



# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All

Presented at the FIG Working Week 2024,  
19-24 May 2024 in Accra, Ghana

## Navigating Precision with Network Controls for Construction Continuity

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## CURRENT STAGE OF CONSTRUCTION



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## CONSTRUCTION PHASE I IMAGES



# CONCENTRATOR AREA

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## HOW DID WE ACHIEVE THIS ?

### ❖ TRAVERSING:

- ❖ Two main base line controls were used for the traversing: GBCT 06 and GBM 07 from these ,other 22 benchmarks were established around the construction site .
- ❖ Surpac least squares adjustment software was used for controls adjustment .
- ❖ Further transformation by Trimble business center of the controls and existing structures.
- ❖ New controls derived for construction continuity were tested and used through out construction.
- ❖ Close loop leveling traverse was also done for elevation purposes.

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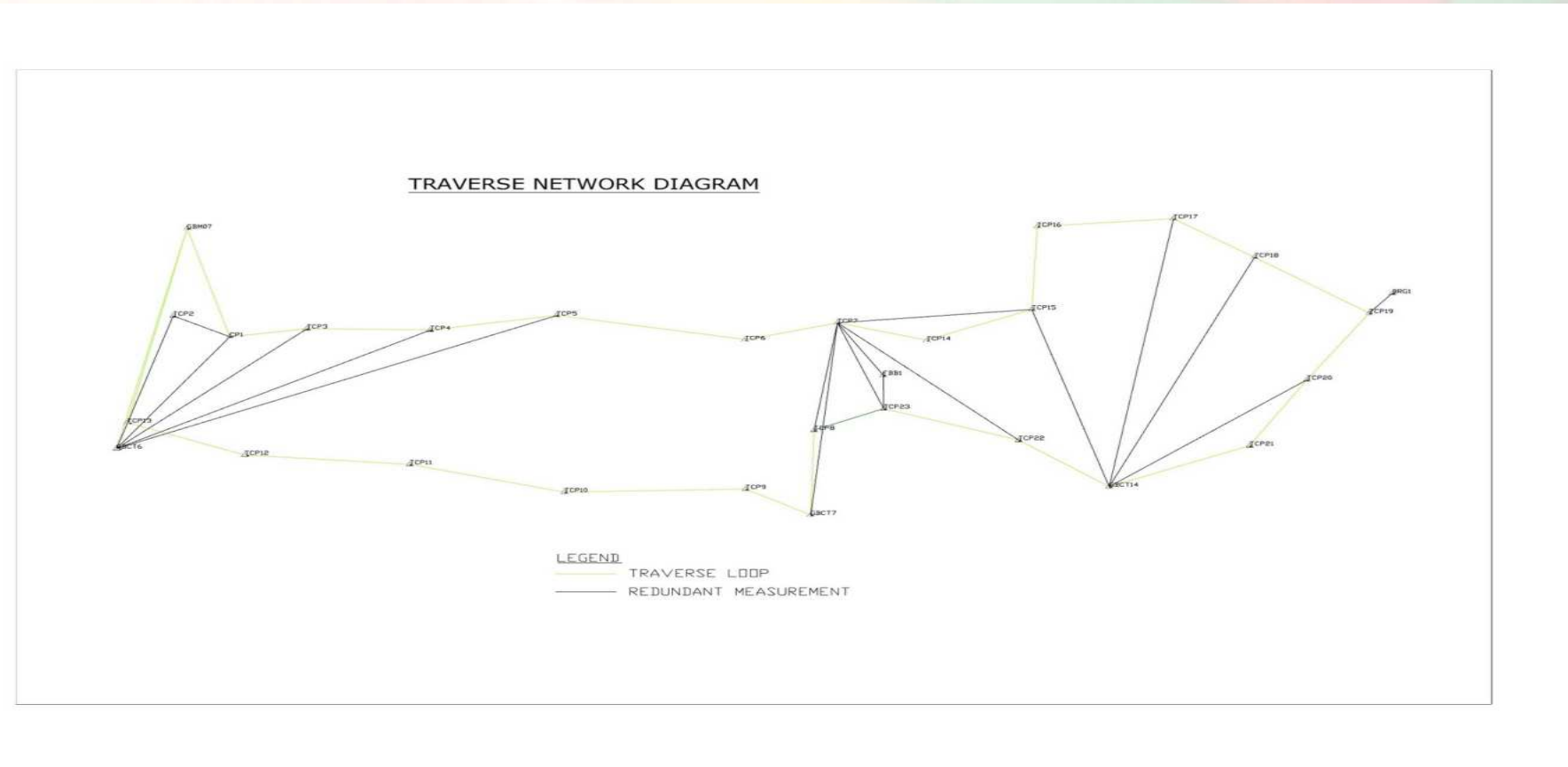
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## TRAVERSE NETWORK DIAGRAM



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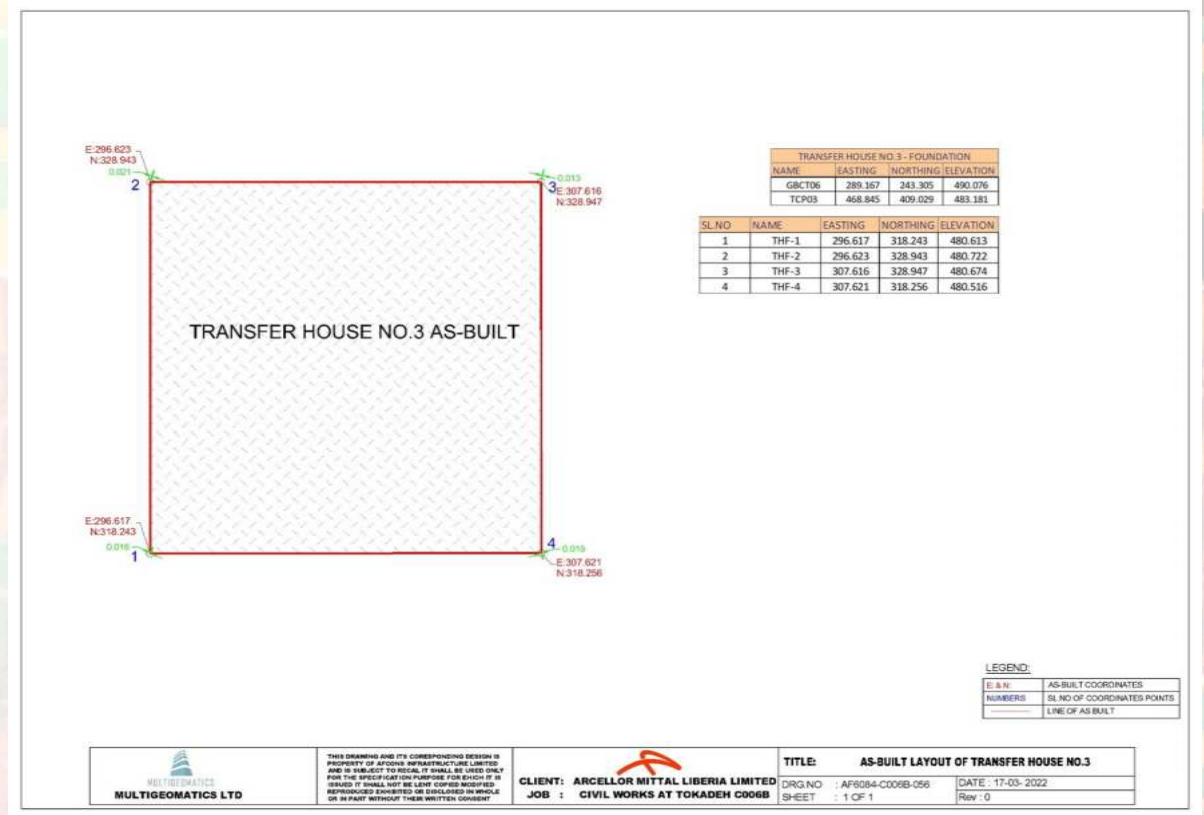
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## DESIGN VRS ASBUILT DATA AFTER ADJUSTMENT TRANSFORMATION RESULTS

SL.NO	NAME	DESIGN			ASBUILT			DIFFERENCE		
		EASTING	NORTHING	ELEVATION	EASTING	NORTHING	ELEVATION	EASTING	NORTHING	ELEVATION
1	THF-1	296.603	318.250	480.750	296.617	318.243	480.742	-0.014	0.007	0.008
2	THF-2	296.603	328.950	480.750	296.623	328.943	480.741	-0.020	0.007	0.009
3	THF-3	307.603	328.950	480.750	307.616	328.947	480.740	-0.013	0.003	0.010
4	THF-4	307.603	318.250	480.750	307.621	318.256	480.742	-0.018	-0.006	0.008





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## CHALLENGES

- ❖ The Absence of enough survey control benchmarks from phase 1.
- ❖ The controls available were not in proper sync with existing structures.
- ❖ Weather conditions posed a challenge.
- ❖ Scanty Information available from the Phase I project.

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## LESSONS LEARNT

- ❖ Controls should be built to be permanent and visible to avoid destruction.
- ❖ Protect controls with solid and strong barricades.
- ❖ Tipple check system to acquire the minimum errors in all survey works.

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SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals

## Commission 5, TF SDG

TS05F: The Growing Roles & Responsibilities of surveyors as Data Engineers and Resources Managers

Serving Society for the Benefit of People and Planet



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