

Date: 16.-April-2019

CONSTRUCTION OF 13 STORIED (WITH 3 BASEMENTS) INSTITUTIONAL BUILDING FOR BRAC UNIVERSITY NEW CAMPUS AT HOLDING NO. KHA 224, MERUL BADDA, DHAKA-1212

Approval of Instrumentation & Monitoring Works

Scope of Work : a). Implement Monitoring of Surrounding environment & Key positions of the project.
b). To predict the controlling of the project sub-structure & surrounding-structure stability.

Location of the work : Building Construction Area and at Surrounding Buildings.

Contractor : BUCG-ABC JV

Additional Item No. : Vol. # 07 (Instrumentation & Monitoring Works)

Sl. No.	Description of Work	Quantity	Unit	Amount in Tk.
01.	Deploy and Monitoring of all Instrumentation Works as per attached Shop drawings. This Monitoring works have to be continued till to 03 months after removing of all bracings. This Lump Sum contract also includes the Monitoring report generation as required frequency basis and submit to Clients (BRACU) with recommendations.	01 Package	Lump Sum	3,74,35,830.00

In word: Taka Three Core Seventy-Four Lac Thirty-Five Thousand Eight Hundred Thirty only. Tk. 3,74,35,830.00

- Note :
- Price after analysis (Page No. 1 & 2), negotiation (Letter # 10 & 17), Shop Drawing (attachment-01) are attached herewith.
 - Payment will be given as per attached Payment Scheduled. (Page No. 03)
 - VAT, AIT, Profit, Overhead etc. are inclusive with the mentioned Lump Sum Price.

Submitted by
16/04/19
Md. Asraful Azad
Executive Engineer
BRAC, Construction Dept

Robul Hossain
Project Engineer
BRAC University New Campus

Forwarded by
SYED MAZBAHUL MORSHAD
Chief Engineer, BRAC and
The Engineer
BRAC University New Campus Project.

Approved by

- As per consultant's advice the Contractor has arrange monitoring system at site
 - These monitoring system was not incorporate in BOQ earlier.
 - To ensure safety of the underground structures and surrounding building and to avoid any types of accident it is needed to install monitoring system.
 - Approved design and documents from consultant & the contractor are attached here with.
 - Forwarded for kind approval. (It will be a NT item)
- (Signature) 17/04/19

N Kairy
Treasurer
AC University




BRAC University New Campus

224, kha merul Badda-Dhaka.

Comparison of Instrumentation and Monitoring Works Cost

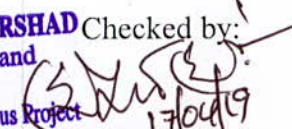
No.	Item Description	Unit	Proposed by BUCG				Certified by BRACU			Remarks
			Quantity	Number of Times	Rate (Tk.)	Total Amount (Taka)	Quantity	Number of Times	Amount (Tk.)	
1	Monitoring Points Deploy					2458625			2361725	
1.1	Datum Laid	Group	6.00	1.00	17000.00	102000.00	6.00	1.00	102000	
1.2	Vertical Horizontal Gauging Point	Unit	159.00	1.00	2550.00	405450.00	121.00	1.00	308550	(14+50+38+19)
1.3	Deep Horizontal Displacement Gauging Point	m	559.00	1.00	425.00	237575.00	559.00	1.00	237575	(Out of 22 nos, 09 nos is under soil. (Location at C & B Zone, should be rectified)
1.4	H-Shaped Steel Horizontal Displacement Gauging Point	Unit	72.00	1.00	1700.00	122400.00	72.00	1.00	122400	
1.5	Support Stress Gauging Point	Unit	312.00	1.00	5100.00	1591200.00	312.00	1.00	1591200	
2	Bench Mark Network Observations					554472.00			554472	
2.1	Horizontal Displacement Benchmark Network	Point	3.00	4.00	29665.00	355980.00	3.00	4.00	355980	
2.2	Vertical Displacement Benchmark Network	Point	3.00	4.00	16541.00	198492.00	3.00	4.00	198492	
3	Field Monitoring Fee					30684915.00			30515085	
3.1	Surface Subsidence Monitoring	Point * Times	14.00	90.00	850.00	1071000.00	14.00	90.00	1071000	
3.2	Monitoring Of Surface Building	Point * Times	50.00	90.00	850.00	3825000.00	50.00	90.00	3825000	

Submitted by: 
 Engr. Quazi Robiul Hossain
 Project Engineer
 BRAC University New Campus

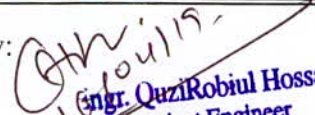

 16/04/19
 Md. Asraful Azad
 Executive Engineer
 BRAC Construction Dept

Contractor Sign:




Checked by: 
 SYED MAZBAHUL MORSHAD
 Chief Engineer, BRAC and
 The Engineer
 BRAC University New Campus Project


No.	Item Description	Unit	Proposed by BUCG				Certified by BRACU			Remarks
			Quantity	Number of Times	Rate (Tk.)	Total Amount (Taka)	Quantity	Number of Times	Amount (Tk.)	
3.3	Vertical Displacement Monitoring Of D-Wall Top	Point * Times	38.00	90.00	850.00	2907000.00	38.00	90.00	2907000	(09 nos. at B-Zone)
3.4	Horizontal Displacement Monitoring Of D-Wall Top	Point * Times	38.00	90.00	1258.00	4302360.00	38.00	90.00	4302360	(09 nos. at B-Zone)
3.5	Support Column settlement Monitoring	Point * Times	19.00	90.00	850.00	1453500.00	19.00	90.00	1453500	
3.6	Depth Horizontal Displacement Monitoring Of The	m * Times	559.00	45.00	221.00	5559255.00	559.00	45.00	5559255	(Out of 22 nos, 09 nos is under soil. (Location at C & B Zone, should be rectified)
3.7	H - Shaped Steel Horizontal Displacement Monitoring	Point * Times	75.00	45.00	1258.00	4245750.00	72.00	45.00	4075920	(Deploy 72 nos, So Monitoring also 72 nos)
3.8	Support Stress Monitoring	Point * Times	312.00	45.00	493.00	6921720.00	312.00	45.00	6921720	
3.9	Water Level Observation	Point * Times	9.00	90.00	493.00	399330.00	9.00	90.00	399330	
4	Technical Cost	(Item 1 + Item 2+ Item 3)X22%				7413562.64			7354882.04	
5	Total (Item no. {(1+2+3)+4}					41111574.64			40786164.04	
6	Discount					3350334.00			3350334.00	
7	Final Amount					37761240.64			37435830.04	

Submitted by: 
 Engr. Quazi Robiul Hossain
 Project Engineer
 BRAC University New Campus


 Md. Asraf ul Azad
 Executive Engineer

Contractor Sign:


 Dhaka
 BRAC University New Campus Project

Checked by: 
 SYED MAZBAHUL MORSHAD
 Chief Engineer, BRAC and
 The Engineer
 BRAC University New Campus Project

BRAC University New Campus
224, kha merul Badda-Dhaka.

Payment Schedules of Instrumentation and Monitoeing Works

Item of Description	Instrumentation and Monitoeing Works Value Tk. 3,74,35,830.00			
	Zone A		Zone C & B	
	Share	Amount (Tk.)	Share	Amount (Tk.)
	70%	26,205,081	30%	11,230,749
Monitoring Points Deploy	20%	5,241,016	20%	2,246,150
Monitoring Works Done upto Raft Casting	35%	9,171,778	35%	3,930,762
Monitoring Works Done upto Ground Floor Slab Casting	40%	10,482,032	40%	4,492,300
Monitoring Works Done beyond three month after all bracing removal.	5%	1,310,254	5%	561,537

Submitted by: *QHSn*

10/4/19
Engr. Qazi Robiul Hossain
Project Engineer
BRAC University New Campus

Checked by: *(Signature)*

17/04/19
SYED MAZBAHUL MORSHAD
Chief Engineer, BRAC and
The Engineer
BRAC University New Campus Project

16/04/19
Md. Asraful Azad
Executive Engineer
BRAC, Construction Dept

Contractor's Sign:



BUCG-ABC Joint Venture

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Tel: +86 13520172078; Fax: +8610 62091559; E-mail: huangxinlong@bucg.cc
P.R. Bangladesh: ABC House (2nd floor), 8, Banani Commercial Area, Kemal Ataturk Avenue, Dhaka-1213, Bangladesh
Tel (PABX): 9861935, 9862665, 9821291-2, 58814620, 9889237, 9882189 & 9821623
Fax: 880-2-9822349 & 9821966; E-mail: abcltd72@gmail.com

Ref: BUCG-ABC JV/BRACU/10/19

Date: 12th March 2019

To: BRAC University
66 Mohakhali, Dhaka 1212, Bangladesh
Fax: +8802 58810383
Attn: Mr. Syed Mazbahul Morshad (Chief Engineer)

Letter # 10

From: BUCG-ABC Joint Venture

Contract Title: BRAC UNIVERSITY NEW CAMPUS DEVELOPMENT PROJECT

Subject: Verified Valuation for Instrumentation and Monitoring Works

Reference: BUCG-ABC JV/ BRACU/08/19 Dated on 8 March 2019

Dear Sir,

With reference to submitted letter above, the verified amount is regarded as lump sum 37,825,000 Taka (In Word: Thirty Seven Million and Eight Hundred Twenty Five Thousand BDT Only) for execution and completion of instrumentation and monitoring works in compliance with shop drawings and specification.

In addition, the payment against said works shall be claimed as per the done percentage set out below table under monthly bill application.

Item Description	Monitoring Works Value : 37,825,000 TK			
	Zone A		Zone C	
	Share Ratio	Amount(TK)	Share Ratio	Amount(TK)
	70%	26,477,500	30%	11,347,500
Monitoring Points Deploy	30%	7,943,250	30%	3,404,250
Monitoring Works Done at Foundation Slab Area	30%	7,943,250	30%	3,404,250
Monitoring Works Done up to Ground Level	40%	10,591,000	40%	4,539,000

This is for your information and approval.

Wang Liyi
Executive Project Manager
BUCG-ABC Joint Venture



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12 MAR 2019

[Signature]

Encl:

Attachment 01: Rev.02 Valuation for Instrumentation and Monitoring Works (1 A4 Page)

Attachment 01

Valuation for Instrumentation and Monitoring Works (Rev.02)

No.	Project Name	unit	Quantity	number of times	Competitively unit price (USD)	Total(USD)	Remark	
1	Monitoring Points Deploy					28,925.00		
1.1	Datum Laid	Group Day	6.00	1.00	200.00	1,200.00		
1.2	Vertical Horizontal Displacement Gauging Point Laid	unit	159.00	1.00	30.00	4,770.00	Market Price	
1.3	Deep Horizontal Displacement Gauging Point (inclined pipe)	m	559.00	1.00	5.00	2,795.00		
1.4	H-shaped steel horizontal Displacement gauging point laid	unit	72.00	1.00	20.00	1,440.00		
1.5	Support Stress Gauging Point	unit	312.00	1.00	60.00	18,720.00		
2	Benchmark Network Observation				0.00	3,932.80		
2.1	Horizontal Displacement Benchmark Network	Point	3.00	4.00	349.00	8,376.00	"Engineering Survey & Design Fee Standard" 02 revised edition	
2.2	Vertical Displacement Benchmark Network	Km	3.00	4.00	194.60	1,556.80		
3	Field Monitoring Fee				0.00	360,999.00		
3.1	Surface subsidence monitoring	point*times	14.00	90.00	10.00	12,600.00	List 4.2-3	<p>The excavation-backfill period is calculated on the basis of 360 days in a year, and the excavation period is calculated on the basis of 180 days, the observation frequency will be once every 2.5 days, 72 times observation will be conducted during the excavation period; during the structure construction-backfilling period, the frequency will be once every 10 days on average totally 18 times, A total of 90 times observation or so will be conducted. The horizontal displacement and support stress (I-beam steel) are installed and observed according to the construction progress. The deep horizontal displacement is subject to the frequency requirements in the specification, and the total observation times is about 50% of other monitoring projects</p>
3.2	Monitoring of surrounding buildings	point*times	50.00	90.00	10.00	45,000.00	List 4.2-3	
3.3	Vertical displacement Monitoring of pile top	point*times	38.00	90.00	10.00	34,200.00	List 4.2-3	
3.4	horizontal displacement monitoring of pile top	point*times	38.00	90.00	14.80	50,616.00	List 4.2-3	
3.5	Support column settlement monitoring	point*times	19.00	90.00	10.00	17,100.00	List 4.2-3	
3.6	Depth horizontal displacement monitoring of the supporting structure	m*times	559.00	45.00	2.60	65,403.00	List 4.2-3 D20	
3.7	H-shaped steel horizontal Displacement Monitoring	point*times	75.00	45.00	14.80	49,950.00	List 4.2-3	
3.8	Support stress monitoring	point*times	312.00	45.00	5.80	81,432.00		
3.9	water level observation	point*times	9.00	90.00	5.80	4,698.00		
4	Technical cost	(Item 2: hour 3) * 22%				87,968.50	"Engineering Survey & Design Fee Standard" 02 revised edition 4.2.1	
	Total USD					445,000.00		

Note: In consideration of amicable negotiation and supporting you, Contractor agrees the lump sum 445,000 USD, equivalent to 37,825,000Taka (changing ratio: 1.00 USD = 85.00 Taka) for execution and completion of above works.

For Approval

Submitted By: BUCG- ABC Joint Venture

Representative:

Date:



Approved By:

Representative:

Date:

BUCG-ABC Joint Venture

P.R. China: No. 18, Beitaipingzhuang Road, Haidian District, Beijing, 100088, P.R. China
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Fax: 880-2-9822349 & 9821966; E-mail: abctd72@gmail.com

Ref: BUCG-ABC JV/BRACU/17/19

Date: 24th March 2019

To: BRAC University
66 Mohakhali, Dhaka 1212, Bangladesh
Fax: +8802 58810383
Attn: Mr. Syed Mazbahul Morshad (Chief Engineer)

Letter # 17

From: BUCG-ABC Joint Venture

Contract Title: BRAC UNIVERSITY NEW CAMPUS DEVELOPMENT PROJECT

Subject: VO # 07 Valuation for Instrumentation and Monitoring Works

Reference: a. BRAC-NCP/2019/16A Dated on 13th March 2019

b. BUCG-ABC JV/ BRACU/10/19 Dated on 12th March 2019

Dear Sir,

According to referred [a] above, we hereby clarify your requirements set out following as instructed.

- 1) Scope of work is indicated in the attachment 01 for your kind review.
- 2) Measurement should be proceeded as per actual quantities based on the shop drawings or enclosed BOQ, However, the final approved amount is deemed as Lump Sum and to be claimed as per executed milestone of site progress detailed in the attachment 01.
- 3) Work duration is to comply with the main Programme and the final completion will be beyond two months after the execution of sub-structure works.
- 4) Local currency (BDT) is specified under attachment 01 upon each item.

Moreover, the mentioned lump sum is 37,825,000 Taka (In Word: Thirty Seven Million and Eight Hundred Twenty Five Thousand BDT Only) for construction and completion of instrumentation and monitoring works in accordance with shop drawings and specifications.

This is for your information and approval.


Wang Liyi
Executive Project Manager
BUCG-ABC Joint Venture



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24 MAR 2019

Encl:

Attachment 01: VO # 07 Valuation for Instrumentation and Monitoring Works (3 A4 Pages)

VO#07 Payment Schedules of Instrumentation and Monitoring Work

Item Description	Instrumentation and Monitoring Works Value: 37,825,000TK			
	Zone A		Zone C	
	Share	Amount(TK)	Share	Amount(TK)
	70%	26,477,500	30%	11,347,500
Monitoring Points Deploy	30%	7,943,250	30%	3,404,250
Mornitoring Works Done at Foundation Slab Area	30%	7,943,250	30%	3,404,250
Mornitoring Works Done up to Ground Area	40%	10,591,000	40%	4,539,000
Total	100%	26,477,500	100%	11,347,500



VO#07 Valuation for Instrumentation and Monitoring Works

Work Scope: Implement monitoring of surrounding environment and key positions of the project during civil engineering construction, basically master dynamics of the surrounding environment, envelope structure system and enclosing rock, and verify the constructor's data. Deploy of monitoring points on the ground, surrounding buildings and structure elements, etc with supplying the proper materials and instrument & equipment, and setting up the benchmark network to observe and monitor the horizontal and vertical movement comparison to the initial point location for controlling the structure stability of buildings and sub-structure with its around piles, columns, lateral bracing under construction. All works shall be carried out as per the shop drawings and specifications

No.	Item Description	Unit	Quantity	Number of times	Comprehensive Rate (Taka)	Total(Taka)	Remark
1	Monitoring Points Deploy					2,458,625	
1.1	Datum Laid	Group.Day	6.00	1.00	17,000.00	102,000	
1.2	Vertical Horizontal Displacement Gauging Point Laid	unit	159.00	1.00	2,550.00	405,450	Market Price
1.3	Deep Horizontal Displacement Gauging Point (Inclined pipe)	m	559.00	1.00	425.00	237,575	
1.4	H-shaped steel horizontal Displacement gauging point laid	unit	72.00	1.00	1,700.00	122,400	
1.5	Support Stress Gauging Point	unit	312.00	1.00	5,100.00	1,591,200	
2	Benchmark Network Observation					554,472	
2.1	Horizontal Displacement Benchmark Network	Point	3.00	4.00	29,665.00	355,980	"Engineering Survey & Design Fee Standard"02 revised edition
2.2	Vertical Displacement Benchmark Network	Km	3.00	4.00	16,541.00	198,492	
3	Field Monitoring Fee					30,684,915	



Attachment 01

VO#07 Valuation for Instrumentation and Monitoring Works

3.1	Surface subsidence monitoring	point*times	14.00	90.00	850.00	1,071,000	List 4.2-3		The excavation-backfill period is calculated on the basis of 360 days in a year, and the excavation period is calculated on the basis of 180 days, the observation frequency will be once every 2.5 days, 72 times observation will be conducted during the excavation period; during the structure construction- backfilling period, the frequency will be once every 10 days on average totally 18 times; A total of 90 times observation or so will be conducted. The horizontal displacement and support stress of h-beam steel are installed and observed according to the construction progress. The deep horizontal displacement is subject to the frequency requirements in the specification, and the total observation times is about 50% of other monitoring projects
3.2	Monitoring of surrounding buildings	point*times	50.00	90.00	850.00	3,825,000	List 4.2-3	Select partial buildings (≥ 6 floors)	
3.3	Vertical displacement Monitoring of pile top	point*times	38.00	90.00	850.00	2,907,000	List 4.2-3		
3.4	horizontal displacement monitoring of pile top	point*times	38.00	90.00	1,258.00	4,302,360	List 4.2-3		
3.5	Support column settlement monitoring	point*times	19.00	90.00	850.00	1,453,500	List 4.2-3		
3.6	Depth horizontal displacement monitoring of the supporting structure	m*times	559.00	45.00	221.00	5,559,255	List 4.2-3 D≤20	3-3 cross-section is considered, cross-	
3.7	H-shaped steel horizontal Displacement Monitoring	point*times	75.00	45.00	1,258.00	4,245,750	List 4.2-3		
3.8	Support stress monitoring	point*times	312.00	45.00	493.00	6,921,720			
3.9	water level observation	point*times	9.00	90.00	493.00	399,330			
4	Technical Cost	(Item 2+Item 3) × 22%				7,477,322	"Engineering Survey & Design Fee Standard" 02 revised edition 4.2.1		
5	Total					41,175,334			
6	Discount					3,350,334			
7	Final Amount					37,825,000			

For Approval

Submitted By: BUCG-ABC Joint Venture

Representative:



Date:

24/07/2019

Approved By:

Representative:

Date: