13.5	-377	396	-9.67	-388	410	-10.00	-0.33	-1.52
14.0	-386	420	-10.09	-411	434	-10.58	-0.49	-1.20
14.5	-415	432	-10.61	-427	448	-10.96	-0.35	-0.71
15.0	-409	431	-10.53	-423	446	-10.89	-0.36	-0.36

END OF RECORDS

RECORDED BY : Chayangkun

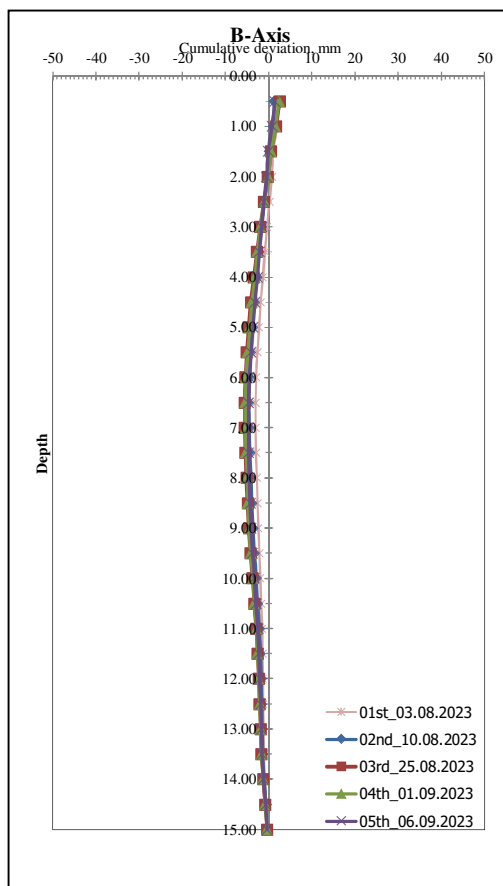
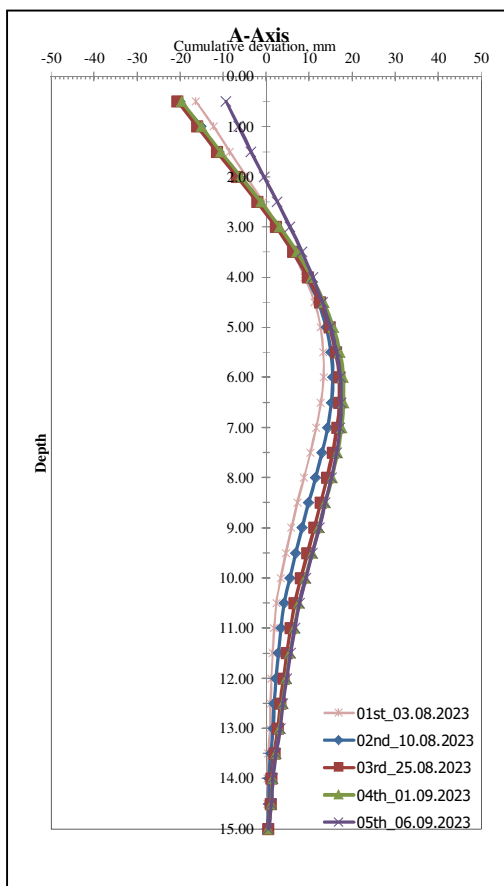


## INCLINOMETER READING RESULTS

### INCLINOMETER MONITORING RESULTS

PROJECT : Chapter One All Ramintra (Phase 1)  
LOCATION : แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพมหานคร DEPTH : 15.0 m  
TUBE NO. : I-1  
DESCRIPTION : หลังรื้อถอน Bracing

DATA SET # : 0 Initial reading Current reading  
DATE : 27-Jul-2023 : 6-Sep-2023



END OF RECORDS

RECORDED BY : Chayangkun



# INCLINOMETER READING RESULTS

<b>INCLINOMETER MONITORING RESULTS</b>		
<b>PROJECT</b>	: Chapter One All Ramintra (Phase 1)	
<b>LOCATION</b>	: แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพมหานคร	
<b>TUBE NO.</b>	: I-2	<b>DEPTH : 15.0 m</b>
<b>DESCRIPTION</b>	: หลังรื้อถอน Bracing	
	<u>Initial reading</u>	<u>Current reading</u>
<b>DATA SET #</b>	: 0	: 5
<b>DATE</b>	: 27-Jul-2023	: 6-Sep-2023

DEPTH	INITIAL DATA			CURRENT DATA			INCR.DISP	CUM.DISP
m.	A0	A180	INCR.DEV. mm.	A0	A180	INCR.DEV. mm.	mm.	mm.
0.5	54	-32	1.07	-25	44	-0.86	-1.94	-2.49
1.0	54	-32	1.08	-25	44	-0.87	-1.94	-0.56
1.5	-120	139	-3.25	-173	192	-4.56	-1.31	1.39
2.0	-251	279	-6.63	-320	345	-8.32	-1.69	2.70
2.5	-373	403	-9.71	-435	458	-11.18	-1.47	4.38
3.0	-454	477	-11.66	-515	538	-13.19	-1.53	5.85
3.5	-515	535	-13.14	-586	607	-14.94	-1.80	7.38
4.0	-530	551	-13.54	-606	633	-15.52	-1.98	9.18
4.5	-489	510	-12.51	-567	591	-14.49	-1.98	11.16
5.0	-468	495	-12.06	-534	569	-13.81	-1.75	13.15
5.5	-460	475	-11.70	-513	532	-13.08	-1.38	14.89
6.0	-439	460	-11.24	-474	500	-12.20	-0.95	16.27
6.5	-415	440	-10.70	-430	459	-11.13	-0.43	17.22
7.0	-453	479	-11.67	-449	480	-11.63	0.04	17.65
7.5	-499	514	-12.69	-475	498	-12.18	0.51	17.61
8.0	-502	515	-12.73	-463	481	-11.82	0.91	17.10
8.5	-487	514	-12.54	-432	468	-11.26	1.27	16.19
9.0	-478	497	-12.21	-418	438	-10.72	1.49	14.92
9.5	-472	495	-12.10	-406	435	-10.52	1.58	13.43
10.0	-461	484	-11.83	-394	421	-10.21	1.62	11.85
10.5	-458	479	-11.73	-388	411	-10.01	1.72	10.23
11.0	-434	452	-11.10	-375	399	-9.69	1.41	8.51
11.5	-412	430	-10.55	-359	379	-9.25	1.30	7.10
12.0	-382	405	-9.85	-328	355	-8.55	1.30	5.80
12.5	-349	374	-9.05	-305	332	-7.97	1.08	4.50
13.0	-374	391	-9.58	-334	356	-8.64	0.94	3.41
13.5	-432	455	-11.11	-395	423	-10.25	0.86	2.47
14.0	-432	448	-11.02	-405	424	-10.37	0.65	1.61
14.5	-422	448	-10.89	-400	431	-10.40	0.48	0.96
15.0	-422	448	-10.89	-400	431	-10.40	0.48	0.48

END OF RECORDS

RECORDED BY : Chayangkun



# INCLINOMETER READING RESULTS

INCLINOMETER MONITORING RESULTS			
PROJECT	: Chapter One All Ramintra (Phase 1)		
LOCATION	: แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพมหานคร		
TUBE NO.	: I-2	DEPTH :	15.0 m
DESCRIPTION	: หลังรื้อถอก Bracing		
	<u>Initial reading</u>	<u>Current reading</u>	
DATA SET #	: 0	: 5	
DATE	: 27-Jul-2023	: 6-Sep-2023	

DEPTH	INITIAL DATA			CURRENT DATA			INCR.DISP	CUM.DISP
m.	B0	B180	INCR.DEV. mm.	B0	B180	INCR.DEV. mm.	mm.	mm.
0.5	355	-332	8.60	326	-307	7.93	-0.67	-1.47
1.0	355	-332	8.60	326	-307	7.94	-0.66	-0.80
1.5	322	-303	7.83	300	-279	7.25	-0.58	-0.13
2.0	301	-280	7.28	281	-260	6.77	-0.51	0.44
2.5	278	-258	6.71	258	-235	6.17	-0.54	0.96
3.0	249	-231	6.00	230	-209	5.50	-0.50	1.49
3.5	214	-194	5.11	189	-168	4.47	-0.64	1.99
4.0	160	-137	3.71	125	-103	2.86	-0.86	2.64
4.5	108	-85	2.41	80	-58	1.73	-0.68	3.49
5.0	108	-77	2.32	76	-56	1.65	-0.67	4.17
5.5	80	-63	1.79	60	-38	1.22	-0.57	4.83
6.0	55	-35	1.13	38	-17	0.68	-0.45	5.41
6.5	31	-8	0.49	21	0	0.27	-0.22	5.86
7.0	-12	31	-0.55	-23	44	-0.84	-0.30	6.08
7.5	-81	99	-2.26	-74	97	-2.14	0.12	6.37
8.0	-66	82	-1.85	-59	79	-1.72	0.13	6.25
8.5	-56	82	-1.73	-43	64	-1.34	0.40	6.13
9.0	-44	61	-1.31	-22	43	-0.82	0.50	5.73
9.5	-16	43	-0.74	1	20	-0.24	0.50	5.24
10.0	8	18	-0.13	31	-11	0.52	0.65	4.74
10.5	11	4	0.09	40	-17	0.72	0.63	4.09
11.0	-12	36	-0.60	9	15	-0.08	0.52	3.46
11.5	-29	46	-0.94	-6	27	-0.41	0.53	2.94
12.0	-36	60	-1.20	-16	38	-0.67	0.53	2.41
12.5	-56	79	-1.68	-36	57	-1.16	0.52	1.88
13.0	-90	111	-2.52	-77	97	-2.18	0.34	1.36
13.5	-129	152	-3.52	-117	139	-3.21	0.32	1.02
14.0	-110	127	-2.96	-98	119	-2.72	0.25	0.70
14.5	-87	112	-2.49	-80	100	-2.26	0.23	0.46
15.0	-87	112	-2.49	-80	100	-2.26	0.23	0.23

END OF RECORDS

RECORDED BY : Chayangkun

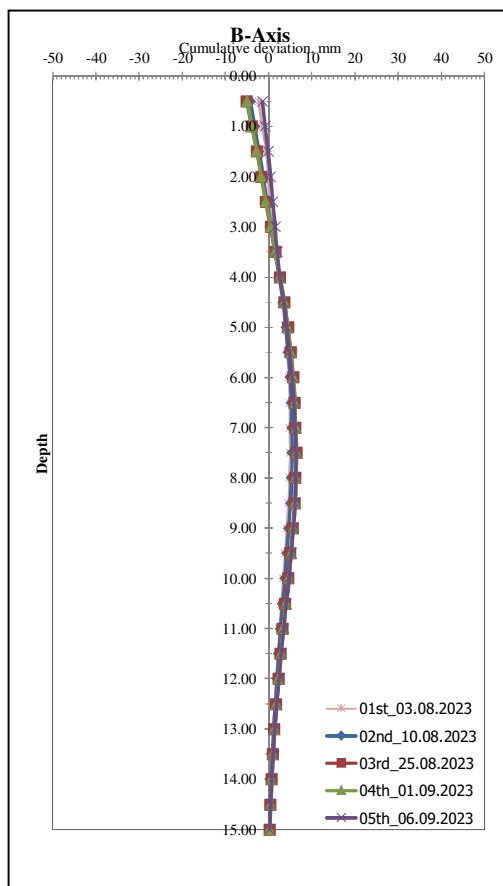
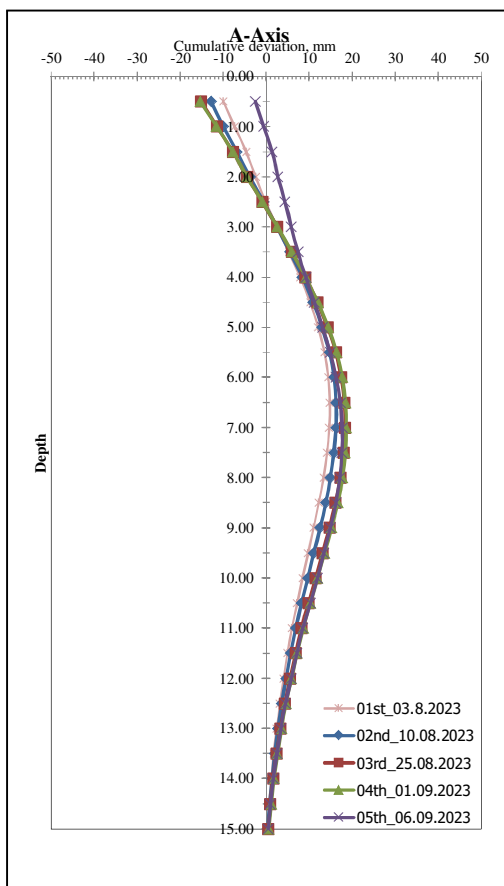


## INCLINOMETER READING RESULTS

### INCLINOMETER MONITORING RESULTS

PROJECT : Chapter One All Ramintra (Phase 1)  
LOCATION : แขวงอนุสาวรีย์ เขตบางเขน กรุงเทพมหานคร DEPTH : 15.0 m  
TUBE NO. : I-2  
DESCRIPTION : หลังรื้อถอน Bracing

DATA SET # : 0 Initial reading Current reading  
DATE : 27-Jul-2023 : 6-Sep-2023



END OF RECORDS

RECORDED BY : Chayangkun





รูปที่ 1 การตรวจวัด Inclinator (Current reading 5) ตำแหน่ง I-1



รูปที่ 2 การตรวจวัด Inclinator (Current reading 5) ตำแหน่ง I-2

รูปแสดงการตรวจวัดและสภาพพื้นที่ในสนาม





# Specifications and Compliance Certificate

WE HEREBY CERTIFIED that the manufactured instruments listed below,  
in the amount specified in the TABLE A, and furnished to

Customer	JLP Engineering Services Co., Ltd.		
Address	34/671 Moo Baan Ying Ruay (Soi5) Liab Klong Prapa Rd., Bang Talad, Pakkred Nonthaburi, 11120		
Reference Sisgeo Job No.:	OA23-011	Date:	19/01/2023
Shipped to:	Thailand	Date:	27 January, 2023
		Via:	

Complies with International System of Units (SI) and with all aspects of the requirements and specifications of your

Purchase Order / Contract	No:	Ref:
		Mr. Kawee

WE FURTHER CERTIFY that the items listed in the TABLE A have been manufactured, tested and calibrated in compliance with the relevant specifications and drawings, according to the CERTIFIED Quality System of Sisgeo, in conformance to the standards UNI EN ISO 9001, with reference to the following documents:

IST19/04	Technical instruction for repairing activities	IST15/07	Standard practice for packaging
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" TABLE A "

Instrument Description	DIGITAL INCLINOMETER PROBE $\pm 30^\circ$		
Model	0S242DV3000	Quantity	1
Serial Number	S160271	Batch Number	
Country of Origin	ITALY-EC	Traceable to	IST 8/01

Calibration Date	25/01/2023
Recommended Calibration check	24/01/2024
Calibration schedule	Based on past experience and assumed normal usage. SISGEO recommended the calibration by the scheduled date stated above to ensure sustained accuracy and reliable performance.

## TECHNICAL SPECIFICATIONS

WE FURTHER CERTIFY that the technical specifications of the instruments are in accordance to the last revision of the relative technical datasheet consultable on our web site [WWW.SISGEOASIA.COM](http://WWW.SISGEOASIA.COM)

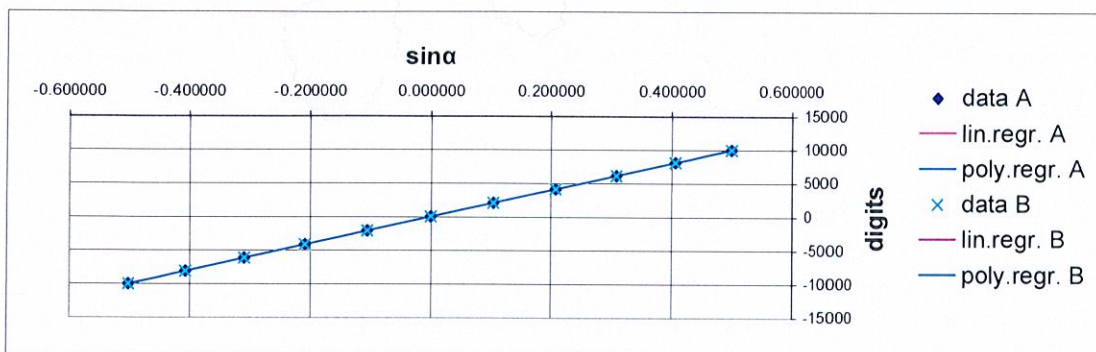
SISGEO ASIA PACIFIC CO., LTD.	 Production Chief	 Sales Engineer	Date: 27/01/2023
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## CALIBRATION REPORT

Model: <b>Inclinometer probe</b>	<b>S242DV3000</b>	Serial/Number: <b>S160271</b>
Type: <b>Mems Digitized</b>		Serial/Number:
Customer: <b>JLP Engineering Services Co.,Ltd.</b>		Job number: <b>OA23-011</b>
Cable Length: <b>0 m</b>		Date: <b>25/01/2023</b>
TEST CONDITIONS :		Power supply [Vdc] : 24
		Temperature [°C] : 26
		Humidity [%] : 53
		Atmospheric pressure [mbar] : 1016
Calibration has been made according to the Quality Assurance System UNI EN ISO 9001 - IST. 10/04 Metrological chain		
Main: Jewell Servoinclinometer mod. LCF100 s/n 088, Yokogawa Calibrator mod. GS-210 s/n 151		
Secondary: Heidenhain Encoder mod. RON 905 s/n 140, Sisgeo Read out s/n 141		
measures uncertainty: $\pm 0.0004^\circ / V = 0.00006 V$		

angle	channel A [digits]				angle	channel B [digits]			
sina	1 up	1 down	2 up	2 down	sina	1 up	1 down	2 up	2 down
0.500000	9993	9992	9993	9999	0.500000	9998	9996	9997	9996
0.406740	8118	8119	8118	8118	0.406740	8120	8121	8120	8120
0.309020	6161	6160	6161	6160	0.309020	6160	6161	6161	6161
0.207910	4147	4146	4147	4147	0.207910	4147	4148	4147	4148
0.104530	2085	2084	2085	2084	0.104530	2083	2085	2083	2085
0.000000	1	2	2	2	0.000000	2	2	2	1
-0.104530	-2085	-2085	-2084	-2085	-0.104530	-2084	-2083	-2084	-2084
-0.207910	-4148	-4149	-4149	-4149	-0.207910	-4147	-4146	-4147	-4147
-0.309020	-6163	-6162	-6163	-6162	-0.309020	-6160	-6159	-6160	-6159
-0.406740	-8122	-8120	-8122	-8120	-0.406740	-8118	-8116	-8118	-8117
-0.500000	-9997	-9996	-9997	-9997	-0.500000	-9991	-9991	-9992	-9991



## RESULTS

### Linear sensitivity factor

	S	max.err.
	[digits/sina]	%F.S.
channel A	19969.83125	0.07074
channel B	19966.75448	0.06629

### Polynomial sensitivity factors

$$[sina] = A [digits]^3 + B [digits]^2 + C [digits] + D$$

	A	B	C	D	max.err.
	[sina/digits <sup>3</sup> ]	[sina/digits <sup>2</sup> ]	[sina/digits]	[sina]	%F.S.
channel A	-1.651E-15	8.174E-13	5.019E-05	1.628E-06	0.03462
channel B	-1.687E-15	-1.073E-12	5.020E-05	-1.271E-05	0.02329

NOTES: Resulting error depends on the effects of linearity and hysteresis.

Wiring :

Operator :



Production chief :

