

In association with

Brisbane City Enterprise Pty Ltd, Australia  
AQUA Consultant and Associates Ltd, Bangladesh  
Building Design Authority, Nepal  
CEMAT Consultants, Nepal



## Monthly Progress Report (September, 2016)

### Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), Biratnagar, Nepal

06 Oct, 2016



**Biratnagar Sub - Metropolitan City, Nepal**

Project Name:	Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP)
Project Number:	56064023
Report for:	Biratnagar Sub Metropolitan City, Nepal

## PREPARATION, REVIEW and AUTHORISATION

Revision	Date	Prepared by	Reviewed by	Approved for Issue by
	06 October, 2016	DSC		

## ISSUE REGISTER

Distribution List	Date Issued	Number of Copies
Biratnagar Sub Metropolitan City, Nepal:	06 October, 2016	3
SMEC staff:		1
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## 1. SALIENT FEATURE of Contract Package: STIUEIP/W/BRT/ICB-01

General Features	
Name of Project	Secondary Towns Integrated Urban Environmental Improvement Project(STIUEIP)
Executing Agency	Government of Nepal, Ministry of Urban Development Department of Urban Development and Building Construction (DUDBC)
Implementing Agency	Biratnagar Sub-Metropolitan City, Biratnagar
Funded By	Asian Development Bank & Government of Nepal
Package	Sewerage and Drainage Network, Wastewater Treatment Plant and Road and Lanes Improvement Sub Project
Contract No.	STIUEIP/W/BRT/ICB-01
Location	Biratnagar Sub-Metropolitan City, Biratnagar
Consultant	SMEC in association with Brisbane/AQUA/BDA/CEMAT
Contractor	CTCE-KALIKA Joint Venture
Date of Commencement	8 <sup>th</sup> December, 2013
Original Contract Period	900 days from date of commencement
Original Date of Completion	25 <sup>th</sup> May, 2016
Revised date of Completion	09 <sup>th</sup> March, 2017
Original Contract Amount with PS and VAT	NRs. 2,391,332,117.06
Revised Contract Amount including PS and VAT (After VO-2)	NRs 2,719,617,069.21
Paid Amount up to IPC 19	NRs. 1,658,634,896.61 (Including PS & VAT)
Physical Progress till August, 2016	60.22%
Financial Progress wrt VO-02	58.23%

## 2 INTRODUCTION/BACKGROUND

1. SMEC International Pty (Australia) in association with Brisbane City Enterprise Pty Ltd (Australia), AQUA Consultant and Associates Ltd (Bangladesh), Building Design Authority (Nepal) and CEMAT Consultants (Nepal) have entered for a Contract of Consulting Services with Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), Project Implementation Unit (PIU), Biratnagar Sub-metropolitan City on 7<sup>th</sup> December 2011. This monthly Progress Report of September, 2016 has been submitted to the PIU as per the Work Program proposed in the consultant's technical proposal as well as TOR of the consultant.

2. Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), the Department of Urban Development and Building Construction (DUDBC), under the Ministry of Urban Development (MUD) through the Government of Nepal (GoN) has received the loan from Asian Development Bank (ADB) Loan 2650-NEP. As per PAM contribution from GoN is 3.99 million USD, Asian Development Bank (ADB) 18.86 million USD and Biratnagar Sub-metropolitan City (BSMC) 1.99 million USD while contingency is 2.88 million USD for Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), Biratnagar. The cost sharing has been revised in April, 2013 as: Government of Nepal (GoN) is 5.960 Million USD, Asian Development Bank (ADB) 24.214 Million USD, TDF loan 4.098 Million USD and Biratnagar Sub-metropolitan City (BSMC) 2.980 Million USD and in total **37.252** Million USD.

3. In line with ADB's Strategy 2020 and based on Nepal's fundamental longterm needs and on the GoN's priority, the ADB is continuing to support the Government in (i) improving urban infrastructure; improving access to water supply and sanitation (ii) supporting urban environmental improvement (iii) strengthening the operation and management skills of local governments. The proposed project Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP) is another step forward to promote healthy cities by creating healthier urban environments and was formulated under the PPTA 2010.

- Contract of consulting services signed on 07 December 2011.
- Design works commenced on 01 January 2012.
- Final design works submitted to the Client on March 2013
- Contract of construction works signed on 02 December 2013
- Construction works commenced on 08 December 2013
- Contractor's Work Program (Revision 02) 05 December 2014, this has to be revised as the work progress is not consistent. The Contractor is advised to revise the work program and it is expected to receive by the end of August 2015. The Contractor has officially submitted the third (3<sup>rd</sup>) revised work program through the Contractor's letter in 15<sup>th</sup> September 2015 (received on 23<sup>rd</sup> September 2015). Revised Work schedule has to be submitted after EoT-01 (up to 09 March, 2017).

### 3. SUB-PROJECT COMPONENTS

#### 3.1 SEWER LINES

4. The prioritized sewer lines for Final Detailed Engineering Report of BSMC are as follows:

**Table1: Proposed Sewer Lines in BSMC**

S N.	Description	Unit	Quantity
<b>1</b>	<b>Sewerage Pipe Supply and Installation</b>	m	<b>63,964.0</b>
	<b>Reinforced Concrete Pipe laying and jointing</b>		<b>16,612.0</b>
	Line T1 (Secondary	m	3,788.0
	Line T2 (Trunk)	m	8,370.0
	Line T3 (Trunk)	m	4,136.0
	Line T4 (Secondary)	m	318.0
	<b>HDPE laying and jointing</b>	m	<b>47,352.0</b>
	Line T1 (Secondary	m	7,124.0
	Line T2 (Trunk)	m	19,410.0
	Line T3 (Trunk)	m	18,606.0
	Line T4 (Secondary)	m	22,12.0
<b>2</b>	<b>Manhole ( Brick / RCC)</b>	<b>no.</b>	<b>2,036</b>
<b>3</b>	<b>Sewer Inlet</b>	<b>no.</b>	<b>3,766.00</b>
<b>4</b>	<b>House Connection</b>	<b>no.</b>	<b>5,930.00</b>
<b>5</b>	<b>Reinstatement of Roads</b>	<b>km</b>	<b>66.06</b>

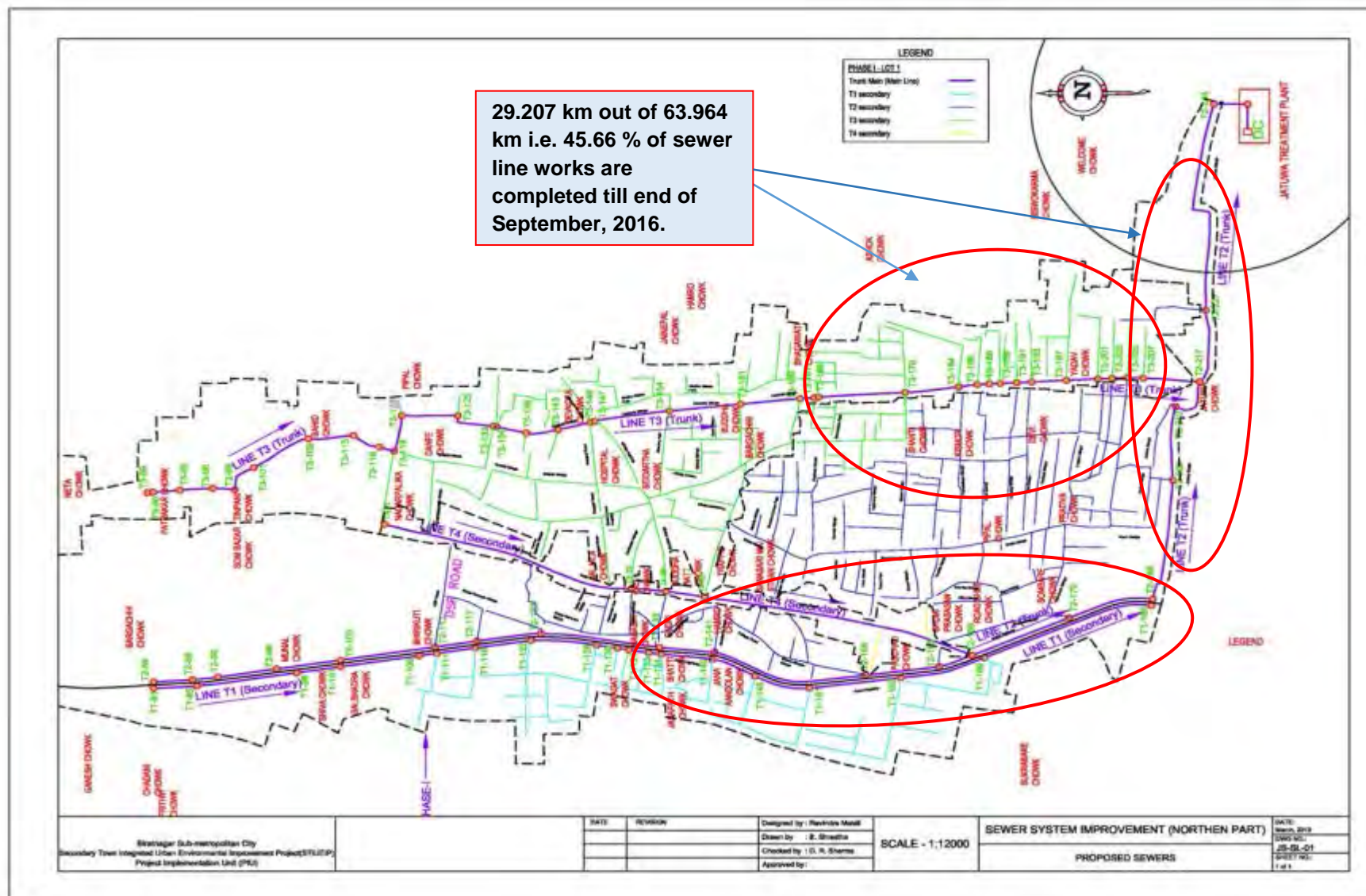


FIGURE. 1 PROPOSED SEWER LINES IN BSMC

### 3.2 Storm Water Drains

5. Most of the storm drains(S13,S11,S9,S5,B1,B2,B3,CN2,CN3 and southern parts) have been provisioned as Phase I priority works. The major storm drain outlets as planned are 14 numbers and catchment areas and discharges are respectively 1,324.2Ha and 73.21 cum/sec.

**Table2: Proposed Storm Water Drains in BSMC**

S.No.	Description	Unit	Quantity
<b>A</b>	<b>Storm Drain for Northern Parts</b>		<b>28,491.00</b>
I	Storm Drain Lines	m	28,491.00
II	Culvert	no	41
III	Outfall	no	15
IV	Rain Inlet	no	30
V	Manhole	no	30
VI	Canal Crossing	no	11
<b>B</b>	<b>Storm Drain for Southern Part</b>		
I	Brick Masonry Drain	m	8,483
II	Cleaning and Maintenance of Existing Drain	m	7,273
III	Culverts	no	38
<b>C</b>	<b>Rehabilitation of Existing Drain</b>		
I	Drain Cover	m	30,467
II	Cleaning and Maintenance of Existing Drain	m	33,601

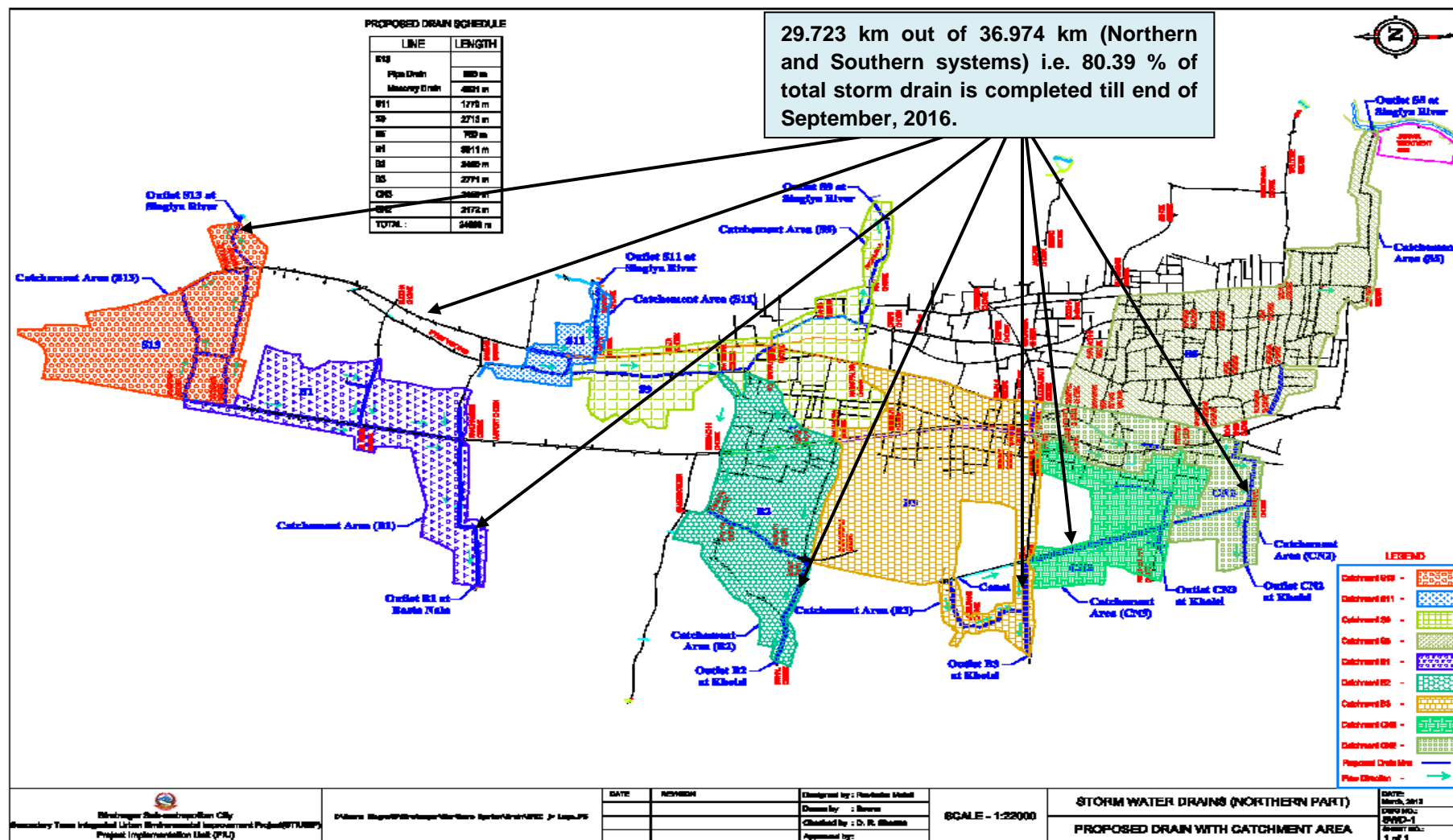


Figure 2: Proposed Storm Water Drains in BSMC (Northern Drainage System)

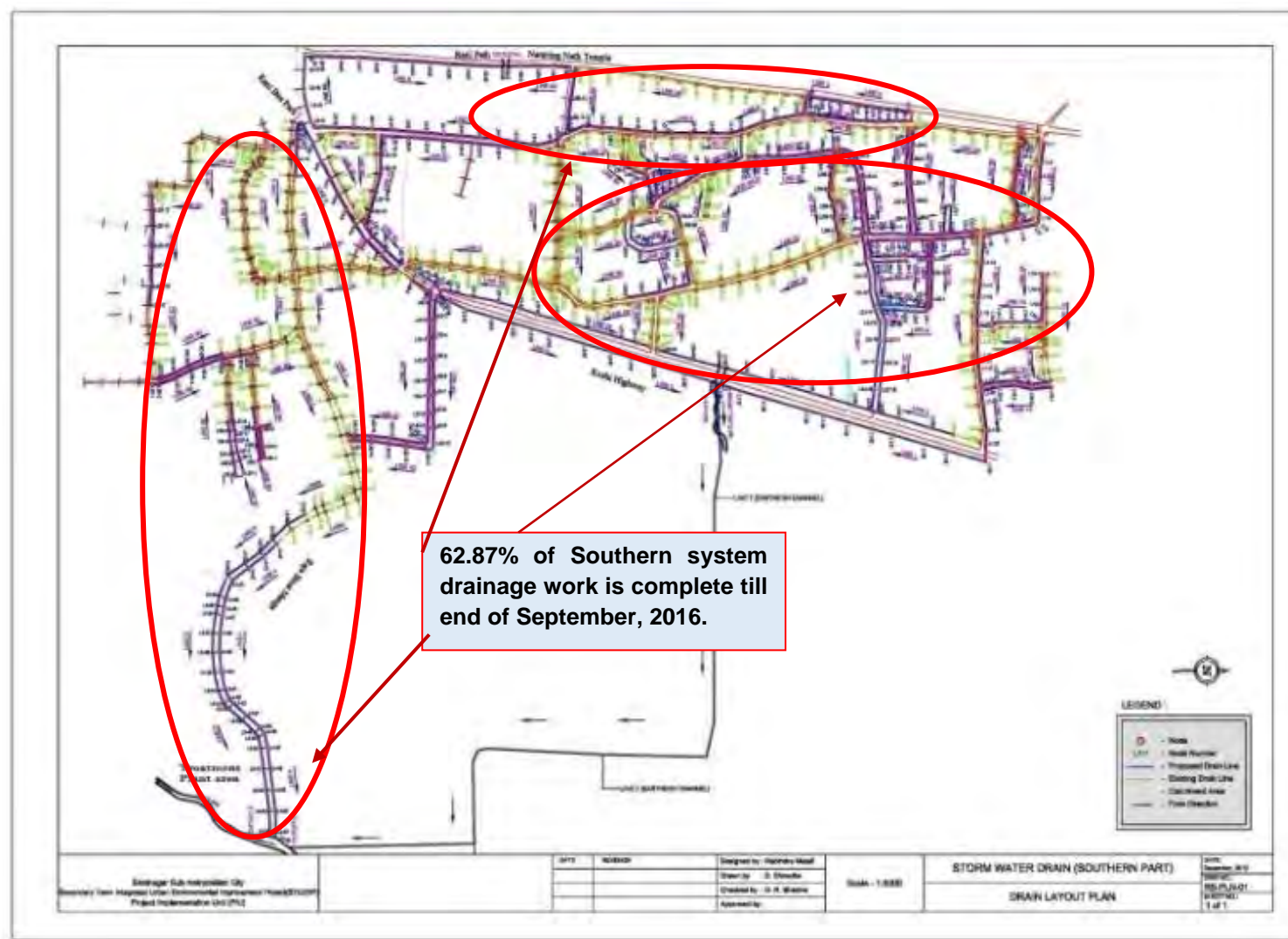


Figure 3: Proposed Storm Water Drains in BSMC (Southern Drainage System)

### 3.3 WASTE WATER TREATMENT PLANTS

6. The quantity of domestic waste water is calculated using water supply rate at 90 liters per person per day in the design year 2035, out of which 80% is converted into waste water. Maximum quantity of waste water is calculated taking peak factor of 1.99 to 2.5. Minimum quantity of sewage is taken as 30% of the average quantity. Commercial / Institutional / Industrial waste water quantity is calculated as 0.10 LPS/ha. While infiltration quantity is calculated as 0.14 LPS/ha in the design year 2035. The total quantity of commercial / institutional / industrial and infiltration waste water estimated as 237.79 LPS in the design year 2035 which is very large in comparison with domestic waste water quantity of 207.18 LPS. The maximum quantity (peak flow) of waste water in the design year 2035 for both Phase I and Phase II are as is estimated at 650.08 LPS. The maximum quantity of the waste water for Phase I are as only is estimated at 213.97 LPS. The capacity of the Phase I WWTP has been adopted as 214 LPS. The capacity of the Phase II WWTP will be thus 436 LPS. Features of WWTP at Jatuwa are as follows:

**Table 3: Proposed Waste Water Components in BSMC**

S.N.	Description	Unit	No
	<b>Waste Water Treatment Plant Component</b>		
1	By Pass Chamber	No	1
2	Distribution Chamber	No	1
3	Bar Screen Chamber	No	2
4	Sump well with Pumping Station	No	2
5	Collection Chamber1	No	1
6	Oil & Grease Chamber	No	2
7	Collection Chamber2	No	1
8	Grit Chamber	No	2
9	Collection Chamber3	No	1
10	Anaerobic Pond	No	3
11	Facultative Pond	No	3
12	Collection Chamber4	no	1
13	Outfall Structure	no	1
14	Sludge Drying Bed	no	10
15	Enclosure Chamber Shed	no	1
16	Guard House	no	1
17	Office Cum Lab Building	no	1
18	Workshop Building	no	1
19	Generator/Changing House	no	1
20	Entrance Gate	no	1
21	Boundary wall	m	1,340
22	Shallow Tube Well with water Tank	set	1
23	Landscaping and Plantation works	sqm	99,915
24	Site clearance, grubbing, surface dressing	sqm	99,915
25	Road and Drain Improvement	m	1,440

26	River training works	m	600
27	Electromechanical works	Set	1
28	Lab Equipment and installation	Set	1

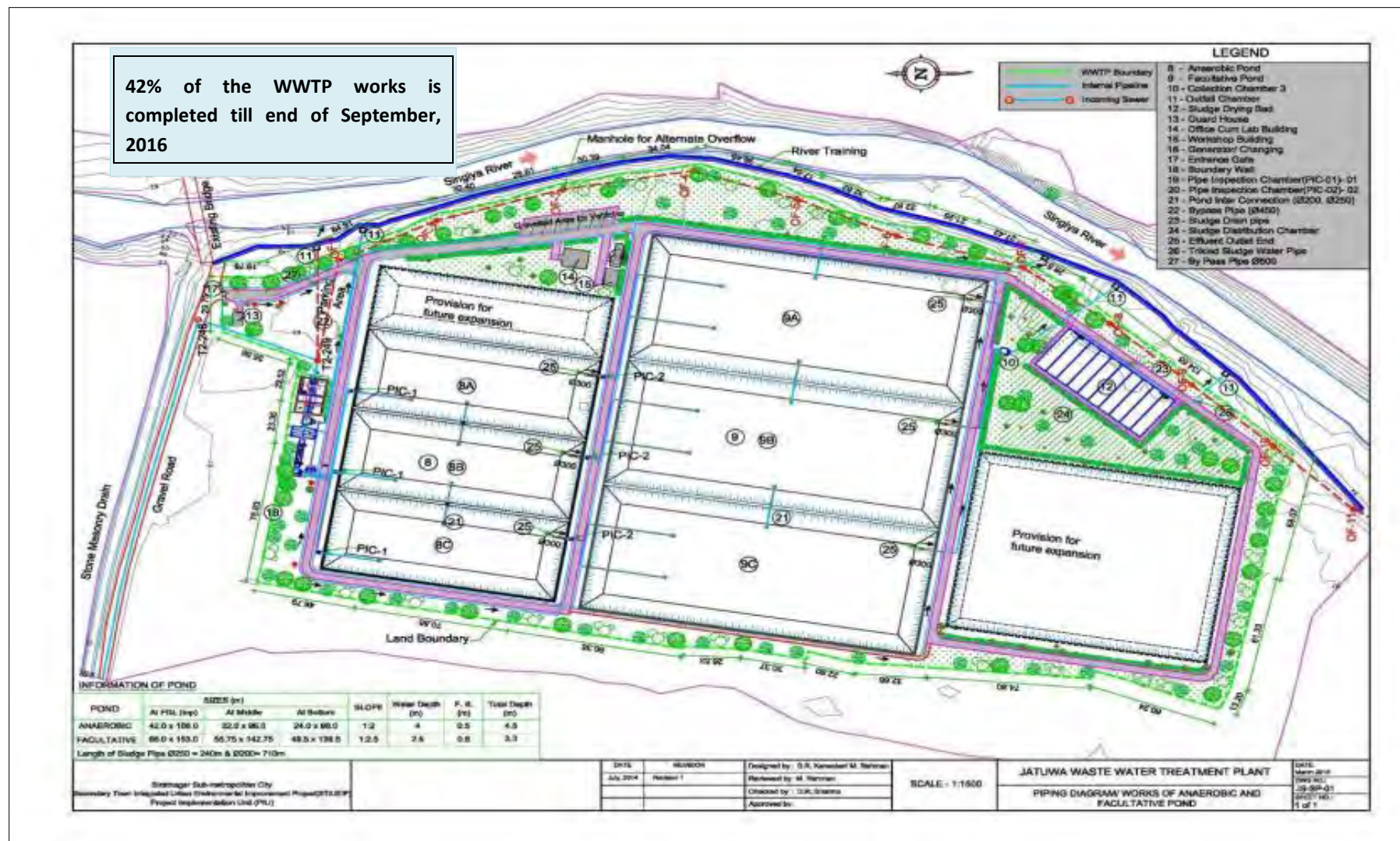


Figure 4: Proposed Waste Water Treatment Plant at Jatuwa in BSMC

### 3.4 Roads and Lanes

7. Most of the roads/lanes in Biratnagar are in a poor state due to lack of periodic maintenance, and need improvement, where as some of the roads are graveled and would benefit from upgrading. In the areas where drainage and sewerage works are proposed there will be significant impact on the existing roads. The 2.35 Km road improvement from Pushpalal chowk to Bhatta chowk is near to complete ie. 2.096 Km length is black topped till this month and hence the Project has considered on design based on reinstatement, rehabilitation and upgrading of existing roads and lanes.

**Table 4: Proposed Roads in BSMC**

Description of Item	Quantity
Main Road Improvements(Road from Pushpalal Chowk to Bhatta Chowk)	2.35 Km
Reinstatement and Road Improvements (under sewer line installation)	63.71Km

### 3.5 Environmental Aspect

8. The project is environmental improvement project and mainly constitutes works on sewerage and drainage improvement works in BSMC besides others. As per ADB guide lines on Environmental Assessment requirements, this project is classified as Environment Category B. According to Environmental Protection Guidelines, 2054BS, First Revised (2055BS) schedule-3, IEE is required for Operations of Sewerage Schemes under Schedule 1.h.2.e (pertaining to Rule 3). The final report on IEE was submitted and MoUD had approved the IEE on May 14, 2013.

9. Installation of functioning sewers and functioning drainage system including roads/lanes improvement in BSMC does not possess any adverse environmental impacts to its surrounding. In fact, these will greatly enhance the living conditions/hygiene of the inhabitants and facilitate transportation. Nevertheless, it is imperative to look into positive as well as negative impacts of such infrastructure development works in the urban area.

10. DSC has prepared and submitted Environmental Progress Reports (Semi-Annual) October 2014 – March 2015 and Quarterly Updated Environmental Report, January – March on 27 May 2015. Recently, the DSC has received comments from PCO to revise semi-annual environmental report. The next Quarterly Updated Environmental Report for the months of April, May and June 2016 and semi –annual report has been submitted in July, 2016.

### 3.6 SOCIAL ASPECT

11. Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP) in Biratnagar has commenced from 2010 to improve the quality of life and help to achieve higher and more socially inclusive economic growth of people through effective, efficient, and reliable delivery of improved and affordable municipal services. Infrastructure development of drainage and sewerage system as well as roads and lane improvement are the major components of STIUEIP in Biratnagar Sub-Metropolitan City (BSMC). Besides this, community development and institutional strengthening components, the two other objective focused components of STIUEIP Biratnagar are running various social development programs and activities.

Social development component is one of the major components of STIUEIP Biratnagar that comprises of various social development programs and activities like community development program (CDP), awareness raising, skill development, health and sanitation. Social Development Specialist (SDS) in Design and Supervision Consultant (DSC) is deputed to assist the Project

Implementation Unit (PIU) in implementing effectively the social activities to achieve the project goal as envisaged by the project. Monitoring of ongoing social development activities and consultation meetings with community people are the general tasks to be accomplished as regular basis.

Establishment and functioning of Social Safeguard Desk in PIU is a major milestone of social development aspect which has been effective to address all social/ community development issues and concerns with active initiation of the DSC.

Based on the poverty indicators, all details have been documented and shown in the social map. The program area for community development programs has been extended to most poverty stricken area scattered across several wards of the BSMC. The Community Development Program includes meetings, orientation, awareness activities, skill development trainings and health, hygiene and sanitation activities which are conducted and organized by the NGO (Fri PAD).

12. As there is slack period of the construction due to monsoon, Currently, the drain work has been stopped due to rain water and construction materials.

### 3.7 Financial Plan

13. The Sub-project cost will be disbursed in three years starting from FY2013/14 to 2015/16. It has estimated that 20 percent of the Sub-project cost will be disbursed in first year. Similarly, in second year, 50 percent will be disbursed. Finally, remaining 30 percent of Sub-project cost will be disbursed in third year. Actual disbursement in the first fiscal year was 4.3 % ( up to July 2014); 34.3% (up to July 2015 inclusive VO1) in second fiscal year and 56.79% (up to May, 2016). Hence the remaining disbursement 43.21 % will be done in third year.

### 3.8 DISBURSEMENT RECORDS IN CONSTRUCTION

**Table 5: Disbursement Record in Construction to Date**

S.N.	Description of Payment	Total Bill Amount with VAT & PS	Amount in NRs.
1	IPC 01		209,400,000.00
2	IPC 02	29,553,479.92	27,853,500.98
3	IPC 03	50,406,775.75	47,507,270.95
4	IPC 04	44,819,505.68	42,241,392.52
5	IPC 05	23,380,168.96	22,035,291.99
6	IPC 06	90,796,339.68	85,573,541.38
7	IPC 07	80,854,600.52	76,203,672.17
8	IPC-08	122,334,488.86	115,297,549.23
9	IPC-09	116,092,187.14	109,414,317.97
10	IPC-10	132,327,417.89	124,715,663.77
11	IPC-11	169,853,829.07	160,083,476.07
12	IPC-12	23,121,515.46	16,931,906.24
13	IPC-13	85,563,926.44	62,658,539.06
14	IPC-14	163,562,505.71	119,776,967.67
15	IPC-15	139,008,112.96	101,795,764.14
16	IPC- 16	137,640,413.95	100,794,196.94

17	IPC-17	135,118,714.02	98,947,553.85
18	IPC-18	<b>39,288,088.98</b>	<b>28,770,702.33</b>
19	IPC-19	<b>76,081,596.87</b>	<b>1,340,601,307.24</b>
	Total payment to date including PS & VAT and Excluding mobilization	<b>1,658,634,896.61</b>	

## 4. OBJECTIVES AND SCOPE OF WORKS

### 4.1 OBJECTIVES

14. The following are the expected physical infrastructure improvement outputs of the project in Biratnagar:
- Drainage and sewerage systems improvement.
  - Urban roads and lanes improvement.
15. Reference to the deliverables identified in the Project, indicates that there are a number of deliverables related specifically to the design aspects of the above infrastructure improvements with construction works.

### 4.2 SCOPE OF WORKS

16. The scope of works for consultant's services is fairly detailed in the TOR attached with contract Agreement. The main points are summarized below:
- A. Detailed Design and Procurement Assistance Phase
1. Surveys verification of Feasibility Studies and GIS Base Maps
  2. Finalization of Design Criteria, Preparation of Manuals, Guidelines and Systems.
  3. Specific design requirements for the sub-projects
    - Improvement and development of drainage and sewerage systems
    - Improvement of urban roads and lanes
  4. Project Planning and Management Support to PIU
  5. Detailed Engineering Design
- B. Construction and Post Construction Management Phase
1. Construction Management and Contract Administration
  2. Environmental and Social Compliance Monitoring
  3. Implementation of Community Development Program, Community Mobilization and GESI Action Plan
  4. Capacity Building of the Municipality and Service Providers for Operational Sustainability
- C. Communications, Reporting and Deliverables (Inception Report, Monthly Progress Reports, Interim Report for each of the outputs, Annual Progress Report, Draft Final Report for each of the outputs and Final Report).

## 5 PROGRESS OF SUB-PROJECT COMPONENTS

### 5.1 STORM WATER DRAINS

17. The Contractor has resumed the works from mid December 2015 in difficult situation due to Madesh Strikes and partial fuel supply. Storm drains at B1, B2, B3, S9, S5, CN2, CN3 and Rani Area are being continued.

The contractor has completed storm water drain about 29.723 km out of 36.974km, 80.39% till September, 2016.

### 5.2 SEWER LINES

18. The Contractor has resumed the sewer works from mid December 2015 in difficult situation due to Madesh Strikes and partial fuel supply. Sewer lines with HDPE pipes are being continued as well as RCC pipes are also being continued with full strength.

The Contractor has completed sewer lines with HDP and RCC pipes about 29.207km out of 63.964 km which is 45.66%, till September, 2016.

The proposal of the precast concrete manholes, sewer inlets and house connection chambers has been submitted for review and approval. A conditional approval in consultation with the Employer has been given to the Contractor to prepare few numbers and to demonstrate at site. If the proposal comes out to be economical, time effective and environmental friendly and structurally strong enough to carry out the function of their respective items. Now, the Consultant has been approved the same as revised design.

The precast concrete house connection chambers, sewer inlets and manholes were installed at sites and found to be effective and we were able to open traffic at the shortest possible time. Especially where the business center with crowds (in R5 and R65 Roads) were very efficient and effective. This has reduced disturbances to the local people and road users, dumping of construction materials, workers and working for long period. This is found to be environment friendly too. Hence, the adaptation of precast units for sewer lines found to be effective and efficient.

During the site visit of delegate at different time in the construction period from BSMC, PMSC, ADB, PCO, local political representatives, TLO, Executive Director of TDF and the Secretary of Ministry of Urban Development have commended.

The payment for the respective item of works as appropriate is being paid under each IPCs for the cash flow and to account disbursement in ADB's disbursement book.

### 5.3 WASTE WATER TREATMENT PLANT

19. Office cum laboratory building, workshop building and generator / changing house at WWTP, Jatuwa are completed. The Contractor had stopped activities except compound wall of WWTP site.

Now the Contractor is carrying out landscaping, embankment filling, remaining boundary wall at WWTP from mid December 2015. Structure work in Sump well has been revised as per site condition.

## 5.4 ROAD AND LANES IMPROVEMENT WORKS

20. The Contractor has completed the rehabilitation / repair of existing drain of about 6.6 km in R2 road. The Contractor has completed the shifting/ relocating electric poles up to Bhatta Chowk on both sides.

The Contractor has been completed sub-grade preparation, sub-base, base course, prime and Tack coat and asphalt concrete in R2 road up to batta chowk. Road works have been frequently disturbed due to the existing water supply network and house connection pipes. The Contractor has completed 100% of road side drain of R2 road up to Pani tanki and along the sewer lines about 14.303km out of 127.138 km, 11.25% till September, 2016.

## 5.5 CONSTRUCTION MATERIALS

21. The fabrication of steel moulds for precast units- manholes, sewer inlets and house connection chamber are continuing after the strikes at Madesh / Tarai similarly, other item of works inside the Contractor's yard is also going on smoothly...

The Contractor has resumed to produce the precast items (manholes, sewer inlets, house connection chambers, kerb stones, drain cover slabs etc.) at the Contractor's Camp, Katahari from mid December 2015.

## 5.6 CONSTRUCTION MATERIAL TESTING LAB

22. Construction material testing laboratory has been set up at the Contractor's camp at Katahari. Cube Test, Brick Compressive Strength, Cement Test is conducted in the Laboratory. Besides these tests, Aggregate Crushing Value (ACV), Flakiness Index (FI), Los Angeles Abrasion (LAA), CBR tests are also conducted.

As regular, Three Edge Bearing Test for RCC pipes of different diameter has been conducted on 20 January 2016 at Itahari in presence of Consultant (TL, CSE) and PM/PIU. And results were found satisfactory.

Now, construction material testing lab is working in full swing for testing of sub grade material, sub base material, base material, Bituminous items, concrete, brick, sand and aggregates.

## 5.7 PHYSICAL PROGRESS TILL SEPTEMBER, 2016

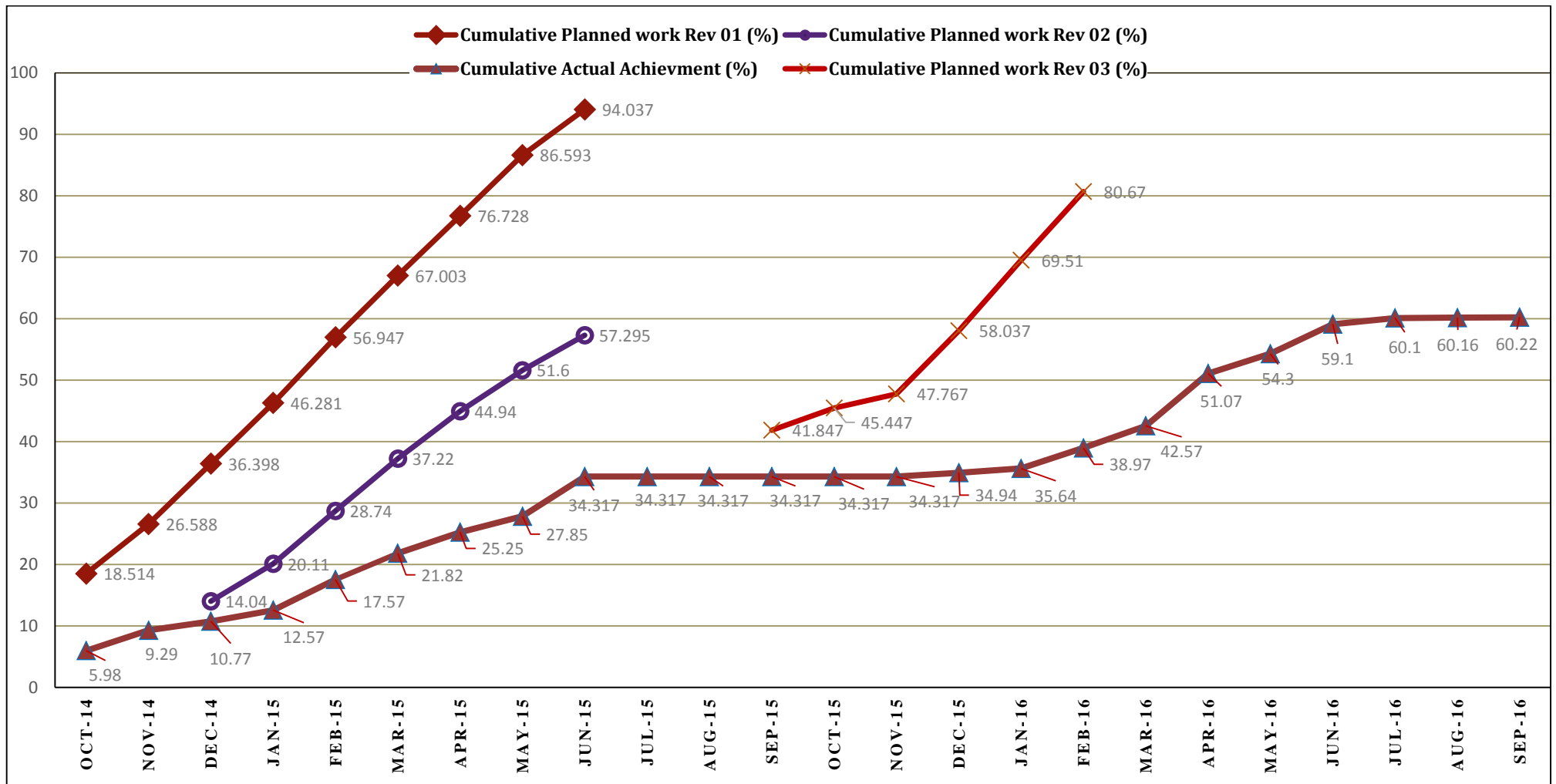
23. Total physical progress till September, 2016 is about 60.16% whereas the cumulative planned progress till 25th May 2016 is 100%, wrt work program rev. no 03. The progress of the work is lagging behind by 39.84%. (After EOT, **Revised work scheduled has to be provided**).

**Table 6: Plan vs. Actual Progress till September, 2016**

Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), Biratnagar																
Plan Vs. Progress																
Month	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
Cumulative Planned work Rev 01 (%)	17.098	18.514	26.588	36.398	46.281	56.947	67.003	76.728	86.593	94.037	95.75	95.99	96.16	96.3	96.45	96.59
Cumulative Planned work Rev 02 (%)				14.04	20.11	28.74	37.22	44.94	51.60	57.295	59.33	60.92	60.99	61.07	64.65	71.29
Cumulative Planned work Rev 03 (%)													41.847	45.447	47.767	58.037
Cumulative Actual Achievements (%)	5.81	5.98	9.29	10.77	12.57	17.57	21.82	25.25	27.85	34.317	34.317	34.317	34.317	34.317	34.317	34.94
Progress lagging to date wrt the revised work plan rev 03 (%)		(12.53)	(17.30)	(3.27)	(7.54)	(11.17)	(15.40)	(19.69)	(23.75)	(22.98)	(22.98)	(22.98)	(7.53)	(11.13)	(13.45)	(23.09)

Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), Biratnagar																
Plan Vs. Progress																
Month		Jan-16	Feb-16	Mar-16	Apr-16	May-16	June-16	July-16	Aug-16	Sep-16						
Cumulative Planned work Rev 01 (%)		96.74	97.38	97.18												
Cumulative Planned work Rev 02 (%)		79.29	88.71	96.41												
Cumulative Planned work Rev 03 (%)		69.51	80.67	91.46	97.82	100.00										
Cumulative Actual Achievements (%)		35.64	38.97	42.57	51.07	54.30	59.10	60.10	60.16	60.22						
Progress lagging to date wrt the revised work plan rev 03 (%)		(33.87)	(41.70)	48.89	46.75	45.70										

Figure 5: Plan Vs Actual Progress till September, 2016



## 6 SUMMARY OF ACTIVITIES CARRIED OUT UP TO PREVIOUS MONTHS

### 6.1 ORGANIZATION AND STAFFING

The Project has involvement of different organization and the staffing as shown below.

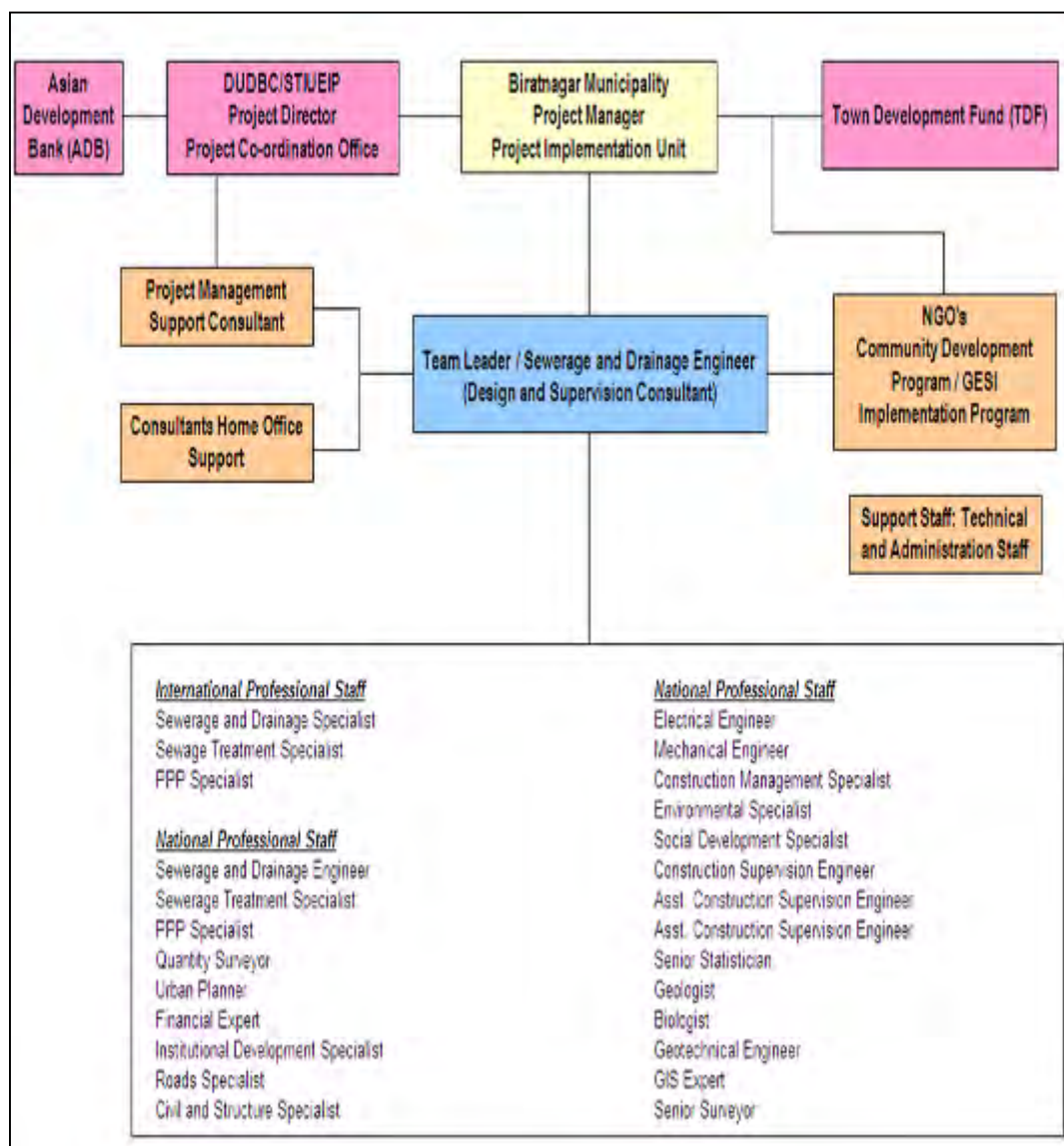


Figure 6: Organization and Staffing of STIUEIP, Biratnagar

## 6.2 Inception Report

24. The Inception Report was prepared and submitted on 29 February, 2012.

## 6.3 CONCEPTUAL CATCHMENT PLAN AND DESIGN CRITERIA

25. The Conceptual Catchment Plan and Design Criteria was prepared and presented in PCO on 30 March, 2012.

## 6.4 SURVEY

26. The survey was completed in August, 2012

## 6.5 DESIGN

27. The design of sewer lines, storm drains, WWTPs and appurtenances and final detailed design and estimates were submitted in March 2013.

28. During construction B2, B3 and S5 alternate design was also submitted. Similarly, CN2 and CN3 were submitted as the community request to reduce the size. The size was reviewed with 1 year return period as per the suggestion made by PMSC during field visit. Minor modifications in drawings are being carried out for considering the site condition and progress.

## 6.6 PRE-CONSTRUCTION ACTIVITY

29. After successful completion of one stage two envelope bidding procedure the construction contract for STIUEIP/W/BRT/ICB-01 was signed on December 2, 2013 with M/S CTCE-Kalika JV, Baluwatar, Kathmandu.

## 6.7 DRAFT REPORT

30. The construction/contract timing schedule was needed to incorporate some additional time of about 4-5 months to account for decision re-making process, tender award procedures.

31. The total cost as per PPTA and earlier designs increased drastically and came to be NRs. **7,274,465,206.69** and therefore needs curtailments and revisions had to be made as per suggestions by PIU in final report.

32. The overall works proposed in the PPTA and the area coverage with connection was thus needed to be phased out.

## 6.8 FINAL REPORT

33. The DSC submitted the Final Reports adopting cost reduction exercise by phasing out of the works. The estimated cost of the Project was reduced and kept as NRs. **3,278,140,000.00 with a lot of exercises in March 2013.**

34. The sharing of cost by concerned institutions is as follows

**Table7: Agency-wise Financial Contribution to BSMC**

Contributors	Amount(US\$)	Amount (NRs.)	%
Government of Nepal (GoN)	5,960,256	524,502,513	16.0%
Asian Development Bank (ADB)	24,213,539	2,130,791,460	65.0%
Biratnagar Sub-Metropolitan City (BSMC)	2,980,128	262,251,257	8.0%
Town Development Fund (TDF)	4,097,676	360,595,478	11.0%

## 6.9 CONSULTANT'S ACTIVITIES IN CONSTRUCTION PHASE

35. The current staffing of the consultant at project site is as follows

**Table 8: Consultant's Staff at Project Site, Biratnagar**

S. No	Name	Position
1	Giresch Chand	Officiating Team Leader/CSE
2	Jaya Prakash Yadav	Asst. Construction Supervision Engineer-1
3	Dikendra Katwal	Asst. Construction Supervision Engineer-2
4	Rajesh Yadav	Junior Engineer-1
5	Sujan Shrestha	Junior Engineer-2
6	Bibek Yadav	Junior Engineer-3
7	Jay Prakash Yadav	Junior Engineer-4
8	Santosh Yadav	Office Manager
9	Ramji Gimire	Driver-1
10	Suman Ghimire	Driver-2
11	Ramila Ghimire	Office Assistant

36. The consultant has been constantly supervising the contractor's work in daily basis. The consultant is mainly focusing in construction management, contract administration and the following activities but not limited as listed below:

- i. Daily Construction supervision
- ii. Quality control, cost control and time control
- iii. Measurement and Certification of Interim Payment Certificates (IPC)
- iv. Modification and design of storm drainage and sewer lines, manholes etc. as per site condition and approve working drawings
- v. Supervise construction material testing and sampling
- vi. Monitor Environment Management Plan and its compliance
- vii. Monitor Social safeguard and Resettlement Plan and its compliance
- viii. Meet obligation of reporting requirement – Updated Environmental Progress Report, Updated Resettlement Progress Report, Monthly Progress Report, Semi-Annual Updated Resettlement Progress Report
- ix. Prepare Due Diligence Report of the Project
- x. Maintain correspondences with the Employer and the Contractor
- xi. Assist to PIU

## 6.10 KEY DATES

The consultant has noted the following key dates for the month of September, 2016

**Table 9: Key dates of events /activities:**

S. No	Date	Activities/Events	Remarks
1			
2			

## 7 DETAILS OF ACTIVITIES CARRIED OUT IN THIS MONTH

### 7.1 PHYSICAL PROGRESS IN THIS MONTH

Table 10: Physical Progress in Storm Water Drains:

Physical Progress till September 2016						
S.N.	Location	Proposed Length (m)	Progress		Total to Date (m)	Progress (%)
			Up to Aug 2016 (m)	This Month (m)		
1	B1	3,950	3628.00	0	3628.00	91.85
2	B2	3,742	3724.00	0	3724.00	99.52
3	B3	3,514	3363.00	0	3363.00	95.69
4	S5	1,932	1172.00	0	1172.00	60.67
5	S9	3,178	2120.00	0	2120.00	66.71
6	S11	2,092	2082.00	0	2082.00	99.52
7	S13	5,640	4864.00	0	4864.00	86.23
8	CN2	2,273	2142.00	0	2142.00	94.24
9	CN3	2,170	1122.00	0	1122.00	51.71
10	Rani	8,483	5333.00	0	5333.00	62.87
	<b>Total</b>	<b>36,974</b>	<b>29550.00</b>	<b>0</b>	<b>29550.00</b>	<b>79.92</b>

Table 11: Physical Progress in Road Side Drains:

Physical Progress till September 2016							
S.N.	Location	Length (m)	Total Length (m)	Progress		Total to Date (m)	Progress (%)
				Up to Aug 2016 (m)	This Month (m)		
1	R2	6,440.0	12,880.0	6,325	0	6,325	49.11
2	R3	3,393.0	6,786.0	1,593	89	1,682	24.79
3	R4	970.0	1,940.0	660	0	660	34.02
4	R5	1,715.0	3,430.0	700	0	700	20.41
5	R13	220.0	440.0	390	0	390	88.64
6	R15	506.0	1,012.0	406	0	406	40.12
7	R16	796.0	1,592.0	395	0	395	24.81
8	R22	358.0	716.0	350	35	385	53.77
9	R24	396.0	792.0	286	0	286	36.11
10	R25	606.0	1,212.0	208	0	208	17.16
11	R26	861.0	1,722.0	898	0	898	52.15
12	R27	997.0	1,994.0	525	0	525	26.33
13	R64	121.0	242.0	121	0	121	50.00
14	R107	347.0	694.0	155	0	155	22.33
15	T2L18O	150.0	300.0	268	0	268	89.33
16	T3L26C	197.0	394.0	355	0	355	90.03

17	T3L26E	98.0	196.0	48	0	48	24.49
18	T3L26F	137.4	274.8	205	0	205	74.60
19	T3L28	74.0	148.0	145	0	145	97.97
20	Boundary Wall	1,322.7		1,133	0	1,133	85.66
21	Road Side Drain	127,138		14,179	124	14,303	11.25

Table12:Physical progress in sewer line:

S.N.	Location	As per estimate		This month		Upto Previous Month		Update work		% work		Reming Quantity		Remarks
		Distance	Manhole No	Distance	Manhole No	Distance	Manhole No	Distance	Manhole No	Distance	Manhole No	Distance	Manhole No	
1	HDPE (T1)	7124.00	220.00	0.00	0.00	3186.80	107.00	3186.80	107.00	44.73	48.64	3937.20	113.00	
2	HDPE (T2)	19410.00	663.00	0.00	0.00	11047.75	390.00	11047.75	390.00	56.92	58.82	8362.25	273.00	
3	HDPE (T3)	18606.00	597.00	0.00	0.00	6024.90	215.00	6024.90	215.00	32.38	36.01	12581.10	382.00	
4	HDPE (T4)	2212.00	72.00	0.00	0.00	112.00	3.00	112.00	3.00	5.06	4.17	2100.00	69.00	
5	Sub Total (HDPE)	47352.00	1552.00	0.00	0.00	20371.45	715.00	20371.45	715.00	43.02	46.07	26980.55	837.00	
6	Hume pipe(T1)	3788.00	106.00	0.00	0.00	1726.50	47.00	1726.50	47.00	45.58	44.34	2061.50	59.00	
7	Hume pipe(T2)	8370.00	247.00	0.00	0.00	4967.50	115.00	4967.50	115.00	59.35	46.56	3402.50	132.00	
8	Hume pipe(T3)	4136.00	123.00	0.00	0.00	2141.30	45.00	2141.30	45.00	51.77	36.59	1994.70	78.00	
9	Hume pipe(T4)	318.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	318.00	8.00	
10	Sub Total (Hume pipe)	16612.00	484.00	0.00	0.00	8835.30	207.00	8835.30	207.00	53.19	42.77	7776.70	277.00	
11	Total (HDPE + Hume pipe)	63964.00	2036.00	0.00	0.00	29206.75	922.00	29206.75	922.00	45.66	45.28	34757.25	1114.00	

Table13:Physical progress in Manhole,sewer inlet and House connection chamber:

Physical progress till september 2016								
S.N	Description	Proposed Quantity (no)	This month	Upto Previous Month	Update work	% work	Reming Quantity	Remark
1	Manhole	2036	0	922	922	45.28	1114.00	
2	Sewer inlet	3766	4	363	367	9.75	3399.00	
3	House connection chamber	5930	0	96	96	1.62	5834.00	

**Table 14: Physical Progress in Roads and Lanes:**

Physical Progress till September 2016						
S.N.	Location	Proposed Length (km)	Progress		Total to Date (m)	Progress (%)
			Up to Aug 2016 (m)	This Month (m)		
1	All roads Including WWTP road	66.06	Sub-grade=2176m Sub Base=2176m Base=2176m Prime Coat=2096m Asphalt Concrete=2096m	Sub-grade=0m Sub-base=0m Base=0m Prime Coat=0m Asphalt Concrete=0m	Sub-grade=2,176m Sub-base=2,176m Base=2176m Prime Coat=2096m Asphalt Concrete=2096m	

**Table 15: Physical Progress in Waste Water Treatment Plant (WWTP), Jatuwa:**

Physical Progress till September 2016						
S.N.	Description	Proposed Quantity	Progress		Total to Date	Remarks
			Up to Aug 2016	This Month		
1	Anaerobic Pond	3 nos	3 (excavation)	0	3 (excavation)	
2	Facultative Pond	3 nos	2 (Excavation)	0	2 (excavation)	
3	River Training Work	600 m	600 m	0	600 m	
4	Boundary Wall	1322.70m	1133 m	0	1133 m	85.66%
5	Office cum Lab Building	1 no	1 no	0	1	
6	Workshop Building	1 no	1 no	0	1	
7	Generator / Changing House	1 no	1 no	0	1	
8	Sump Well	1 no	0	0	0	

**Table 16: Physical Progress in Production of Precast Items at Katahari:**

Physical Progress till September 2016						
S.N.	Description	Unit	Progress		Total to Date (no)	Remarks
			Up to Aug 2016 (no)	This Month (no)		
1	Precast Slab	No	86820	750	87570	
2	Precuts	No	9209	0	9209	

3	Kerb Stone	No	22855	280	23135	
4	Manhole	No	2200	0	2200	
5	Sewer Inlet	No	1499	0	1499	
6	House Connection Chamber	No	1346	0	1346	

**Table 17: Physical Progress in Production of RCC Pipes at Itahari**

:

Physical Progress till September 2016						
S.N.	Description	Diameter (mm)	Progress		Total to Date (no)	Remarks
			Up to Aug 2016 (no)	This Month (no)		
1	RCC Pipe	200	2,123	0	2,123	
2	RCC Pipe	300	328	0	370	
3	RCC Pipe	350	216	0	216	
4	RCC Pipe	400	370	0	370	
5	RCC Pipe	450	84	0	84	
6	RCC Pipe	500	551	0	551	
7	RCC Pipe	600	963	0	963	
8	RCC Pipe	700	1,296	0	1296	
9	RCC Pipe	900	278	0	278	
10	RCC Pipe	1000	1011	0	1,019	
11	RCC Pipe	1600	373	0	373	
	<b>Total</b>		<b>7,643</b>	<b>0</b>	<b>7,643</b>	

**Contractor's Manpower****Table 18: Contractor's key staffs in September 2016:**

Designation	No	Remarks
Project / Contract Manager	1	
Planning Engineer/Construction Engineer	1	
Construction Engineer	1	
Site Engineers	1	
Quality Control Manager	1	
Office/Bill Engineer	1	
Junior Engineer	4	
Sub Overseers	4	
Safety Manager / Senior Site Supervisor	1	
Accountant / Office Manager	1	
Lab Assistant	1	
Store Keeper	2	
Light Drivers	2	
Machine Operator	1	
Site Supervisor	0	
Other Supporting Staff	4	
Skilled Labor at Site	14	
Unskilled Labor at Site	42	

**Contractor's Equipment:****Table 19: Contractor's Equipment: At Judi camp**

Equipment	No	Remarks
Excavator	4	
Back Hoe JCB	3	
Grader	0	
Crane / Teller	1	
Water Tanker	3	
Tractor	7	
Tipper	4	
Light Vehicle	2	
Motorbike	10	
Kerb Stone Machine Set	1	
Generator	4	
Welding Machine	3	
Diesel Tank with Pump	1	
Stand Drill Machine	1	
Gas Cutter Set	1	
Pipe Cutter	1	
Hand Grinder	1	
Plate Compactor	2	
Monkey Jumper	1	
Concrete Batching Plant	1	
Electric Vibrator	3	
Bar Bending Machine	3	
Bar Cutter Machine	3	
Transit Mixer	0	
Concrete Mixer (Hydraulic)	2	
Concrete Mixer (Manual)	2	
Asphalt Concrete Plant	1	
Asphalt Paver Machine	1	

## 8 DETAILS OF SAFEGUARD ACTIVITIES (SOCIAL, ENVIRONMENTAL AND RESETTLEMENT ACTIVITIES AND ISSUES)

This report records the project implementation performance of social safeguard aspect for the duration of November 2015 and highlights the key activities undertaken during the period. The activities on the social development during the period are summarized below:

### 8.1 SOCIAL ISSUES

#### 8.1.1 OPERATIONAL GUIDE LINES FOR COMMUNITY MOBILIZATION AND IMPLEMENTATION OF CDP

- **VISIT, INTERACTION AND CONSULTATION WITH COMMUNITY PEOPLE**

37. Social Development Specialist (SDS) of the DSC is closely monitoring the social issues resulted due to the project activities. Visiting and interacting with people, Tole Lane Organizations (TLOs) and formal and informal consultation meetings are going on in this regard.

The project is regularly disseminating the information and message to community people about the project features, its purpose, methods of use and functionality of infrastructure under construction by the project through such consultation meetings. These meetings are fruitful to provide prior information regarding the project construction activities before execution at the community level. It is an appropriate platform to interact and make dialogue between 4 Cs (The Client, Consultant, Contractor and Community) about the project features, prime objectives, purpose, work methodology and potential threats/ cautions to be adopted during the project implementation.

The visits, meetings and consultations with community people at TLOs have provided many opportunities to obtain people's views and perception towards the project. Community people of those particular localities used to discuss extensively in the project features and have been provided some suggestions for efficient carryover of the project components and assured cooperation and coordination in the project execution in their localities.

Social Development Specialist (SDS)/ DSC along with of PIU, NGO staffs have been actively participated in the meetings. SDS/DSC as usual facilitate the consultation meetings, support to prepare meeting minutes and obtain decisions.

Apart from of this, many field visits and observations with community are also important to disseminate project message and monitor project features in the community. Monitoring visits along with Project Manager (PM), TL/DSC and TL/CDP to the core project area, community development program area and construction sites have been beneficial to make insight to the project progress, its effectiveness and challenges.

- **SAFEGUARD DESK**

38. A Safeguard Desk established in the project has been effective in planning, monitoring and follow up of all social development/ safeguard issues including the resettlement plan. It has been started as a functional mechanism consisting of PIU, NGO and DSC for this purpose. The desk consists of the Social Development Chief of PIU, Team Leader of CDP/ NGO and SDS of DSC with close consultation and guidance of PM/ PIU. It is in compliance with the Aide Memoire of last ADB Mission (21 April-12 May 2014). It is decided that the desk will review, update and discuss the progress, issues, constraints and challenges of social aspects, Community Development Program and implementation of resettlement plan as well as monitoring of social development activities.

- **ToT ON GENDER AND SOCIAL INCLUSION (GESI) MAINSTREAMING**

39. The project has been envisaged a 'Training of Trainers (ToT) on GESI Mainstreaming' for Biratnagar Sub Metropolitan City (BSMC) Office and STIUEIP project staff. The Aide Memoir Report of the ADB Review Mission has also noted about the training to be conducted in Biratnagar for the staff of municipality and related agencies. The Mission has recommended for conducting GESI training relating to urban infrastructure development to staff of municipality, municipal steering committee, PIU, local stakeholder agency and make them accountable for the better results. In line with this, the project is going to conduct Gender and Social Inclusion (GESI) Sensitization Training when it is approved. The revised ToT has been submitted to PIU, STIUEIP, Biratnagar incorporating the comments from PMSC and PCO.

Safeguard desk members discussed and reviewed the proposed 'ToT on GESI Mainstreaming' proposal. Social Development Specialist (SDS) of DSC has reviewed the detail proposal and adjusted budget accordingly for the 'Training of Trainers (ToT)' model. The training arrangement will be decided after the approval of this proposal by the project authority. Primarily it will be a 5 days training focusing mainly on Gender and Social inclusion Action Plan (GESIAP) comprising other project elements. About 35 participants from Biratnagar Sub Metropolitan City (BSMC) office and project staffs will participate in the training.

- **Update of Small Facilities Construction and other Activities in CDP/STIUEIP**

40. The latest safeguard desk meeting has reviewed all ongoing and completed small facilities infrastructure and other activities implemented under the Community Development Program (CDP), a component of STIUEIP. It provided a common understanding and status information of infrastructures and activities under the CDP program to all safeguard desk members.

A glimpse of community development program has been obtained by the presentation in the appraisal and interaction meeting. Total 7,417.36 m. roads and 13,246.32 m. drains are under construction through small facilities infrastructure by CDP/STIUEIP. Regarding on the household toilet, total 458 nos. such toilets has been built by May 2015. Similarly 10 hand pumps have been installed, 45 hands pump platforms built and 5 public toilets are complete.

- **Employment in Project**

41. The core activities of the project i.e. sewerage pipe laying, drain construction and road/ lane improvement provided employment to about 250 in a day this month. The employed human resources varied from skilled engineer/ project manager to general labor, supervisor, (sub) overseers and mechanics. However, a very few women (16%) are working in the construction activities as skilled and unskilled labor but they are paid equal to men for similar type of work. Three women Assistant Sub-Engineers are also working at construction sites after completing OJT (on the job training) successfully at the same sites from different CTEVT affiliated institutes of nearby districts. The contractor has been suggested to increase the work opportunity to women in different types of works.

- **General**

42. Sewer/ Drainage lines are being laid in the public rights of way (RoW). During construction, if any trees or crops or structures demolished, it shall be properly addressed with compensation. Private individuals or shopkeepers will also be looked into if their livelihood is affected by the disturbance during constructions/ pipe laying works.

Apart from this, the project did not encounter any resettlement or re-location and any compensation issue in the month November 2015.

## 9 KEY ISSUES AND REMARKS/REASON FOR DEVIATION (IF ANY) AFFECTING PROGRESS

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43. Following are the key issues affected in progress:

- Disturbance from existing water supply pipe lines network, under-ground cables, electric poles etc.

## 10 WORK PLAN FOR THE NEXT MONTH

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44. Following are the Contractor's works in the next month **(Please refer to the contractor's progress report for quantitative plan works for next month) the revised work program to be submitted by the Contractor after EoT:**

- Maintenance work as per instruction/required.

**ANNEX2: PHOTOGRAPHS – SEPTEMBER, 2016**



[Road Side Drain at R3 \(Dharambandh\)](#)



[Road Side Drain at R22](#)



Precast Drain Cover Slab production at Contractor's yard

## ANNEX-6: MINUTES OF MEETING – SEPTEMBER, 2016

## **ANNEX-7: LABORATORY TEST RESULTS OF SEPTEMBER, 2016**

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitan City**  
**Monthly Laboratory Testing Report**  
**( For The Month OF- SEPTEMBER 2016)**

Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
1	Granular Material/Gravel material	Sieve analysis	43	0	0	0		43	
2	SUB GRADE Preparation asPer Specifacation	MDD & OMC	5	0	0	0		5	
		Field density	83	0	0	0		83	
		C.B.R	7	0	0	0		7	
3	BRICK WORK Required Test	Water Absorption	195	0	0	0		195	
		Compressive Strength	1876	95	95	0		1971	
4	Masonry Mortar (CM 7.05)	Compressive strength	1929	30	30	0		1959	
5	CONCRETE AGGREGATE Coarse aggregate (20 mm)	Sieve analysis (20 mm)	219	13	13	0		232	
		LAA	135	13	13	0		148	
		Specific Gravity	16	0	0	0		16	
		FI	148	13	13	0		161	
		ACV	162	13	13	0		175	
		Unit weight	2	0	0	0		2	
	Fine aggregate (Sand)	Sieve analysis	194	6	6	0		200	
		Unit weight	2	0	0	0		2	
6	CONCRETE MIX DESIGN Concrete M15/20, M20/20 M25/20, & M30/20	Concrete mix Design	76	0	0	0		76	
		Compressive strength	741	0	0	0		741	
		Slump test	73	0	0	0		73	

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitan City**  
**Monthly Laboratory Testing Report**  
**( For The Month OF- SEPTEMBER 2016)**

Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
7	<u>CEMENT Required Test</u>								
8	<u>OPC Cement</u>	Setting time	131	10	10	0		141	
		Normal Consistency	131	10	10	0		141	
	<u>CONCRETE</u>								
		Work Mix Test M15,M20,M25,M30	Compressive strength	4025	87	87	0	4112	
9	<u>REINFORCEMENT</u>	Required Test							
	Reinforcement tore steel	As per Specifacation	8	0	0	0		8	
10	<u>PAVEMENT MATERIALS</u>								
	Sub Base Materials	Sieve analysis	24	0	0	0		24	
		MDD & OMC	10	0	0	0		10	
		CBR	4	0	0	0		4	
		Field density	83	0	0	0		83	
11	CS Base	Sieve analysis	60	0	0	0		60	
	Crushed Stone Base	MDD & OMC	8	0	0	0		8	
	Material Laying	C.B.R	6	0	0	0		6	
		FI & C.Ratio	64	0	0	0		64	
		LAA	65	0	0	0		65	
		SSS	10	0	0	0		10	
		AIV	64	0	0	0		64	
		Field Density & OMC	125	0	0	0		125	

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitan City**  
**Monthly Laboratory Testing Report**  
**( For The Month OF- SEPTEMBER 2016)**

Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
12	<u>ASHPHALT CONCRETE</u>  Combine Mixed  Individual Ca&FA Test Mix Design	Sieve analysis	9	0	0	0		9	
		FI	8	0	0	0		8	
		ACV	8	0	0	0		8	
		LAA	8	0	0	0		8	
		Sp gravity	4	0	0	0		4	
		SSS	4	0	0	0		4	
13	<u>BITUMEN TEST</u>  80/100 Bitumen  As per DORbook section  600 Table 6.14/is 73	Penetration at25.c	2	0	0	0		2	
		Softening point(ring ball)	2	0	0	0		2	
		Flash point/Fire Point	2	0	0	0		2	
		Ductility at25.c	2	0	0	0		2	
		Specific at 25.c	2	0	0	0		2	
		Water Content	2	0	0	0		2	
		Loss on Heating for 5 hrs	2	0	0	0		2	
		Pen-of residue afte loss on Heating	2	0	0	0		2	
		Solubility in trichloroethylene	2	0	0	0		2	
14	Humpipe Test	Three Edge Bearing Load Test	7	0	0	0		7	200mm to 1600mm 1 eac
15	MARSHALL MIX DESIGN	WEARING COURSE	1	0	0	0		1	
16	Marshall Stability Test	Bulk density	60	0	0	0		60	
		Stability	60	0	0	0		60	
		Flow	60	0	0	0		60	
		Air voides	60	0	0	0		60	

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitant City**  
**Monthly Laboratory Testing Report**  
**( For The Month OF- SEPTEMBER 2016)**

Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
		Bitumen extraction	20	0	0	0		20	
		Voids in Mineral Agg	60	0	0	0		60	
		Job mix in AC Plant	22	0	0	0		22	
17	<u>BITUMEN SPREAD TEST</u>								
	Prime coat	Application rate	20	0	0	0		20	
	Tack coat	Application rate	10	0	0	0		10	
18	<u>Machines/Equipment</u>								
	Caliberation of compressive	1000KN Manuall	2	0	0	0		2	
	Testing machine	500 KN Manuall	2	0	0	0		2	
	C.B.R Machine	50KN/30KN	2	0	0	0		2	
	Marshall Stability Machine	50KN/25KN	2	0	0	0		2	
19	<u>MISCELLANEOUS</u>								
	G.I Wire(Gabion Boxes)		5	0	0	0		5	
	Factory Test Report of Cement		8	0	0	0		8	
	Factory Test Report of Iron Steel		4	0	0	0		4	
	Factory Test Report of 80/100 Bitumen		2	0	0	0		2	
	Factory Test Report of UPVC/HDP Pipe		2	0	0	0		2	
	UPVC/HDP Pipe Test Result		2	0	0	0		2	

MDD/OMC = Max Dry Dennsity  
Optimum Moisture Content

SSS = Sodium Sulphate Soundness

ACV = Aggregtae Crushing Value

CBR=California Bearing Ratio

LAA = Los Angeles Abrasion

SE=Sand Equivqlent

SMEC-Brisbane-AQUA-BDA-CEMAT

Approved by C.S.E

Checked by A.C.S.E

Consultant Reps

C.R=Crushing Ratio AIV=Aggregate Impact Value

JMC=Job Mix Formula

CTCE-KALIKA J/V

Submitted by Project Manager

Prepaid by Q.C Manager

Contractors Reps

# Secondary Town Integrated Urban Environmental Improvement Project

Biratnagar Sub-Metropolitan city

Contract Package: STIUEIP/W/BRT/ICB-01

## DAILY WEATHER RECORD

FOR THE MONTH OF September 2016

Date	WEATHER Record						Temp.c		
	Sunny	Windy	Cloudy	Morning Rain HRS	Night Rain Hrs.	Day Rain Hrs.	9:00 AM	5:00 PM	Rain Fall MM
1			Cloudy	Morning Rain HRS		Day Rain Hrs.	29.4	25.8	190
2			Cloudy	Morning Rain HRS	Night Rain Hrs.	Day Rain Hrs.	30.2	26.5	1070
3			Cloudy		Night Rain Hrs.	Day Rain Hrs.	30	25.7	86
4			Cloudy		Night Rain Hrs.	Day Rain Hrs.	29.4	26.6	180
5			Cloudy		Night Rain Hrs.	Day Rain Hrs.	30.2	28.4	60
6			Cloudy				31.9	28.6	
7			Cloudy				30.2	28.4	
8			Cloudy	Morning Rain HRS			30.6	28.2	186
9	Sunny						31	28.4	
10	Sunny						31.8	29.2	
11	Sunny						30.9	27.6	
12			Cloudy	Morning Rain HRS	Night Rain Hrs.	Day Rain Hrs.	28.8	26.6	310
13			Cloudy	Morning Rain HRS			28.6	28.2	100
14			Cloudy	Morning Rain HRS			30.2	27.6	30
15	Sunny						31.1	25.6	
16			Cloudy	Morning Rain HRS	Evening Rain Hrs	Day Rain Hrs.	28.4	25.8	800
17			Cloudy		Evening Rain Hrs	Day Rain Hrs.	29.4	25.2	1640
18	Sunny						30.2	26.4	
19	Sunny						28.6	25.4	
20					Evening Rain Hrs	Day Rain Hrs.	26.4	25.4	860
21				Morning Rain HRS	Evening Rain Hrs		27.2	25.1	390
22				Morning Rain HRS	Night Rain Hrs.		28.4	24.6	650
23	Sunny						30.2	29.4	
24				Morning Rain HRS	Night Rain Hrs.		26.4	24.4	1460
25				Morning Rain HRS	Night Rain Hrs.		27.6	23.9	1250
26					Morning Rain HRS	Night Rain Hrs.	29.4	26.4	70
27				Morning Rain HRS			27.8	24.8	30
28	Sunny						30.2	26.8	
29	Sunny						31.6	28.4	
30	Sunny						31.4	29.4	

Total: 9362

SMEC-Brisbane-AQUA-CEMAT-BDA

Approved By C.S.E

Record Checked By A.C.S.E

Consultant Reps

CTCE-KALIKA J/V

Submitted By Project Manager

Record Reported By Q.C Manager

Contractor Reps

# SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT

Biratnagar Sub-Metropolitan City

## Summary of Concrete Crushed Aggregate 20mm down For The Month of SEPTEMBER 2016

S.N.	DESCRIPTION / SOURCE	LAB REF. NO.	Grain Siza Distribution				FI %	LAA %	ACV %	REMARKS
			25	20	10	4.75				
1	From R-3 Line	MR247	100	97.59	42.10	4.65	12.73	32.64	20.3	Aggregates  Source  Om shree  CRUSHER  PLANT
2	From R-3 Line	MR248	100	97.94	44.58	5.56	13.71	32.12	19.9	
3	From R-3 Line	MR249	100	98.28	44.56	4.11	13.75	31.80	20.2	
4	From R-3 Line	MR250	100	98.41	45.86	3.38	13.36	32.24	20.0	
5	From R-24	MR251	100	97.95	48.80	4.18	13.48	32.20	20.4	
6	From R-24	MR252	100	97.99	48.08	3.72	12.93	31.96	20.3	
Section 900:IS 383-1970 Required			100	95-100	25-55	0-10	Less 15%	Less 35%	Less 30%	

SMEC-Brisbane-AQUA-CEMAT-BDA

Approved by CSE

Test Checked by A.C.S.E

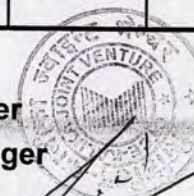
Consultant Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test conducted by Q.C Manager

Contractor Reps



**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**Biratnagar Sub-Metropolitan City**

**Summary of Fine Concrete Aggregates Sand FOR THE MONTH OF September 2016**

S.N.	DESCRIPTION / LOCATION	LAB REF. NO:	Grain Siza Distribution							REMARKS
			10	4.75	2.36	1.18	0.6	0.3	0.15	
1	From R-3 Line	MR 228	100.00	94.29	77.14	57.43	40.86	20.29	6.57	source om shree Crusher Plant Chisang Morang
2	From R-3 Line	MR229	100.00	93.71	76.29	56.86	41.43	19.14	5.14	
3	From R-24 Line	MR230	100.00	93.14	76.29	57.14	40.57	20.00	5.14	
4	From R-24 Line	MR231	100.00	95.14	78.29	58.29	40.00	20.00	4.57	
5	From R-3 Line	MR232	100.00	95.71	78.29	58.86	40.29	19.71	5.71	
6	From R-3 Line	MR233	100.00	96.29	79.43	60.29	44.57	19.43	5.71	
7	From R-3 Line	MR234	100.00	95.71	79.14	59.14	42.57	18.86	4.29	
8	From R-24 Line	MR235	100.00	95.71	78.57	56.86	40.86	18.86	4.57	
9	From R-24 Line	MR 236	100.00	94.57	76.86	57.43	39.71	18.29	4.29	
10	From R-24 Line	MR237	100.00	95.71	77.71	57.14	40.29	19.14	4.29	
11	From R-24 Line	MR238	100.00	94.86	78.00	58.00	39.43	19.14	5.14	
12	From Contractor Yard	MR 239	100.00	94.29	77.71	56.86	42.00	19.71	5.71	
13	From Contractor Yard	MR240	100.00	94.00	77.14	57.14	40.86	18.86	5.43	
Specifacation Limit is 383-1970 Zone -2			100-100	90-100	75-100	55-90	35-59		0-10	

SMEC-BRISBANE-AQUA-CEMAT-BDA

Approved by C.S.E

Test Checked by A.C.S.E

Consultant Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test Conducted by Q.C Manager

Contractor Reps

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**Biratnagar Sub-Metropolitant City**

**SUMMARY OF CUBE COMPRESSIVE STRENGTH TEST M20/20 SLAB CASTING WORK MIX**

**FOR THE MONTH OF SEPTEMBER 2016**

S.N.	Lab Ref No.	Date of Casting	Deatails of Mix	Location Structure	Ratio by VOLUME				Materials		Cube Crushing ,N/mm2		Remarks
					Water	Cement	Sand	Aggregate	Cement Brand	Aggregate/Sand	7 days	28-Days	
1	MR 141	1/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	17.5	21.6	
2	MR 142	2/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	16.1	21.6	
3	MR 143	3/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	17.3		
4	MR 144	4/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	16.4		
5	MR 145	5/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.9		
6	MR 146	6/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	16.0		
7	MR147	8/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.8		
8	MR 148	9/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.9		
9	MR 149	10/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.9		
10	MR 150	10/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.7		

Note:28 days cube crushing next month Remain to be tested

Specifacation Limit Table For M20/20 on 7 days Age Min 67% of Total Compressive Strength

Min Required      13.4      20

SMEC-Brisbane-AQUA-BDA

CTCE-KALIKA J/V

Approved by Construction Supervision Engineer/CSE

Submitted by Project Manager

Test checked by Junior Engineer ACSE

Test conducted by Q.C Manager

Consultants Reps

Contractors Reps



# Secondary Towns Integrated Urban Environmental Improvement Project

Biratnagar Sub-Metropolitan City

## TEST RESULT SUMMARY SHEET For the Month of SEPTEMBER 2016

### COMPRESSIVE STRENGTH OF BRICKS (Process Control Test)

SN No	Ref. STIUEIP LAB/	Date of Testing	Location	Chanage	BRAND NAME 1 st class brick	Compressive Strength N/mm2	SCALE OF Sample From
1	MR373	4/9/2016	R3	R3 Line	ANAND	11.8 ✓	1500 Nos-5 Nos
2	MR 374	4/9/2016	R22	R22 Line	AMBEY	12.2 ✓	
3	MR 375	4/9/2016	R3	R3 Line	T&B	13.3 ✓	
4	MR 376	4/9/2016	R3	R3 Line	T&B	10.8 ✓	
5	MR377	6/9/2016	R22	R22 Line	AMBEY	11.1 ✓	
6	MR 378	8/9/2016	R3	R3 Line	ANAND	11.7 ✓	
7	MR 379	9/9/2016	R22	R22 Line	ANAND	11.4 ✓	
8	MR 380	10/9/2016	R3	R3 Line	AMBEY	11.5 ✓	
9	MR381	12/9/2016	R22	R22 Line	AMBEY	11.0 ✓	
10	MR 382	13/9/2016	R3	R3 Line	AMBEY	10.7 ✓	
11	MR 383	14/9/2016	R3	R3 Line	ANAND	10.9 ✓	
12	MR 384	14/9/2016	R22	R22 Line	ANAND	11.1 ✓	
13	MR 385	16/9/2016	R22	R22 Line	ANAND	10.5 ✓	
14	MR 386	16/9/2016	R22	R22 Line	ANAND	10.5 ✓	
15	MR 386	17/9/2016	R3	R3 Line	ANAND	10.8 ✓	
16	MR 387	17/9/2016	R3	R3 Line	ANAND	10.8 ✓	
17	MR 388	17/9/2016	R22	R22 Line	ANAND	10.7 ✓	
18	MR 389	17/9/2016	R22	R22 Line	ANAND	10.8 ✓	
19	MR 390	18/9/2016	R3	R3 Line	ANAND	10.8 ✓	

Specification

IS1077, IS2180 or  
NS1/2035

> 10N/MM2

SMEC-Brisbane-AQUA-BDA-CEMAT

Approved by Construction Supervision Engineer

Test Checked by A.C.S.E

Consultant's Reps

CTCE-KALIKATA

Submitted by Project Manager

Test conducted by Q.C Manager

Contractor Reps

# SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT

Biratnagar-Sub-Metropolitan City

## SUMMARY OF MORTAR COMPRESSIVE STRENGTH TEST WORK MIX CUBE

FOR THE MONTH OF SEPTEMBER 2016

S.N.	LAB REF No.	Name of CEMENT	Location/Structure	Details of MIX	Casting	Consistency & Setting Time			7 day's cube Crushing		28 day's cube crushing		Remarks
						Norm. Const.	Initial(min.)	Final(min.)	Date	Str. N/mm2	Date	Str. N/mm2	
1	338	Shivam	R-22 Line Work Mix	1:4 by volume	9/9/2016	38.00	190	320	16/9/2016	6.30 ✓	7/10/2016		
2	339	Shivam	R-3 Line work mix	1:4 by volume	9/9/2016	38.10	200	330	16/9/2016	6.40 ✓	7/10/2016		
3	340	Shivam	R-22 Line Work Mix	1:4 by volume	12/9/2016	38.00	180	335	19/9/2016	6.40 ✓	10/10/2016		
4	341	Shivam	R-3 Line work mix	1:4 by volume	12/9/2016	38.30	185	330	19/9/2016	6.30 ✓	10/10/2016		
5	342	Shivam	R-22 Line Work Mix	1:4 by volume	13/9/2016	38.10	195	340	20/9/2016	6.40 ✓	11/10/2016		
6	343	Shivam	R-3 Line work mix	1:4 by volume	13/9/2016	38.30	200	330	20/9/2016	6.30 ✓	11/10/2016		
7	344	Shivam	R-3 Line work mix	1:4 by volume	14/9/2016	38.10	180	335	21/9/2016	6.50 ✓	12/10/2016		
8	345	Shivam	R-22 Line Work Mix	1:4 by volume	16/9/2016	38.30	190	330	23/9/2016	6.30 ✓	14/10/2016		
9	346	Shivam	R-3 Line work mix	1:4 by volume	17/9/2016	37.90	205	335	24/9/2016	6.30 ✓	15/10/2016		
10	347	Shivam	R-22 Line Work Mix	1:4 by volume	17/9/2016	38.60	180	330	24/9/2016	6.50 ✓	15/10/2016		

Note: 28 days cube crushing next month Remain to be tested

MIN 45m

Max 600m

Required strength on 28 days not less than 7.5 N/MM2

SMEC-Brisbane-AQUA-BDA-CEMAT

Approved by Construction Supervision Engineer/CSE

Test Checked by A.C.S.E

Consultants Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test conducted by Q.C Manager

Contractore Reps



# SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT

Biratnagar Sub-Metropolitant City

## CEMENT TEST SUMMERY

For the Month of SEPTEMBER 2016

S.N.	Lab. Ref. NO.	Description of cement	Testing Date	Consistency & Setting Time			Remarks
				Norm. Const.	Intial(min.)	Final(min.)	
1	MR133	SHIVAM OPC	9/9/2016	38.0	190	320	All Cement Are Nepali BRAND  OPC
2	MR134	SHIVAM OPC	10/9/2016	38.1	200	330	
3	MR135	SHIVAM OPC	11/9/2016	38.0	180	335	
4	MR 136	SHIVAM OPC	12/9/2016	38.3	185	330	
5	MR 137	SHIVAM OPC	13/9/2016	38.1	195	340	
6	MR 138	SHIVAM OPC	14/9/2016	38.3	200	330	
7	MR 139	SHIVAM OPC	16/9/2016	38.1	180	335	
8	MR 140	SHIVAM OPC	17/9/2016	38.3	190	330	
9	MR 141	SHIVAM OPC	18/9/2016	37.9	205	335	
10	MR 142	SHIVAM OPC	20/9/2016	38.6	180	330	
Requirements in accordance with BS 12/4027					> 45 Min.	10 Hrs	

SMCE-Brisbane-AQUA-BDA

Approved by C.S.E

Test Checked by A.C.S.E

Consultant Reps



CTCE-KALIKA J/V

Submitted by Project Manager

Test Conducted by Q.C Manager

Contractores Reps



**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**

**Biratnagar Sub-Metropolitan City**

**SUMMARY OF CUBE COMPRESSIVE STRENGTH TEST M20/20 Work Mix**

**FOR THE MONTH OF SEPTEMBER 2016**

S.N.	Lab Ref No.	Date of Casting	Deatails of Mix	Location Structure	Ratio by Volume				Type of Material		Cube Crushing ,N/mm2		Remarks
					water	Cement	Sand	Aggregates	Cement Brand	Aggregate/Sand	7 days	28-Days	
1	496	9/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	17.19		
2	497	10/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	17.04		
3	498	11/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	17.19		
4	499	13/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.81		
5	500	15/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.15		
6	501	15/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.52		
7	502	16/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.74		
8	503	16/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.52		
9	504	17/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	15.93		

Note:28 days cube Crushing next month Remain to be tested....

Specifacation Limit Table For M25/20 on 7 days Age Min 67% of Total Compressive Strength


Min Required      13.4      20

**SMEC-Brisbane-AQUA-BDA**

**Approved by Construction Supervision Engineer/CSE**

**Test checked by A.C.S.E**

**Consultants Reps**



**CTCE-KALIKA J/V**

**Submitted by Project Manager**

**Test conducted by Q.C Manager**

**Contractors Reps**



**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**Biratnagar Sub-Metropolitant City**  
**SUMMARY OF CUBE COMPRESSIVE STRENGTH TEST M20/20 Kerb Stone Work Mix**  
**FOR THE MONTH OF SEPTEMBER 2016**

S.N.	Lab Ref No.	Date of Casting	Deatails of Mix	Location Structure	Ratio by Volume				Type of Material		Cube Crushing ,N/mm2		Remarks
					water	Cement	Sand	Aggregates	Cement Brand	Aggregate/Sand	7 days	28-Days	
1	29 K	5/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.00		
2	30K	6/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.30		
3	31K	13/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.00		
4	32K	14/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.50		
5	33K	15/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	16.30		
6	34K	16/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	15.40		
7	35K	17/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	15.70		
8	36K	19/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	15.90		

Note:28 days cube Crushing next month Remain to be tested....

Specifacation Limit Table For M20/20 on 7 days Age Min 67% of Total Compressive Strength

Min Required 13.4 20

SMEC-Brisbane-AQUA-BDA

Approved by Construction Supervision Engineer/CSE

Test checked by A.C.S.E

Consultants Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test conducted by Q.C Manager

Contractors Reps



ANNEX-8: CONTRACTOR'S PROGRESS REPORT-SEPTEMBER, 2016

**Government of Nepal**  
**Biratnagar Sub-Metropolitan City, Biratnagar, Nepal**  
**Secondary Towns Integrated Urban Environment Improvement Project**  
**(STIUEIP)**  
**Project Implementation Unit(PIU)**  
**Biratnagar, Nepal**



**Project Directorate (ADB)**

**Sewerage and Drainage Network, Wastewater Treatment Plant, and Road and  
Lanes Improvement Subproject**  
**STIUEIP/W/BRT/ICB-01**

**Monthly Progress Report – 34**

**September 2016**

**Consultants:**



in association with  
**Brisbane City Enterprise Pty Ltd – Australia**  
**AQUA Consultant and Associates Ltd – Bangladesh**  
**Building Design Authority – Nepal**  
**CEMAT Consultants – Nepal**

**Submitted by:**

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## 1 Introduction

Secondary Towns Integrated Urban Environmental Improvement Project (STIUEIP), Department of Urban Development and Building Construction (DUDBC), under the Ministry of Urban Development (MUD) through the Government of Nepal (GoN) has received the loan from Asian Development Bank (ADB) Loan 2650-NEP. STIUEIP includes construction of Sewerage and Drainage Network, Wastewater Treatment Plant, Road and Lanes Improvement. The main purpose of this project is to fascinate with better improvement of greenery urban city.

## 2 Project Components

The Town Integrated Urban Environmental Improvement Project (STIUEIP) consists of following Sub-Project Components:

### ➤ **Drainage Network**

The main aim of drainage network is to drain out storm water to the river side during the monsoon season and minimized the water pounding in the city

### ➤ **Sewerage Network**

Management of household sewerage project to the treatment plant in connection with chambers, manhole and pipes

### ➤ **Wastewater Treatment Plant Subproject**

Treatment of sewer product in plant located at Jatuwa. The treated water is drain out to singhya river and solid waste project used as fertilizer in farming.

### ➤ **Road and Lanes Improvement Subproject**

Existing road sections at different part of Biratnagar will be upgraded by extending road width and providing footpath.

### ➤ **Road Side Drain and Water supply Network (Additional)**

Road side drain and water supply network is addition of scope of work in this project which was not included in original contract.

### 3 Salient Feature

A. General Features	
Employer	Government of Nepal(GoN), Ministry of Urban Development Department of Urban Development and Building Construction
Funded By	Asian Development Bank & Government of Nepal
Project	Biratnagar Sub-Metropolitan City Secondary Towns Integrated Urban Environmental Improvement Project(STIUEIP)
Contract No.	STIUEIP/W/BRT/ICB-01
Location	Biratnagar Sub-Metropolitan City
Consultant	SMEC-Brisbane-AQUA-BDA-CEMAT
Contractor	CTCE-KALIKA JV.
Commencement Date	December 8th, 2013
Original Completion Date	25 May 2016
Revised Completion Date	09 March 2017
Original Contract Period	900 Days
Original Contract amount with PS & VAT	NRs 2,391,332,117.06
Revised Contract amount after VO # 02. with PS & VAT	NRs 2,719,617,069.21

## 4 Scope of works

The activities to be undertaken according to the Contract Agreement are as follows:

- a. To carry out all necessary topographic surveys, soils investigations, laboratory analysis or related investigations where necessary to supplement the data provided by the Employer.
- b. To prepare working drawings for all elements of the Works.
- c. To undertake all steps necessary for upgrading of roads and bridges, all related to access to the Site, or other related matters, where his opinion differs significantly from
- d. Preparation of stockyards for pipes, fittings and other materials and equipment.
- e. To take all steps necessary for the temporary or permanent diversion of services and the maintenance of services during the execution of the Works, including diversion of overhead with underground power lines, telephone ducts, water supply mains and distribution lines (pipes), sewers and other underground services as required along the route of the pipelines.
- f. To supply all pipes, valves, fittings and other materials and equipment required for construction of the Works. The Contractor's supply items may include manufacture, collection, transportation and delivery to Site. The Contractor will be responsible for ensuring that all procedures are adequately covered and that the materials fully confirm to the Contract requirements. These responsibilities will include all necessary charges or dues related to insurance, freight, taxes (including customs and excise duties, surcharges etc.) and all testing and inspections for quality control.
- g. To provide all necessary staff (including civil engineers, specialists, administrators, site supervision personnel) and workmen (including all necessary specialists, operators, tradesmen, artisans etc. in addition to semi-skilled and unskilled workers) necessary for execution of the Works through to completion. Where appropriate, the contractor shall provide all suitable facilities and accommodation for the staff and workmen and he shall make provision for all costs related to such provisions and for medical, re-location, taxes or other expenses.
- h. To provide all equipment, machinery, tools etc. and related spares, maintenance and consumables necessary for implementation of the Works.
- i. To provide all site offices, stores, workshops and facilities necessary for use by the Employer, Engineer and support staff and for the Contractor himself and his supporting staff
- j. To undertake all operations necessary to complete the Works. These operations shall include: excavation, provision, haulage and installation of suitable bedding and backfill material and disposal of surplus excavated material; distribution, laying

adjoining of pipes; installation of all special pipework, valves etc. and construction of all related concrete or other activities together with all testing and disinfection of completed Works. The Contractor's attention is drawn to the restricted working space between Rajbanshi Chowk to Rani, Biratnagar where the sewer pipes, drains and road/lane is to be laid in a narrow road. In this section work in addition to that associated with the trunk main, will include but not be limited to, removal and replacement of a sewer laid in the road and reinstatement of road surface.

- k. To liaise with other contractors on the site and to ensure harmonious co-operation with them so that conflicts are avoided and areas of common interest, constructional interface or potential overlaps are addressed without cost to the Employer or delays in completion.
- l. To prepare documentary records of the Works in the form of "as-built" drawings and GIS data, schedules etc., and to train staff of the Employer in the procedures for laying pipes, valves and fittings.
- m. All the above activities shall be performed in a professional way and with good engineering and/or constructional practice. Upon completion of the Works the scheme shall be fully operational with minimum disruption or inconvenience to interested parties, including land owners, and there shall be no outstanding matters requiring attention.

## 5. Physical Progress (Achievement till the month)

### A. Storm Water Drain and Road Side Drain Sub-Project (Work Progress till the date)

SN	Description	Unit	Total Upto Previous Month	This Month	Total Up to this Month	Remarks
1	Northern Part	Rm	23,717.56	0	23,717.56	
2	Southern Part	Rm	5,669.00	0	5669.00	
3	Road Side Drain	Rm	14,176.8	124	14,300.8	

### B. Sewerage Sub-Project (Work Progress till the date)

SN	Description	Unit	Total Upto Previous Month	This Month	Total Up to this Month	Remarks
1	Hume Pipe	Rm	11100	0	11100.00	
2	HDPE Pipe	Rm	23563.00	0	23563.00	
3	uPVC Pipe	Rm	2291.00	0	2291.00	
4	Manhole (Brick and RCC)	Nos	922	0	922	
5	Sewer Inlet	Nos.	363	0	363	
6	House Connection	Nos.	96	0	96	

**C. Road Works (Work Progress till the date)**

SN	Description	Unit	Total Up to Previous Month	This Month	Total Up to this Month	Remarks
1	Road improvement at R2 Road	Rm	2096	0	<b>2096</b>	

**D. Wastewater Treatment Plant Sub-Project (Work Progress till the date)**

S.N.	Description of Work	This month	Total Length/Nos	Program for Next Month	Remarks
1	Excavation of Ponds- Anaerobic	0	3 nos		
2	Excavation of Ponds- Facultative	0	2 nos		
3	River Training Works	0	515m		
4	Boundary wall construction	0	580 m		
5	Office cum lab building, WWTP, Jatuwa	All complete except finishing works			
5	Workshop Building & Generator/Changing Building, WWTP, Jatuwa	All complete except finishing works			
6	Sump Well	Partially excavated			

**E. Production of Precast Items from Slab Casting Contractor's Yard, Katahari**

S.N.	Description	Unit	Quantity			Remarks
			Till Previous Month	Till This Month	This Month Work	
1	Slabs	Nos	86820	87,570	750	
2	Precuts	Nos.	9209	9,209	0	
3	Kerb Stone	Nos.	22855	23,135	280	

**F. Production of Precast Chambers at Contractor's Yard Katahari**

S.N.	Description	Unit	Quantity			Remarks
			Till Previous Month	Till This Month	This Month Work	
1	Manhole	Nos	2200	2200		
2	Sewer Inlet	Nos.	1499	1499		
3	House Connection	Nos.	1346	1346		

## G. Hume Pipe Production from Hume Pipe Production Factory, Itahari

SN	1	2	3	4	5	6	7	8	9	10	11
Diameter	200mm ?	300mm ?	350mm ?	400mm ?	450mm ?	500mm ?	600mm ?	700mm ?	900mm ?	1000mm ?	1600mm ?
No of Moulds	38	3	2	2	2	3	8	8	2	4	2
Production Till Previous Month	2123	328	216	370	84	551	963	1296	278	1011	373
This Month Production	0	0	0	0	0	0	0	0	0	0	0
Total Production	2123	328	216	370	84	551	963	1296	278	1011	373

## 6. Financial Progress and Cash Flow

### Financial Progress

Installment Number	Total Bill Amount With Vat and PS(NRs)	Net Payble Amount (NRs.)	%	Remarks
IPC 01		200,940,000.00		Advance Payment 01
IPC 02	29,553,479.92	27,853,500.98		IPC 2
IPC 03	50,406,775.75	47,507,270.95		IPC 3
IPC 04	44,819,505.68	42,241,392.52		IPC 04
IPC 05	23,380,168.96	22,035,291.99		IPC 05
IPC 06	90,796,339.68	85,573,541.38		IPC 06
IPC 07	80,854,600.52	76,203,672.17		IPC 07
IPC 08	122,334,488.86	115,297,549.23		IPC 08
IPC 09	116,092,187.14	109,414,317.97		IPC 09
IPC 10	132,327,417.89	124,715,663.77		IPC 10
IPC 11	169,853,829.07	160,083,476.07		IPC 11
IPC 12	23,121,515.46	16,931,906.24		IPC 12
IPC 13	85,563,926.44	62,658,539.06		IPC 13
IPC 14	163,562,505.71	119,776,967.67		IPC 14
IPC 15	139,008,112.96	101,795,764.14		IPC 15
IPC 16	137,640,413.95	100,794,196.94		IPC 16
IPC 17	135,118,714.02	98,947,553.85		IPC 17
IPC 18	39,288,088.98	28,770,702.32		IPC 18
IPC 19	76,081,596.87	55,714,620.72		IPC 19
<b>Total amount of Ipc=</b>	<b>1,659,803,667.86</b>	<b>1,396,315,926.96</b>	<b>61.03%</b>	Progress Percentage WRT Contract amount after VO .02 With Vat and PS

## 7. Contractor's Idle Claim Details

Following table describes submitted idle cost of contractor's resources in various dates.

SN	Claim No	Idle Period	Day/s	Reason Behind Claim	Submission Date	Ref No.	Total Amounts in NRs.	
1	Claim No. 1	13 December 2014 to 09 January 2015	27	Unavaliabe of Brick	4-Sep-15	070/71-262 (Site)	6,816,666.08	
2	Claim No. 2	12 January 2015 to 13 January 2015	2	Bandha bySeveral Political Parties	14-Sep-15	070/71-265 (Site)	573,006.64	
3	Claim No. 3	20-Jan-15	1	Bandha bySeveral Political Parties	14-Sep-15	070/71-266 (Site)	954,654.64	
4	Claim No. 4	7-Apr-15	1	Bandha by Daliya Gathbandhan	14-Sep-15	070/71-267 (Site)	707,542.29	
5	Claim No. 5	August 08,2015 to 19 December,2015	124	Strike Called By Madeshi Morcha, Blockade of Boarderby India, Scarcity of Fuel	22-Feb-16	071/71-328 (Site)	124,243,738.56	
6	Claim No. 6	April 02,2015 to June 30,2015	90	Lack of Site Possession for Road work		072/73-(Site)	8,454,635.41	
7	Claim No. 7	April 10,2016 to July 04,2017	87	Lack of Site Possession for Road work		072/73-(Site)	8,324,702.58	
<b>Total idle cost in NRs.</b>							<b>150,074,946.20</b>	

## 8. Details of Safeguard activities

Till the date no such issues have been faced relating to the Social, Environmental and Resettlement matter.

## 9. Key Issues and Remarks

Following issues were raised in this month

- Submitted Claim No.01 to 07 has not addressed up to this month.
- Uncertain of contract work due to lack of BoQ item such as; Reinforcement, Brickwork, M25 Concrete, shoring etc. As a result, contractor's resources (manpower, equipments and plant) became idle which have already notify from contractor's letter ref no. ref no. 071/72-368 (site) dated 12 April 2016, ref no. 073/74-21 (site) dated 26 September 2016 and PCO letter ref no. 5.1 /073/74/ 77 of Minutes of meeting dated 22 September 2016
- Delay in decision regarding VO.03
- Lack of Amount in Provisional sum which has created delima in shifting Electric pole and Water supply pipe lines.

## 10. Mobilized Idle Resource in this month

### a. Details of Idle of Contractor's Personnel

S.N	Man power	Designation	Nos
1	Mr. Ujjwal Prasai	Project Manager	1
2	Mr. Mahesh Subedi	Construction Engineer	1
3	Mr. Bishesh Prasai	Construction Engineer	1
4	Mr. Suresh Maharjan	Design Engineer	1
5	Mr. Sujit Dahal	Bill Engineer	1
6	Mr. Santos Yadav	Engineer	1
7	Mr. Saubhagya Jung Ghimire	Engineer	1
8	Mr. Bishal Shrestha	Overseer	1
9	Mr. Sanjay Shrestha	Overseer	1
10	Mr. Birat Gautam	Engineer	1
11	Mr. Saroj Adhikari	Overseer	1
12	Mr. Bipin Rai	Overseer	1
13	Mr. Sujan Singh Thakuri	Overseer	1
14	Mr. Navin Thapa	Engineer	1
15	Mr. Suraj Chaudahary	Overseer	1
16	Mr. Volu Mandal	Electric Mechanics	1

17	Miss Samita Thapa	Sub Overseer	1
18	Mr. Prakash Bhattarai	Sub Overseer	1
19	Mr. Sunil Chaudhary	QC Manager	1
20	Mr. Dipesh Dahal	Lab Assistant	1
21	Mr. Ajay Rajbansi	Lab Assistant	1
22	Shankar Chaudhary	Sr. Lab Technician	1
23	Mr. Pradeep Rai	Senior Surveyor	1
25	Mr. Narayan Rijal	Sr. Site Supervisor	1
26	Mr. Uttar Karki	Sr. Site Supervisor	1
27	Mr. Prasasan Rajbansi	Supervisor	1
28	Mr. Saroj Adhikari	Overseer	1
29	Mr. Vishwa Bandhu Mainali	Administration Manager	1
30	Mr. Krishna Prasad Adhikari	Junior Accountant	1
31	Mr. Indramani Bhattarai	Senior Marketing Manager	1
32	Mr. Anil Pokharel	PRO(Public Related Officer)	1
33	Mr. Tanka Pokharel	Store Manager	1
34	Mr. Nirnay Raj Upreti	Store Keeper	1
35	Mr. Mahesh Pandit	Store Keeper	1
36	Mr. Ananda Rajbansi	Electrician	1
37	Mr. Pappu Yadav	Mechanic -Incharge	1
38	Mr. Amrit Thakur	Mechanic-Welder	1
39	Mr. Mukesh Mandal	Mechanic-Equipment	1
40	Mr. Bholu Mandal	Mechanic-Equipment	1
41	Mr. Bishal Nagarkoti	Mechanic- Tyre	
42	Mr. Bhanu Bhakta Kafle	Senior-Plumber	1
43	Mr. Kamal Limbu	Overseer	1
44	Mr. Sandesh Sunam	Sub Overseer	1
45	Mr. Gangaram Dhital	Plumber Assistant	1
46	Mr. Matrika Rajbansi	Plumber Assistant	1
47	Welder		4
48	Security Gurad		12
49	Cook		4

49	<b>Driver and Operator</b>		88
50	<b>Assistant Driver and Operator</b>		68
51	<b><u>Ganger-Skilled Labour</u></b>		
	Skilled Labor		37
	UnSkilled Labor		72

**b. Details of Idle of Equipment at Site / Contractor's yard**

SN	Equipments	Capacity	Idle
<b>A.1</b>	<b><u>Excavators</u></b>		
	Komatsu PC200 "A"	148HP /0.97m3	1
	Komatsu PC 200 "C"	148HP /0.97m3	1
	Komatsu PC 120	0.25m3	1
	Cat Excavator 320DL "A"	148HP /0.97m3	1
	Cat Excavator 320D "2"	148HP /0.97m3	1
	Hundi PC 200		1
<b>A.2</b>	<b><u>Back Hoe Loader</u></b>		
	CAT	92HP/0.30m3	2
	JCB	92HP/0.30m3	2
<b>A.4</b>	<b><u>Grader</u></b>		
	Komatsu GD405A-2	115HP	1
<b>A.5</b>	<b><u>Jeep/Pickup</u></b>		
	Pajero-Na2Cha 1086	5 door	1
	Landcrusher-Ba3Cha 7621	5 door	1
	Landcrusher-Ba3Cha 4765	5 door	1
	Tata Sumo Gold-Ba11Cha 782	5 door	1
<b>A.6</b>	<b><u>Water Browser</u></b>		
	Water Tanker Na1Kha 8549	Up to 12KL	1
	Water Tanker Na1Kha 2595	Up to 12KL	1
	Water Tanker Na1Ka 101	Up to 12KL	1
<b>A.7</b>	<b><u>Motorbikes</u></b>		
	Shine Bike Ko 17 Pa-3394	125cc	1
	Shine Bike Ko 17 Pa-3395	125cc	1
	Shine Bike Ko 20 Pa-215	125cc	1

	Shine Bike Ko 20 Pa-230	125cc	1
	Shine Bike Ko 20 Pa-1155	125cc	1
	Shine Bike Ko 20 Pa-1167	125cc	1
	Shine Bike Ko 11 Pa-8157	125cc	1
	Honda Shine Ve 1 Pa 8845	125cc	1
	Bajaj Calliber Me 1 Pa-3376	100 cc	1
	Glamor Ko 35 Pa 3802	100 cc	1
	Glamor Ko 35 Pa 3820	100 cc	1
<b>A.8</b>	<b><u>Tractors</u></b>		
	Tractor Na 1 ta 7936	85HP/Hydrollic	1
	Tractor Sa 1 ta 2073	85HP/Hydrollic	1
	Tractor Ko 2 ta 3430	85HP/Hydrollic	1
	Tractor Ko 2 ta 4145	85HP/Hydrollic	1
	Tractor Ko 1 ta 6208	85HP/Hydrollic	1
	Tractor Ko 1 ta 5868	85HP/Hydrollic	1
	Tractor Ko 1 ta 1720	85HP/Hydrollic	1
	Tractor Ko 1 ta 4549	85HP/Hydrollic	1
	Tractor Ko 1 ta 9579	85HP/Hydrollic	1
	Tractor Ko 2 ta 3807	85HP/Hydrollic	1
	Tractor Ko 2 ta 3625	85HP/Hydrollic	1
<b>A.9</b>	<b><u>Roller &amp; Compactor</u></b>		
	JCB Roller	Upto 16Ton	1
	Steel Rooler	Upto 12Ton	1
	Single Drum Hand Roller [Honda GX160]	4Kw	2
	Monkey Jumpur[Honda GX 160]	6.5Ps/10000N	3
	Pneumatic Tyre Roller		1
	Plate Compactor		3
	Hydrollic Compactor		1
	Heavey Duty Tapping Rammer	4.4kw	1
<b>A.10</b>	<b><u>Tipper Truck</u></b>		
	AMW Tipper-Na1Ka 3489	150HP/10m3	1
	AMW Tipper-Na1Ka 3494	150HP/10m3	1

	AMW Tipper-Na1Ka 3491	150HP/16m3	1
	AMW Tipper-Na1Ka 3495	150HP/10m3	1
	Tipper-Ko1Kha2668	150HP/16m3	1
	Tipper-Ko1Kha 2683	150HP/16m3	1
	Tipper-Ko1Kha 2630	150HP/16m3	1
	Tipper-Na3Kha 6725	150HP/16m3	1
	Tipper-Na5 Kha 6234	150HP/16m3	1
	Tipper-Ko1Kha 2718	150HP/16m3	1
	Tipper-Ko1Kha 2870	150HP/10m3	1
	Tipper-Ko1Kha 2623	150HP/16m3	1
	Tipper-Ko1Kha 2885	150HP/10m3	1
	Tipper-Ko1Kha 2673	150HP/10m3	1
	Tipper-Ko1Kha 2422	150HP/16m3	1
	Tipper-Na3Kha 3722	150HP/16m3	1
	Tipper-Na5 Kha 8863	150HP/16m3	1
	Tipper-Ko1Kha 2420	150HP/16m3	1
	Tipper-Ko1Kha 2419	150HP/16m3	1
<b>B</b>	<b><u>Bitumunious Plant/Crane &amp; Others</u></b>		
	Asphalt Hot Mix Plant Set -Keshar DM45	40 to 60 Ton/Hr	1
	Asphalt Paver Machine-Na1Ka 3135	105HP	1
	Bitumen Distributor-Ba1Ka 3443		1
	Decanter		1
	Mobile Unique Crane with Teller Ba1Ka 4423	10Ton	1
	JCB Hydra Liftall	15Ton	1
<b>C</b>	<b><u>Concreting Unit</u></b>		
	Concrete Batching Plant CONMAT all Set	45m3/Hrs	1
	Generator-Jackson	125Kva	1
	Manual Mixture Machine[Everest]		1
	Manual Mixture Machine [Ashoka]		2
	Hydrollic Mixture Machine[Universal]		2
	Hydrollic Mixture Machine[Kirloskar]		2
	Bar Bending Machine Set	4Ton/Hrs	3
	Bar Cutter Machine Set	4Ton/Hrs	3

	Concrete Vibrator with Needle	Diesel/3PHs/Pneumatic	10
	Mechanical Vibrator		
<b>D</b>	<b><u>Work Shop Equipment and Tools</u></b>		
	Generator-Kirloskar/Jackson	20Kva	2
	Generator [Kirloskar]	125Kva	1
	Generator[Honda]	2.5Kva	1
	Generator[Super]	5KVA	1
	Generator[Honda Red]	5KVA	1
	Generator[Kirloskar]	10Kva	1
	Generator[Lutian] [LT3600]	2.5KVA	1
	Welding Machine Set	4Ton/Hrs	4
	Concrete Cutter		1
	Water Tank (Joined with Tractor)	10Kl	3
	Kerb Stone Machine Set		1
<b>E</b>	Trailer		1

**c. Detail of Stock Construction Material at Site / Contractor's yard**

Materials	Unit	Previous Stock	Stored	Used	Stock till date
Cement	Bags	768			768.00
Sand	m3	1796.232			1796.23
Aggregate	m3	3417.168			3417.17
Boulder	m3	312.096			312.10
Sub base	m3	17562.98			17562.98
Stone Dust	m3	98.088			98.09
Brick	Nos	12523			12523.00
Rebar	tonne	206.916			206.92
Gabion Boxes					
1.5 x1x1	m2	976			976.00
2 x1 x 0.3	m2	330			330.00
2 x1x1	m2	814			814.00
3 x1x1	m2	160			160.00
3 x1x0.3	m2	252			252.00

Bitumen	tonne	42.87			42.87
Base	m3	27790.76			27790.76
<b>NP3 Hume Pipe</b>					
Ø 200	nos.	2,500.00			2500.00
Ø 300	nos.	381.00			381.00
Ø 350	nos.	335.00			335.00
Ø 400	nos.	461.00			461.00
Ø 450	nos.	195.00			195.00
Ø 500	nos.	360.00			360.00
Ø 600	nos.	1,522.00			1522.00
Ø 700	nos.	1,635.00			1635.00
Ø1000	nos.	318.00			318.00
<b>HDPE Pipe</b>					
Ø200	m	6,048.00		-	6048.00
Ø200	m	358.00			358.00
<b>UPVC Pipe</b>					
Ø160	m	3,528.00			
Ø110	m	5,533.00		-	5533.00
Precast Slab	nos	5,774.00			5774.00
Precuts	nos	2,384.00		-	2384.00
C.I Cover	nos	273.00			273.00
Kerb stone	nos	9,924.00			9924.00
Slab gurad	nos	543.00			543.00
<b>Manhole</b>					
Bottom Slab	Nos	530			530.00
Rings					
25cm	Nos	255			255.00
45 cm	Nos	1716			1716.00
55cm	Nos	270			270.00
Redcuer	Nos	579			579.00
Reducer with CI Cover	Nos	202			202.00

<b>Sewer Inlet</b>					
Bottom Slab	Nos	377			377.00
Rings (38cm)	Nos	810			810.00
Top cover slab	Nos	364			364.00
<b>House Chamber</b>					
Bottom Slab	Nos	1166			1166.00
Rings (38cm)	Nos	2073			2073.00
Top cover slab	Nos	1703			1703.00

**d. Detail of Idle Laboratory Equipment at Site / Contractor's yard**

SN	Equipments	Unit	Idle	Rermaks
2	8"Brass sieves - 4.75,2.36,1.18,600,425,180,150,0.075Lid pan 1.70 &300	Set	1	
3	Flat bottom flask 500ml	Nos	1	
4	Slump cone set	Nos	2	
5	Vicat Appratus	Nos	1	
6	Motar mould7.06*7.06*7.06	Set	21	
7	Compressive Testing machine 500KN & 1000KN	Set	1	
8	CBR Appratus motorised with complete set	Set	1	
9	Rajco core Drilling Machine withBit complete set	Set	1	
10	Marshall stabilityCompaction with densitystability set	Set	1	
11	Water bath	Set	1	
12	2200gm*0.01gm phonex electronic digital balance	Set	1	
13	Electronic Digital balance 30kg*2gm	Set	1	
14	Electronic Digital balance 20kg*2gm	Set	2	
15	mm dia 2250 coler base plate	Nos	1	
16	Marshall stability Rammer 4.89kg(Proctor)	Nos	1	
17	Spatula (150mm long)	Nos	2	
18	Trowel	Nos	1	
19	Aluminium Tray(30*30)	Nos	6	
20	Aluminium Tray(40*40))	Nos	8	
21	Aluminium Tray(75*75)	Nos	4	

22	Rubber Hammer	Nos	2	
23	Moisture can	Nos	12	
24	Standard sand 25 kg	Bags	5	
25	Pycnometer Brass cone 1000ml	Nos	2	
26	Pycnometer Brass cone type 500ml	Nos	2	
27	Mercury Therometer 360.c England	Nos	10	
28	Wire basket	Nos	2	
29	Aggregate Crushing Value Test set	Set	1	
30	Filter paper	Pkt	2	
31	Sodium sulphate 500gm	Bottle	5	
32	Calcium chloride 500gm	Bottle	5	
33	Trichloriethylene 2.5 liter	Bottle	5	
34	Bitumen Penetrometer set	Set	1	
35	Glycerine 500ml	Bottle	5	
36	Marshall stability mould pedestal stand-01, Compaction rammer	Set	1	
37	Compaction mould 10mm	Set	2	
38	Rammer	Nos	2	
39	Spatula	Nos	2	
40	Bitumen Extractor centrifuge complete set	Set	1	
41	Pycnometer 50ml	Nos	2	
42	Sand pouring Cylinder (150mm)	Set	1	
43	C.B.R mould complete set	Nos	2	
44	Digital Therometer Asphalt	Nos	3	
45	Measuring cylinder plastic 1000ml	Nos	2	
46	Measuring cylinder plastic 500ml	Nos	2	
47	Measuring cylinder plastic 250ml	Nos	2	
48	Concrete cube mould 15cm*15cm	Nos	30	
49	Flakiness Indux Gauge,50,Vernier Calibaration machine	Nos	1	
50	Rapido Moisture Meter	Nos	1	
51	A.I.V Machine set	Set	1	
52	L.A.A Machine set	Set	1	
53	Electrically operated oven	Set	1	

**e. Detail of Idle Office Equipment at Site / Contractor's yard**

SN	Equipments	Unit	Idle	Rermaks
----	------------	------	------	---------

	Computer Set	Set	10	
	Laptop Set	Set	9	
	CC Camera	Set	10	
	Printer A4	Set	10	
	Printer A3	Set	2	
	Colour Printer	Set	1	
	UPS	Pcs	15	
	External Hard Disk	Pcs	3	
	D Refreez	Nos	1	
	Refrigerator	Nos	1	
	Cannon Projector	Set	1	
	A C	Set	8	
	Camera	Pcs	7	
	Gas Gyser	Set	3	
	Stablizer	Set	5	
	Fire Extinguisher	Nos	5	
	Weight Balance	Set	2	
<b>f. Detail of Idle Survey Equipment at Site / Contractor's yard</b>				
SN	Equipments	Unit	Idle	Rermaks
1	3 Section Ranging Rod	Pcs	2	
2	Tape (50m)	Pcs	10	
3	Rod Buble	Pcs	2	
4	Staff Leveling	Pcs	26	
5	Prism Holder	Pcs	1	
6	Prism Rod	Pcs	1	
7	Total Station	Set	2	
8	Level Machine	Set	14	
9	Prism	Set	3	
10	Tripod	Pcs	3	

## 11. Conclusion

All Construction work activities have been halted which is metioned in above Key issues.

# **ANNEX**

## Photographs of the Month



*Picture 1 Curing of casted Cover slab at Contractor's yard*



*Picture 2 Road Maintenance work*



# **LAB REPORT**

# **SUMMARY**

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitan City**  
**Monthly Laboratory Testing Report**  
**( For The Month OF- SEPTEMBER 2016)**

Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
1	Granular Material/Gravel material	Sieve analysis	43	0	0	0		43	
2	SUB GRADE Preparation asPer Specifacation	MDD & OMC	5	0	0	0		5	
		Field density	83	0	0	0		83	
		C.B.R	7	0	0	0		7	
3	BRICK WORK Required Test	Water Absorption	195	0	0	0		195	
		Compressive Strength	1876	95	95	0		1971	
4	Masonry Mortar (CM 7.05)	Compressive strength	1929	30	30	0		1959	
5	CONCRETE AGGREGATE Coarse aggregate (20 mm)	Sieve analysis (20 mm)	219	13	13	0		232	
		LAA	135	13	13	0		148	
		Specific Gravity	16	0	0	0		16	
		FI	148	13	13	0		161	
		ACV	162	13	13	0		175	
		Unit weight	2	0	0	0		2	
	Fine aggregate (Sand)	Sieve analysis	194	6	6	0		200	
		Unit weight	2	0	0	0		2	
6	CONCRETE MIX DESIGN Concrete M15/20, M20/20 M25/20, & M30/20	Concrete mix Design	76	0	0	0		76	
		Compressive strength	741	0	0	0		741	
		Slump test	73	0	0	0		73	

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitan City**  
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Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
7	<u>CEMENT Required Test</u>								
8	<u>OPC Cement</u>	Setting time	131	10	10	0		141	
		Normal Consistency	131	10	10	0		141	
	<u>CONCRETE</u>								
		Work Mix Test M15,M20,M25,M30	Compressive strength	4025	87	87	0	4112	
9	<u>REINFORCEMENT</u>	Required Test							
	Reinforcement tore steel	As per Specifacation	8	0	0	0		8	
10	<u>PAVEMENT MATERIALS</u>								
	Sub Base Materials	Sieve analysis	24	0	0	0		24	
		MDD & OMC	10	0	0	0		10	
		CBR	4	0	0	0		4	
		Field density	83	0	0	0		83	
11	CS Base	Sieve analysis	60	0	0	0		60	
	Crushed Stone Base	MDD & OMC	8	0	0	0		8	
	Material Laying	C.B.R	6	0	0	0		6	
		FI & C.Ratio	64	0	0	0		64	
		LAA	65	0	0	0		65	
		SSS	10	0	0	0		10	
		AIV	64	0	0	0		64	
		Field Density & OMC	125	0	0	0		125	

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitan City**  
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Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
12	<u>ASHPHALT CONCRETE</u>  Combine Mixed  Individual Ca&FA Test Mix Design	Sieve analysis	9	0	0	0		9	
		FI	8	0	0	0		8	
		ACV	8	0	0	0		8	
		LAA	8	0	0	0		8	
		Sp gravity	4	0	0	0		4	
		SSS	4	0	0	0		4	
13	<u>BITUMEN TEST</u>  80/100 Bitumen  As per DORbook section  600 Table 6.14/is 73	Penetration at25.c	2	0	0	0		2	
		Softening point(ring ball)	2	0	0	0		2	
		Flash point/Fire Point	2	0	0	0		2	
		Ductility at25.c	2	0	0	0		2	
		Specific at 25.c	2	0	0	0		2	
		Water Content	2	0	0	0		2	
		Loss on Heating for 5 hrs	2	0	0	0		2	
		Pen-of residue afte loss on Heating	2	0	0	0		2	
		Solubility in trichloroethylene	2	0	0	0		2	
14	Humpipe Test	Three Edge Bearing Load Test	7	0	0	0		7	200mm to 1600mm 1 eac
15	MARSHALL MIX DESIGN	WEARING COURSE	1	0	0	0		1	
16	Marshall Stability Test	Bulk density	60	0	0	0		60	
		Stability	60	0	0	0		60	
		Flow	60	0	0	0		60	
		Air voides	60	0	0	0		60	

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**BIRATNAGAR Sub-Metropolitant City**  
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**( For The Month OF- SEPTEMBER 2016)**

Consultants: SMEC-Brisbane-AQUA-CEMAT-BDA

Contractors: CTCE- KALIKA J/V

S. No.	Description of Material	Type of test	Total No. of Test upto previous month	Test Performed for this month				Total No. of Test upto This month	Remarks
				No. of Tests	Passed	Failed	Retest Recommended		
		Bitumen extraction	20	0	0	0		20	
		Voids in Mineral Agg	60	0	0	0		60	
		Job mix in AC Plant	22	0	0	0		22	
17	<u>BITUMEN SPREAD TEST</u>								
	Prime coat	Application rate	20	0	0	0		20	
	Tack coat	Application rate	10	0	0	0		10	
18	<u>Machines/Equipment</u>								
	Caliberation of compressive	1000KN Manuall	2	0	0	0		2	
	Testing machine	500 KN Manuall	2	0	0	0		2	
	C.B.R Machine	50KN/30KN	2	0	0	0		2	
	Marshall Stability Machine	50KN/25KN	2	0	0	0		2	
19	<u>MISCELLANEOUS</u>								
	G.I Wire(Gabion Boxes)		5	0	0	0		5	
	Factory Test Report of Cement		8	0	0	0		8	
	Factory Test Report of Iron Steel		4	0	0	0		4	
	Factory Test Report of 80/100 Bitumen		2	0	0	0		2	
	Factory Test Report of UPVC/HDP Pipe		2	0	0	0		2	
	UPVC/HDP Pipe Test Result		2	0	0	0		2	

MDD/OMC = Max Dry Dennsity  
 Optimum Moisture Content  
 SSS = Sodium Sulphate Soundness  
 ACV = Aggregtae Crushing Value  
 CBR=California Bearing Ratio

LAA = Los Angeles Abrasion  
 SE=Sand Equivqlent  
 SMEC-Brisbane-AQUA-BDA-CEMAT  
 Approved by C.S.E  
 Checked by A.C.S.E  
 Consultant Reps

C.R=Crushing Ratio  
 AIV=Aggregate Impact Value  
 JMC=Job Mix Formula

CTCE-KALIKA J/V  
 Submitted by Project Manager  
 Prepaid by Q.C Manager  
 Contractors Reps

# Secondary Town Integrated Urban Environmental Improvement Project

Biratnagar Sub-Metropolitan city

Contract Package: STIUEIP/W/BRT/ICB-01

## DAILY WEATHER RECORD

FOR THE MONTH OF September 2016

Date	WEATHER Record						Temp.c		
	Sunny	Windy	Cloudy	Morning Rain HRS	Night Rain Hrs.	Day Rain Hrs.	9:00 AM	5:00 PM	Rain Fall MM
1			Cloudy	Morning Rain HRS		Day Rain Hrs.	29.4	25.8	190
2			Cloudy	Morning Rain HRS	Night Rain Hrs.	Day Rain Hrs.	30.2	26.5	1070
3			Cloudy		Night Rain Hrs.	Day Rain Hrs.	30	25.7	86
4			Cloudy		Night Rain Hrs.	Day Rain Hrs.	29.4	26.6	180
5			Cloudy		Night Rain Hrs.	Day Rain Hrs.	30.2	28.4	60
6			Cloudy				31.9	28.6	
7			Cloudy				30.2	28.4	
8			Cloudy	Morning Rain HRS			30.6	28.2	186
9	Sunny						31	28.4	
10	Sunny						31.8	29.2	
11	Sunny						30.9	27.6	
12			Cloudy	Morning Rain HRS	Night Rain Hrs.	Day Rain Hrs.	28.8	26.6	310
13			Cloudy	Morning Rain HRS			28.6	28.2	100
14			Cloudy	Morning Rain HRS			30.2	27.6	30
15	Sunny						31.1	25.6	
16			Cloudy	Morning Rain HRS	Evening Rain Hrs	Day Rain Hrs.	28.4	25.8	800
17			Cloudy		Evening Rain Hrs	Day Rain Hrs.	29.4	25.2	1640
18	Sunny						30.2	26.4	
19	Sunny						28.6	25.4	
20					Evening Rain Hrs	Day Rain Hrs.	26.4	25.4	860
21				Morning Rain HRS	Evening Rain Hrs		27.2	25.1	390
22				Morning Rain HRS	Night Rain Hrs.		28.4	24.6	650
23	Sunny						30.2	29.4	
24				Morning Rain HRS	Night Rain Hrs.		26.4	24.4	1460
25				Morning Rain HRS	Night Rain Hrs.		27.6	23.9	1250
26					Morning Rain HRS	Night Rain Hrs.	29.4	26.4	70
27				Morning Rain HRS			27.8	24.8	30
28	Sunny						30.2	26.8	
29	Sunny						31.6	28.4	
30	Sunny						31.4	29.4	

Total: 9362

SMEC-Brisbane-AQUA-CEMAT-BDA

Approved By C.S.E

Record Checked By A.C.S.E

Consultant Reps

CTCE-KALIKA J/V

Submitted By Project Manager

Record Reported By Q.C Manager

Contractor Reps

# SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT

Biratnagar Sub-Metropolitan City

## Summary of Concrete Crushed Aggregate 20mm down For The Month of SEPTEMBER 2016

S.N.	DESCRIPTION / SOURCE	LAB REF. NO.	Grain Siza Distribution				FI %	LAA %	ACV %	REMARKS
			25	20	10	4.75				
1	From R-3 Line	MR247	100	97.59	42.10	4.65	12.73	32.64	20.3	Aggregates  Source  Om shree  CRUSHER  PLANT
2	From R-3 Line	MR248	100	97.94	44.58	5.56	13.71	32.12	19.9	
3	From R-3 Line	MR249	100	98.28	44.56	4.11	13.75	31.80	20.2	
4	From R-3 Line	MR250	100	98.41	45.86	3.38	13.36	32.24	20.0	
5	From R-24	MR251	100	97.95	48.80	4.18	13.48	32.20	20.4	
6	From R-24	MR252	100	97.99	48.08	3.72	12.93	31.96	20.3	
Section 900:IS 383-1970 Required			100	95-100	25-55	0-10	Less 15%	Less 35%	Less 30%	

SMEC-Brisbane-AQUA-CEMAT-BDA

Approved by CSE

Test Checked by A.C.S.E

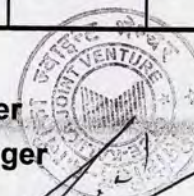
Consultant Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test conducted by Q.C Manager

Contractor Reps



**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**Biratnagar Sub-Metropolitan City**

**Summary of Fine Concrete Aggregates Sand FOR THE MONTH OF September 2016**

S.N.	DESCRIPTION / LOCATION	LAB REF. NO:	Grain Siza Distribution							REMARKS
			10	4.75	2.36	1.18	0.6	0.3	0.15	
1	From R-3 Line	MR 228	100.00	94.29	77.14	57.43	40.86	20.29	6.57	source om shree Crusher Plant Chisang Morang
2	From R-3 Line	MR229	100.00	93.71	76.29	56.86	41.43	19.14	5.14	
3	From R-24 Line	MR230	100.00	93.14	76.29	57.14	40.57	20.00	5.14	
4	From R-24 Line	MR231	100.00	95.14	78.29	58.29	40.00	20.00	4.57	
5	From R-3 Line	MR232	100.00	95.71	78.29	58.86	40.29	19.71	5.71	
6	From R-3 Line	MR233	100.00	96.29	79.43	60.29	44.57	19.43	5.71	
7	From R-3 Line	MR234	100.00	95.71	79.14	59.14	42.57	18.86	4.29	
8	From R-24 Line	MR235	100.00	95.71	78.57	56.86	40.86	18.86	4.57	
9	From R-24 Line	MR 236	100.00	94.57	76.86	57.43	39.71	18.29	4.29	
10	From R-24 Line	MR237	100.00	95.71	77.71	57.14	40.29	19.14	4.29	
11	From R-24 Line	MR238	100.00	94.86	78.00	58.00	39.43	19.14	5.14	
12	From Contractor Yard	MR 239	100.00	94.29	77.71	56.86	42.00	19.71	5.71	
13	From Contractor Yard	MR240	100.00	94.00	77.14	57.14	40.86	18.86	5.43	
Specifacation Limit is 383-1970 Zone -2			100-100	90-100	75-100	55-90	35-59		0-10	

SMEC-BRISBANE-AQUA-CEMAT-BDA

Approved by C.S.E

Test Checked by A.C.S.E

Consultant Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test Conducted by Q.C Manager

Contractor Reps

**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**Biratnagar Sub-Metropolitant City**

**SUMMARY OF CUBE COMPRESSIVE STRENGTH TEST M20/20 SLAB CASTING WORK MIX**

**FOR THE MONTH OF SEPTEMBER 2016**

S.N.	Lab Ref No.	Date of Casting	Deatails of Mix	Location Structure	Ratio by VOLUME				Materials		Cube Crushing ,N/mm2		Remarks
					Water	Cement	Sand	Aggregate	Cement Brand	Aggregate/Sand	7 days	28-Days	
1	MR 141	1/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	17.5	21.6	
2	MR 142	2/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	16.1	21.6	
3	MR 143	3/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	17.3		
4	MR 144	4/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	16.4		
5	MR 145	5/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.9		
6	MR 146	6/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	16.0		
7	MR147	8/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.8		
8	MR 148	9/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.9		
9	MR 149	10/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.9		
10	MR 150	10/9/2016	M20 Work mix	SLAB YARD	0.50	1	2	3.5	SHIVAM	Om shree C/plant	15.7		

Note:28 days cube crushing next month Remain to be tested

Specifacation Limit Table For M20/20 on 7 days Age Min 67% of Total Compressive Strength

Min Required      13.4      20

SMEC-Brisbane-AQUA-BDA

CTCE-KALIKA J/V

Approved by Construction Supervision Engineer/CSE

Submitted by Project Manager

Test checked by Junior Engineer ACSE

Test conducted by Q.C Manager

Consultants Reps

Contractors Reps



# Secondary Towns Integrated Urban Environmental Improvement Project

Biratnagar Sub-Metropolitan City

## TEST RESULT SUMMARY SHEET For the Month of SEPTEMBER 2016

### COMPRESSIVE STRENGTH OF BRICKS (Process Control Test)

SN No	Ref. STIUEIP LAB/	Date of Testing	Location	Chanage	BRAND NAME 1 st class brick	Compressive Strength N/mm2	SCALE OF Sample From
1	MR373	4/9/2016	R3	R3 Line	ANAND	11.8 ✓	1500 Nos-5 Nos
2	MR 374	4/9/2016	R22	R22 Line	AMBEY	12.2 ✓	
3	MR 375	4/9/2016	R3	R3 Line	T&B	13.3 ✓	
4	MR 376	4/9/2016	R3	R3 Line	T&B	10.8 ✓	
5	MR377	6/9/2016	R22	R22 Line	AMBEY	11.1 ✓	
6	MR 378	8/9/2016	R3	R3 Line	ANAND	11.7 ✓	
7	MR 379	9/9/2016	R22	R22 Line	ANAND	11.4 ✓	
8	MR 380	10/9/2016	R3	R3 Line	AMBEY	11.5 ✓	
9	MR381	12/9/2016	R22	R22 Line	AMBEY	11.0 ✓	
10	MR 382	13/9/2016	R3	R3 Line	AMBEY	10.7 ✓	
11	MR 383	14/9/2016	R3	R3 Line	ANAND	10.9 ✓	
12	MR 384	14/9/2016	R22	R22 Line	ANAND	11.1 ✓	
13	MR 385	16/9/2016	R22	R22 Line	ANAND	10.5 ✓	
14	MR 386	16/9/2016	R22	R22 Line	ANAND	10.5 ✓	
15	MR 386	17/9/2016	R3	R3 Line	ANAND	10.8 ✓	
16	MR 387	17/9/2016	R3	R3 Line	ANAND	10.8 ✓	
17	MR 388	17/9/2016	R22	R22 Line	ANAND	10.7 ✓	
18	MR 389	17/9/2016	R22	R22 Line	ANAND	10.8 ✓	
19	MR 390	18/9/2016	R3	R3 Line	ANAND	10.8 ✓	

Specification

IS1077, IS2180 or  
NS1/2035

> 10N/MM2

SMEC-Brisbane-AQUA-BDA-CEMAT

Approved by Construction Supervision Engineer

Test Checked by A.C.S.E

Consultant's Reps

CTCE-KALIKATA

Submitted by Project Manager

Test conducted by Q.C Manager

Contractor Reps

# SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT

Biratnagar-Sub-Metropolitan City

## SUMMARY OF MORTAR COMPRESSIVE STRENGTH TEST WORK MIX CUBE

FOR THE MONTH OF SEPTEMBER 2016

S.N.	LAB REF No.	Name of CEMENT	Location/Structure	Details of MIX	Casting	Consistency & Setting Time			7 day's cube Crushing		28 day's cube crushing		Remarks
						Norm. Const.	Initial(min.)	Final(min.)	Date	Str. N/mm2	Date	Str. N/mm2	
1	338	Shivam	R-22 Line Work Mix	1:4 by volume	9/9/2016	38.00	190	320	16/9/2016	6.30 ✓	7/10/2016		
2	339	Shivam	R-3 Line work mix	1:4 by volume	9/9/2016	38.10	200	330	16/9/2016	6.40 ✓	7/10/2016		
3	340	Shivam	R-22 Line Work Mix	1:4 by volume	12/9/2016	38.00	180	335	19/9/2016	6.40 ✓	10/10/2016		
4	341	Shivam	R-3 Line work mix	1:4 by volume	12/9/2016	38.30	185	330	19/9/2016	6.30 ✓	10/10/2016		
5	342	Shivam	R-22 Line Work Mix	1:4 by volume	13/9/2016	38.10	195	340	20/9/2016	6.40 ✓	11/10/2016		
6	343	Shivam	R-3 Line work mix	1:4 by volume	13/9/2016	38.30	200	330	20/9/2016	6.30 ✓	11/10/2016		
7	344	Shivam	R-3 Line work mix	1:4 by volume	14/9/2016	38.10	180	335	21/9/2016	6.50 ✓	12/10/2016		
8	345	Shivam	R-22 Line Work Mix	1:4 by volume	16/9/2016	38.30	190	330	23/9/2016	6.30 ✓	14/10/2016		
9	346	Shivam	R-3 Line work mix	1:4 by volume	17/9/2016	37.90	205	335	24/9/2016	6.30 ✓	15/10/2016		
10	347	Shivam	R-22 Line Work Mix	1:4 by volume	17/9/2016	38.60	180	330	24/9/2016	6.50 ✓	15/10/2016		

Note: 28 days cube crushing next month Remain to be tested

MIN 45m

Max 600m

Required strength on 28 days not less than 7.5 N/MM2

SMEC-Brisbane-AQUA-BDA-CEMAT

Approved by Construction Supervision Engineer/CSE

Test Checked by A.C.S.E

Consultants Reps

CTCE-KALIKA J/V

Submitted by Project Manager

Test conducted by Q.C Manager

Contractore Reps



# SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT

Biratnagar Sub-Metropolitant City

## CEMENT TEST SUMMERY

For the Month of SEPTEMBER 2016

S.N.	Lab. Ref. NO.	Description of cement	Testing Date	Consistency & Setting Time			Remarks
				Norm. Const.	Intial(min.)	Final(min.)	
1	MR133	SHIVAM OPC	9/9/2016	38.0	190	320	All Cement Are Nepali BRAND       OPC
2	MR134	SHIVAM OPC	10/9/2016	38.1	200	330	
3	MR135	SHIVAM OPC	11/9/2016	38.0	180	335	
4	MR 136	SHIVAM OPC	12/9/2016	38.3	185	330	
5	MR 137	SHIVAM OPC	13/9/2016	38.1	195	340	
6	MR 138	SHIVAM OPC	14/9/2016	38.3	200	330	
7	MR 139	SHIVAM OPC	16/9/2016	38.1	180	335	
8	MR 140	SHIVAM OPC	17/9/2016	38.3	190	330	
9	MR 141	SHIVAM OPC	18/9/2016	37.9	205	335	
10	MR 142	SHIVAM OPC	20/9/2016	38.6	180	330	
Requirements in accordance with BS 12/4027					> 45 Min.	10 Hrs	

SMCE-Brisbane-AQUA-BDA

Approved by C.S.E

Test Checked by A.C.S.E

Consultant Reps



CTCE-KALIKA J/V

Submitted by Project Manager

Test Conducted by Q.C Manager

Contractores Reps



**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**

**Biratnagar Sub-Metropolitan City**

**SUMMARY OF CUBE COMPRESSIVE STRENGTH TEST M20/20 Work Mix**

**FOR THE MONTH OF SEPTEMBER 2016**

S.N.	Lab Ref No.	Date of Casting	Deatails of Mix	Location Structure	Ratio by Volume				Type of Material		Cube Crushing ,N/mm2		Remarks
					water	Cement	Sand	Aggregates	Cement Brand	Aggregate/Sand	7 days	28-Days	
1	496	9/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	17.19		
2	497	10/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	17.04		
3	498	11/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	17.19		
4	499	13/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.81		
5	500	15/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.15		
6	501	15/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.52		
7	502	16/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.74		
8	503	16/9/2016	M20 Work mix	R-22 line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	16.52		
9	504	17/9/2016	M20 Work mix	R-3 Line Pcc bed	0.50	1	2	3.5	Shivam	Om shree C/plant	15.93		

Note:28 days cube Crushing next month Remain to be tested....

Specifacation Limit Table For M25/20 on 7 days Age Min 67% of Total Compressive Strength

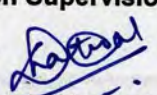
Min Required      13.4      20

**SMEC-Brisbane-AQUA-BDA**

**Approved by Construction Supervision Engineer/CSE**

**Test checked by A.C.S.E**

**Consultants Reps**



**CTCE-KALIKA J/V**

**Submitted by Project Manager**

**Test conducted by Q.C Manager**

**Contractors Reps**



**SECONDARY TOWNS INTEGRATED URBAN ENVIRONMENTAL IMPROVEMENT PROJECT**  
**Biratnagar Sub-Metropolitant City**  
**SUMMARY OF CUBE COMPRESSIVE STRENGTH TEST M20/20 Kerb Stone Work Mix**  
**FOR THE MONTH OF SEPTEMBER 2016**

S.N.	Lab Ref No.	Date of Casting	Deetails of Mix	Location Structure	Ratio by Volume				Type of Material		Cube Crushing ,N/mm2		Remarks
					water	Cement	Sand	Aggregates	Cement Brand	Aggregate/Sand	7 days	28-Days	
1	29 K	5/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.00		
2	30K	6/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.30		
3	31K	13/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.00		
4	32K	14/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	17.50		
5	33K	15/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	16.30		
6	34K	16/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	15.40		
7	35K	17/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	15.70		
8	36K	19/9/2016	M20 Work Mix	Kerb Stone Casted on Yard	0.50	1	2	3.5	Shivam	Om shree C/plant	15.90		

Note:28 days cube Crushing next month Remain to be tested....

Specifacation Limit Table For M20/20 on 7 days Age Min 67% of Total Compressive Strength

Min Required      13.4      20

**SMEC-Brisbane-AQUA-BDA**

Approved by Construction Supervision Engineer/CSE

Test checked by A.C.S.E

Consultants Reps

**CTCE-KALIKA J/V**

Submitted by Project Manager

Test conducted by Q.C Manager

Contractors Reps

