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Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources

**AIN: 15954**

**AUDIT REPORT OF “NORTHERN EAST-WEST HIGHWAY  
PROJECT” IMPLEMENTED BY  
REGIONAL OFFICE, DEPARTMENT OF ROADS, THIMPHU  
MINISTRY OF WORKS AND HUMAN SETTLEMENT**

**PERIOD: INCEPTION TO 30 JUNE 2017**

**MAY 2019**

*‘Every individual must strive to be principled. And individuals in positions of responsibility must even strive harder’  
- His Majesty the King Jigme Khesar Namgyel Wangchuck*

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རྒྱལ་ཁཚུང་རྩིས་ཞིབ་དབང་འཛིན།  
**ROYAL AUDIT AUTHORITY**  
Bhutan Integrity House

Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources



RAA/AR/ DSA-SCID/RO-Thimphu/2019/1385

Dated: 29<sup>th</sup> May 2019

The Hon'ble Minister  
Ministry of Works and Human Settlement  
Thimphu

**Subject: Audit Report of “Northern East-West Highway Project” of Regional Office, Thimphu for the period from inception to 30.6.2017**

Your Excellency,

Enclosed herewith please find the audit report on the operations, internal controls and contract management in respect of Northern East-West Highway (NEWH) Project implemented by the Regional Office, Thimphu, covering the period from inception to 30.06.2017. The RAA has conducted audit as required under the Audit Act of Bhutan 2018.

### **Audit Findings and Recommendations**

The auditor's review of the operations, accounting records, internal controls and contract managements of the Northern East West Up-gradation Project revealed deficiencies and lapses of significant nature involving improper planning and preparation of estimates and BOQs, inappropriate tender evaluations, claims of inflated quantities through RA bills, acceptance of substandard and defective works, excess and inadmissible payments. The lapses also involved non-adherence and non-enforcement of provisions of technical specifications and contract agreements, decisions of coordination meetings and government directives, provisions of PRR 2009 as well as awards of substantial value of additional works despite slow progress of works that were detrimental to the economic, efficient and effective contract management and uses of public funds.

The audit findings along with recommendations are detailed in the main report. Part A contains General observations; Part B contains specific observations pertaining to contract packages with accountability and Part C with specific observations without accountability but requiring remedial actions to prevent occurrence of similar deficiencies and lapses for similar project in future.

The audit findings under Part A of the report contains those issues, which are recommendatory in nature and intended to bring improved compliances through appropriate interventions and as such no accountability has been fixed for the findings as decided in the Audit Exit Meeting. However, in the event the DOR and the Ministry do not take measures and actions on the recommendations

within appropriate time period from the date of the issue of the report, the RAA would fix the accountability for appropriate action.

Some of the findings of significant nature involving wasteful expenditures are briefly mentioned below for kind reference and appropriate action:

1. Adhoc Change of design/drawings and increase of 1m width carriageway after awards of contracts resulted in extra financial burden to the Government Exchequer with financial implication of Nu. 11.504 million (Refer Para no.2.1).
2. Inconsistency in the fixation of construction durations for contract packages having same design and scope of construction works within the Regional Office indicated absence of standard procedures and processes for the fixation of contract durations resulted into abnormal time overruns (Refer Para no.2.7).
3. Flaws in the allowable wastage of 5% on the bitumen consumption fixed for manual executions despite mechanized execution of works resulted financial loss to the Government exchequer of Nu. 4.779 million for two contract packages (Refer Para No.2.18).
4. Excessive engagement and payment of hired charges of machineries not complying with coefficient specified in LMC for departmentally executed formation cutting works Nu. 4.806 million resulted into wasteful payments (Refer Para No.2.19).
5. Non-insurance for cost of bitumen issued to contractors Nu. 108.237million. (Refer Para No.2.20).
6. Non-stacking/recording of excavated rock materials from rock cutting works and non-recovery of cost from the contractors with resultant financial loss Nu. 19.849 million (Refer Para No.2.21).
7. Non-maintenance of 1.5m/1m width shoulder at Valley as per drawings and technical specifications and non-adjustment of cost to the extent of shoulder width not maintained resulted into payments for works not executed (Refer Para no.2.24).
8. Non-realization of cost differences of Nu.9.553million from M/s Raven Builders & Company (P) Ltd. as per decisions of the meeting held on 10<sup>th</sup> May 2017(Refer Para No.3.1
9. Non-return of excessive issue of bitumen VG-10 on completion of Bituminous works with resultant misuse of Bitumen by the contractor M/s Raven Builders & Company (P) Ltd. Nu. 14.966 million (Refer Para No. 3.2
10. Overpayment for AC works to M/s Raven Builders & Company (P) Ltd due to overlapping of measurements Nu. 3.006 million (Refer Para No. 3.4).
11. Non-return of excessive issue of bitumen VG-10 on completion of Bituminous works with resultant misuse of Bitumen by the contractor M/s Yangkhil Construction Pvt. Ltd - Nu. 0.738 million (Refer Para No. 4.1).
12. Acceptance of defective and substandard works indicating poor supervisions and monitoring by the site engineers and RO.
13. Over/excess payments due to wrong measurements and improper verification of RA bills indicating absence of proper measurement system and certification of RA Bills prior to settlement of RA bills.

The RAA has reviewed the replies furnished by the RO, Thimphu, DOR and the Ministry and incorporated in the report. Some of the audit findings were resolved in view of reply and related supporting documents and evidences furnished subsequently.

In view of significant nature of the audit findings, the Ministry and the DOR is requested to further review the whole process followed in the preparation of drawings, estimates, BOQs, tendering and evaluation processes, changes of drawings in deviations to standards and soon after awards of contracts, executions of substandard infrastructure works, awarding of foreseeable permanent works as additional works.

The Ministry is requested to review the deficiencies and lapses pointed out and institute appropriate check and balance systems to curb such lapses in future. The Royal Audit Authority would appreciate receiving an Action Taken Report (ATR) **within three months** from the date of issuance of this report.

The Royal Audit Authority acknowledges the kind co-operation and assistance extended to the audit team by the officials of the RO, Thimphu, DOR and the Ministry, which facilitated smooth completion of the audit.

Yours sincerely,



(Tshering Kezang)  
**Auditor General**

**Copy to:**

1. The Secretary, Ministry of Finance, Tashichho-Dzong, Thimphu for kind information and necessary action
2. The Secretary, Ministry of Works and Human Settlement, Thimphu for kind information and necessary action
3. The Director, Department of Roads, MoWHS, Thimphu for necessary action
4. The Director, Directorate of Finance Service, MoWHS, Thimphu for necessary action
5. The Chief Engineer, Regional office, Thimphu for necessary action
6. The AAG, PPAARD, Royal Audit Authority, Thimphu
7. The AAG, Follow-Up & Clearance Division, Royal Audit Authority, Thimphu

*'Every individual must strive to be principled. And individuals in positions of responsibility must even strive harder'*  
*- His Majesty the King Jigme Khesar Namgyel Wangchuck*

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**TITLE SHEET**

1	Title	:	Audit Report of “Northern East West Highway Project, RO, Thimphu
2	Head of the Agency	:	1. Chador Gyeltshen, Chief Engineer, EID: 9106034
3	Drawing and Disbursing Officer	:	1. Chador Gyeltshen, Chief Engineer, EID: 9106034 2. Krishna Bdr Kharka, Accountant, EID: 9907029 Period from 01-11-2014 till date 3. Kelzang Tshendup, Accountant, EID: 9107017 Period from 2008 to 31.10.2014
4	Finance Personnel	:	1. Krishna Bdr Kharka, Accountant, EID: 9907029 Period from 01-11-2014 till date 2. Kelzang Tshendup, Accountant, EID: 9107017 Period from 2008 to 31.10.2014 3. Nang Rinchen, Accountant, EID: 9509031 Period from 21-03-2017 till date
5	Period Audited	:	From Inception to 30 June 2017
6	Schedule of Audit	:	Planning : 01/08/2017 to 31/08/2017 Actual : 01/03/2018 to 31/03/2018 Reporting :
7	Composition of teams	:	<b>Team Leader:</b> Karma Wangchuk, Dy. Chief Auditor, (EID No. 9209042) <b>Team Members:</b> 1. Tashi, Audit Officer, (EID No. 20130101140 ) 2. Jamtsho, Audit Officer, (EID No. 20170107993) 3. Wangchuk C, Senior Auditor, (EID No. 9509035) 4. Kinzang Chophel, Senior Auditor (EID No. 9907042) 5. Pema Wangda, Senior Auditor (EID No. 9410041 )
8	Supervising Officer	:	Tempa Gyeltshen, Assistant Auditor General (EID No. 7701018)
9	Overall Supervising Officer	:	1. P. M. Pradhan, Joint Auditor General, DSA (EID No. 8304036) 2. Bhanu B. Chhetri, Audit Specialist
10	Engagement Letter No	:	RAA/DSA-SCID/MoWHS/int-01/17-18/2203 dated 08/08/2017
11	Focal Person	:	Jamtsho
12	Date of Exit Conference	:	12.12.2018



### **Disclaimer Note**

The coverage of this report is based on the facts, figures and information made available and accessible to the audit team by the **RO, DOR, Thimphu**. The opinion of the auditors shall confine to the period covered and information made available till the time of issue of this report.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy of Auditors.



## Glossary of Abbreviations & Acronyms

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AAG	: Assistant Auditor General
AC	: Asphalt Concrete
AE	: Assistant Engineer
AFD	: Administration & Finance Division
AIN	: Audit Information Number
AR	: Audit Report
ARA	: Audit Recoveries Account
ATR	: Action Taken Report
BSB	: Bhutan Standard Bureau
BSR	: Bhutan Schedule of Rates
BOQ	: Bills of Quantity
CDB	: Construction Development Board
CE	: Chief Engineer
DBM	: Dense Bitumen Macadam
DS	: Directorate Services
DES	: Department of Engineering Services
DHS	: Department of Human Settlement
DLTC	: Department Level Tender Committee
DSA	: Department of Sectorial Audit
DOR	: Department of Roads
EID	: Employee Identification Number
FUCD	: Follow-up & Clearance Division
GCC	: General Condition of Contract
GSB	: Granular sub base
HR	: Human Resource
ITB	: Instruction to Bidder
JE	: Junior Engineer
LTD	: Limited
MoF	: Ministry of Finance
NLC	: National Land Commission
Pvt	: Private
PP&AARD	: Policy Planning & Annual Audit Report Division
PRR	: Procurement Rules and Regulations
RAA	: Royal Audit Authority
RO	: Regional Office
RRM	: Rubble Ransom Masonry
SBD	: Standard Bidding Document
SCID	: Social, Communication & Information Division
SCC	: Special Condition of Contract
TS	: Technical Specification
WMM	: Wet Mix Macadam



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**PART A: GENERAL AUDIT FINDINGS**

**Report on the Audit of Up-gradation Project Northern East-West Highway implemented by the Ministry of Works & Human Settlement**

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**1. Introduction**

The Up-Gradation Project Northern East West Highway is the most important road construction activity undertaken during the 11<sup>th</sup> five year plan period both in terms of financial outlay and scope of works. Considering its significance and nature of risks involved in such a large project, the Royal Audit Authority conducted the Audit of the Up-Gradation Project - Northern East West Highway covering the period inception (end of 2014) to 30<sup>th</sup> June 2017.

- 1.1 The audit was primarily directed towards ascertaining whether the implementation of the project complied with Procurement Rules and Regulations, Financial Rules and Regulations and approved Design Standard envisaged in the Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009.
- 1.2 The up-gradation project was proposed under the Project Tied Assistance (PTA) and tabled for discussion during the 3<sup>rd</sup> Plan Talk held with the Government of India in Thimphu on September 11, 2014.
- 1.3 The Government of India concurred to finance the up-gradation from Semtokha to Trashigang with the total budget of Nu 4,636.646 in the 11th Five Year Plan period although the total estimated cost is Nu. 7,284.211 million.
- 1.4 During the discussion it was agreed that Project DANTAK to carry out the up-gradation works of 52 km from Trashigang to Yadi. The survey and design for the up-gradation works to be provided by the Ministry of Works & Human Settlement.
- 1.5 The Department of Roads, Ministry of Works and Human Settlement is mandated to implement the project within 3 years of time period starting 1<sup>st</sup> January 2015.
- 1.6 The composition of the Project Management Team (PMT) were as follows:
  - Hon'ble Secretary, MoWHS (Chairman)
  - Director, DoR
  - Chief Engineer, Construction Division
  - Chief Engineer, Design Division
  - Project Coordinator, GoI Projects

- 1.7 The composition of the Technical Management Team (TMT) were as follows:  
 Kunzang Wangdi, Specialist, DoR  
 C.K. Pradhan, PE, Const. Division, DoR  
 Karma Tenzin, EE, Design Division  
 Tempa Thinley, Geotech Unit, Design Division, DoR
- 1.8 The composition of the Ministerial Level Tender Committee were as follows:  
 Phuntsho Wangdi, Secretary (Chairman)  
 Dhak Tshering, Director, Secretariat  
 Karma Galay, Director, DOR  
 Tenzin, Director, DES  
 Karma Sonam, Director, DHS  
 Karma Ugyen, Dy. Chief Accounts Officer  
 Lungten Jamtsho, CE, Construction Division  
 Ugyen Dorji, EE, Construction Division
- 1.9 The up-gradation of Northern East West Highway (NEWH) works started towards the end of 2014.
- 1.10 The rationale and benefit of the project are as follows:
- Shortening travel time between Thimphu and Trashigang
  - Enhance the socio-economic wellbeing of the people of Bhutan
  - Facilitates timely transportation of heavy electro-mechanical equipment for Hydro- Electric projects
  - Serve smooth and convenient access for tourist, VVIPs and to the road users
- 1.11 The Projects were implemented by the Four Regional Offices of DOR and Project DANTAK as tabulated below:

<b>Regional Office</b>	<b>Scope of work distance in Km</b>	<b>Locations</b>	<b>Total Estimates in million</b>
Thimphu and Lobeysa	65	Semtokha- Wangdue	764.217
Lobeysa	82	Wangdue- Chuserbu	1,156.061
Trongsa	100	Chuserbu-Trongsa- Nangar	2,454.575
Lingmethang	39	Yadi-Lingmithang	1,763.745
Project DANTAK	52	T/gang –Yadi	1,145.613
<b>Total</b>			<b>7,284.211</b>

- 1.12 As of 30 June 2017, GOI releases amounted to **Nu. 3,605.21 million** against committed fund of **Nu. 4,636.646 million** and expenditures amounted to **Nu. 4,293.12 million** exceeding the releases by **Nu.687.91 million**.



<b>Table 1.12: GOI Releases and Expenditure</b>				
<b>Regional Office</b>	<b>Scope of work distance in Km</b>	<b>Locations</b>	<b>GOI release Nu. in million</b>	<b>Total Estimates in million</b>
Thimphu and Lobeysa	65	Semtokha-Wangdue	1,197.50	1,166.31
Lobeysa	82	Wangdue-Chuserbu	693.64	1,031.74
Trongsa	100	Chuserbu-Trongsa- Nangar	643.64	882.31
Lingmethang	39	Yadi-Lingmithang	383.06	525.39
Project DANTAK	52	T/gang –Yadi	687.37	687.37
<b>Total</b>			<b>3,605.21</b>	<b>4,293.12</b>

1.13 The status of work progress as of 15<sup>th</sup> November 2018 were as highlighted below:

<b>Table 1.13:Status of Work Progress</b>				
<b>Regional Office</b>	<b>Scope of work distance in Km</b>	<b>Locations</b>	<b>Overall progress</b>	
Thimphu & Lobeysa	65	Semtokha-Wangdue	-	All 7 Contract Packages Completed
Lobeysa	82	Wangdue-Chuserbu	2 Contract Packages On-going	12 Contract Packages completed
Trongsa	100	Chuserbu-Trongsa- Nangar	11 Contract Packages still On-going	Only 3 Contract Packages completed
Lingmethang	39	Yadi-Lingmithang	All 7 Contract Packages On-going	1 Packages yet to be retendered out
<b>Total</b>				

The status of work progress as of 20<sup>th</sup> April 2019 were as highlighted below:

<b>Table 1.9.1: Status of Work Progress</b>					
<b>Regional Office</b>	<b>Length Km</b>	<b>No. of Contract Packages</b>	<b>Locations</b>	<b>Overall progress</b>	<b>Status as of 20<sup>th</sup> April 2019</b>
Thimphu & Lobeysa	65	7	Semtokha-Wangdue	Nil	All 7 Contract Packages Completed
Lobeysa	82	14	Wangdue-Chuserbu	2 Contract Packages On-going	12 Contract Packages completed
Trongsa	100	14	Chuserbu-Trongsa- Nangar	4 Contract Packages still On-going including 1Contract Package terminated	Only 10 Contract Packages completed
Lingmethang	39	7	Yadi-Lingmithang	2 Contract Packages terminated and On-going 1Pacakge executed Departmentally	5 Packages completed

1.14 Time overruns as from the initial contract periods, revised completion time and time lapsed from the revised time periods for completed contract packages:

<b>Table 1.14: Time overruns</b>							
<b>Name of Contractors</b>	<b>Time to complete the road</b>						<b>Remarks</b>
	<b>Packages</b>	<b>Planned months</b>	<b>Actual months</b>	<b>Time overruns in months</b>	<b>% Time overruns</b>	<b>No. of revisions</b>	
<b>RO, Thimphu</b>							
M/s. Raven Builders & Company (P) LTD	Simtokha-Dochula Package 1	15	33	18	120	2	
M/s Yangkhil Construction Pvt Ltd	Simtokha-Dochula& Olakha Package 2	15	22	7	47	2	
<b>RO, Lobeysa</b>							
M/s Chogyal Construction Pvt. Ltd.	Dochula-Lampari Package 1	15	14.9	(0.1)	-	-	
M/s Chogyal Construction Pvt. Ltd.	Lampari-Menchuna Package 2	15	16.9	1.9	13	-	
M/s Chogyal Construction Pvt. Ltd.	Menchuna-Chasagang Package 3	15	16.8	1.8	12	-	
M/s Singye Construction Pvt. Ltd	Chasagang-Langkena Package 4	15	29.2	14.2	71	-	
M/s Etho Metho Construction Pvt. Ltd.	Langkena-Tekizam Package 5	20	34.5	14.5	72.5	2	
M/s Tshering Tobgyel Construction Pvt. Ltd. Wangdue	Tekizampa-Khelekha Package 6	25	32.5	17.5	70	2	
M/s Loden Construction Pvt. Ltd, Thimphu	Khelekha-Rachau Package 7	20	32.4	12.4	62	2	
M/s Welfare Construction, Pvt. Ltd, Thimphu	Bumilo-Rukubji Package 9	25	30.4	5.4	22	2	
M/s Rigsar Const. Pvt .Ltd	Rukubji-Chuserbu Package 10	24	39.7	15.7	65	2	
M/s Hi Tech Company Pvt. Ltd, Punakha	Pelela-Dungdungnyelsa Package 11	25	34.8	9.8	39	2	
M/s Tagsingchungdruk Construction Pvt. Ltd, Thimphu	Wangdue-Langkena Package 12	11	14.9	3.9	36	1	
M/s Empire Construction Pvt. Ltd, Punakha	Nobding-Dungdungnyelsa	10	23.2	13.2	132	1	
M/s Empire Construction Pvt. Ltd, Punakha	Nobding-Dungdungnyelsa	12	19.4	7.4	62	1	
<b>RO, Trongsa</b>							
M/s Rigsar Const. Pvt .Ltd	Chuserbu-Nyelazam Package 1	30	37	7	23	2	
M/s Gaseb Const.	Nyelazam-	30	35	5	17	2	

Pvt .Ltd	Sakachawa Package 2						
M/s Rinson Const. Pvt .Ltd	Sakachawa-Tsangkha Package 3	30	42	12	40	2	
M/s Druk Lamsel Const. Pvt. Ltd	Trongsa-Punzhi Package 7						
M/s Dungkar Const. Pvt .Ltd	Punzhi-Tashipokto Package 8	28	40	12	43	2	
M/s Welfare Const. Pvt .Ltd	Tashipokto–Dorji Gonpa Package 8	28	40	12	43	2	
M/s Dungkar Const. Pvt .Ltd	Bongzam-Gyatsazam package 12	28	40	12	43	1	
M/s Rinson Const. Pvt .Ltd	Gyatsazam-Nangar Package 13	28	40	12	43	1	
M/s Lamneka Const. Pvt. Ltd	Sonam Kuenphen-Hurjee bypass	15	17	2	13	1	Scope reduced
<b>RO, Lingmithang</b>							
M/s. Bhutan Zeocrete Pavement Technologies (JV)	Between Yadi & Ngatsang Package 1	18	28.5	10.5	58	3	
M/s. KD Builders Pvt. Ltd, Gelephu	Pangser & Kilikhar Package 3	24	37	13	54	2	
M/s. Gongphel Construction Pvt. Ltd, Samdrup Jongkhar	Kilikhar & Mongar Package 4	30	38	18	60	2	
M/S Norbu Construction Company Pvt Ltd, Gelephu	Mongar and Gangola Package 5	30				1	Contract terminated
M/s Rigzar Const. Pvt .Ltd	Gangola & Kurizam Package 6	28	30	2	7	2	
M/s. Tshering Construction Pvt Ltd, Bumthang	Kurizampa & Lingmethang Package 7	15	28	13	87	1	

Time overruns from the initial contract periods for completed contract packages as of 15<sup>th</sup> November 2018 are as highlighted below:

Name of Contractor	Time to complete the road				Remarks
	Packages	Planned months	Actual months	Time overruns in months	
<b>RO, Thimphu</b>	2 Contract packages	15	22 & 33	7 & 18	
<b>RO, Lobeysa</b>	5 Contract Packages	11 to 25	14.9 to 30.4	1.8 to 5.4	
	8 Contract Packages	10 to 25	19.4 to 39.7	7.4 to 17.5	
<b>RO, Trongsa</b>	1 Contract Package	15	17	2	
	8 Contract Packages	28 to 30	35 to 42	5 to 12	
<b>RO, Lingmithang</b>	1 Contract Package	30			Contract terminated
	4 Contract Packages	15 to 30	28 to 38	13 to 18	

All contract packages have exceeded the original set time and the extension is quite significant for most packages. This was also the case for those contract packages that were completed after a decision to reduce the scope of the works. All of contract periods were revised under the construction phase.

1.15 Northern East-West Highway GOI funded Project Financial statement/Requirements as of 15<sup>th</sup> November 2018, prepared by ROs, DOR, MoWHS:

Table 1.15: Financial Status							
Sl.No.	Stretches NEWH	FIC	Initial Committed Fund 6th PT	Total Revised Committed Amount (M)	Total Revised Contract Amount (M)	Expenditure as of 15/11/2018 (M)	Pre-Financing requests beyond committed fund to the extent of contract Amount (M)
1	Semtokha - Wangdue	3036	1,197.602	1,233.358	1,035.047	1,225.739	
2	Wangdue-Chuserbu	3037	1,293.291	1,510.567	1,844.012	1,519.115	
3	Chuserbu-Trongsa	3038	744.440	744.440	1,022.282	599.322	
4	Trongsa-Nangar	3039	835.668	835.668	1,277.348	763.921	
5	Lingmithang - Yadi	3040	1,018.600	1,018.600	1,351.663	751.221	
		<b>Total</b>	<b>5,089.601</b>	<b>5,342.633</b>	<b>6,530.352</b>	<b>4,859.318</b>	<b>1, 187.72</b>

1.16 Tendering processes and contract awards, change orders in terms of designs/drawings, acceptance of new technology, time extensions, and awards of additional works were carried out by the Ministerial Level Tender Committee (MLTC) under the Chairmanship of the Secretary, Ministry of Works & Human Settlement (MoWHS). However, the contract managements and overseeing of project works were carried out by the four Regional Offices of Thimphu, Lobeysa, Trongsa and Lingmethang.

1.17 It was apparent from letter No. MoWHS/Sec-29/2015-2016/524 dated 16<sup>th</sup> October 2015 that the Secretary, MoWHS had conveyed the decisions on the meeting held on **16<sup>th</sup> June 2015** with the contractors and directed the Regional Offices for issuance of amendments to the contract agreements on the decisions subsequently taken on the following areas:

✓ **15% extra on FC Works**

Since the contractors executing the widening works are required to work at night (7pm to 8AM) to allow undisturbed flow of traffic during the day, it has been decided to enhance the rate of FC work by 15%.

✓ **Increase in pavement width from 6.50mtr to 7.50mtr**

It has also been decided to increase the width of pavement by 1meter from 6.5 meters to 7.5 meters.

✓ **Enhancement of Defect Liability Period from 1 year to 3 years**

During the meeting held between the Hon'ble Prime Minister & the contractors working on NEWH on 24<sup>th</sup> August 2015, the contractors have agreed to the proposal of increasing the defect liability period for the works from one to three years.

1.18 Ineligible advances of Nu.250.110 million were sanctioned to 13 contractors by the ROs on the strength of approval of the Ministry and the MLTC exclusive of all other normal entitled advances like Mobilization advance, Secured advance etc. as detailed in table 1.18 below:

<b>Table 1.18: Payment of Ineligible Advances</b>				
<b>Sl.No.</b>	<b>Name of contractor</b>	<b>Contract Package</b>	<b>Date of Payment</b>	<b>Amount (Nu.)</b>
<b>RO, Trongsa</b>				
1	M/s welfare Construction Pvt. Ltd.	Package IX	12.4.2017	20,000,000.00
2	M/s Dungkar Construction Pvt. Ltd.	Package VIII, XI & XII	9.12.2017	20,000,000.00
3	M/s Gyalcon Construction Pvt. Ltd.	Package IV	28.6.2017 & 26.10.2017	15,000,000.00
4	M/s Druk Lhayul Construction Pvt. Ltd.	Package V	19.5.2017 & 14.6.2017	20,000,000.00
5	M/s Rinson Construction Company Pvt. Ltd.	Package III, X & XII		30,000,000.00
6	M/s Raven Construction Company (P) Ltd.	Package VI		9,410,000.00
		<b>Total</b>		<b>114,410,000.00</b>
<b>RO, Thimphu</b>				
7	M/s Raven Construction Company (P) Ltd. (Thimphu)	Package I	21.9.2016	4000,000.00
		<b>Total</b>		<b>4000,000.00</b>
<b>RO, Lobeysa</b>				
8	M/s Chogyal Construction Pvt. Ltd	(Packages I, II and III)	2015/2016	46,000,000.00
9	M/s Singye Construction Pvt. Ltd (CDB No. 2148)	Package IV	12/2015	39,700,000.00
10	M/s welfare Construction Pvt. Ltd.	Package IX	12.11.2017	10,000,000.00
11	M/s Rigsar Construction Pvt. Ltd	Package X	6.6.2017 & 22.12.2017	4,500,000.00
12	M/s TT construction Pvt. Ltd	Package VI	7.2.2017 & 20.12.2017	19,000,000.00
		<b>Total</b>		<b>119,200,000.00</b>
<b>RO, Lingmethang</b>				
13	M/s Gongphel Construction Pvt. Ltd.	Package IV	9.4.2017 & 22.12.2017	10,000,000.00
14	M/s Rigsar Construction Pvt. Ltd	Package VI	8.2.2017 & 9.5.2017	6,500,000.00
		<b>Total</b>		<b>16,500,000.00</b>
		<b>Grand Total</b>		<b>254,110,000.00</b>

1.19 In terms of the Technical specifications under Clause 502 -“Dismantling Culverts, other Structures and Pavements” categorically stipulates as “All salvaged or un-salvaged materials shall be the property of the employer”. It also stipulates that prior to commencement of dismantling, the work of dismantling structures shall be measured in unit given under the clause of section (6). While all the contract packages included permanent works viz. culvert extensions, catchpits, gabion walls, RRM & CRM walls, etc. involving huge cost to the project, the ROs and the DOR had neither taken stock of all

existing permanent structures nor accounted for all the salvaged materials. Thus, in the absence of stock accounts for the existing permanent structures, the RAA was not in a position to verify and ensure proper accountal and disposal thereon. Thus, non-accountal of salvaged materials from the existing permanent structures had resulted in substantial financial loss to the Government. The Ministry and the Government should look into the issue for appropriate decisions and actions.

1.20 In terms of the Technical specifications under Clause 107, “Survey and Setting Out” amongst others categorically stipulated as “ During the period of commencement of works the contractor shall resurvey the Base lines, Traverse Points, Bench Marks and confirm the co-ordinates and levels of the stations. All stations and reference points shall be clearly marked and protected to the satisfaction of the Engineer. Where survey station point is likely to be disturbed during construction operations, the contractor shall establish suitable reference stations at locations where they will not be disturbed during construction. The existing profile and cross-sections shall be taken jointly by the Engineer and the contractor. These shall form the basis for the measurements and payments”. However, the ROs have not conducted the final survey on completion of formation cutting as to ascertain actual quantum of earthwork excavations and the extent of formation cutting works carried out by the contractors.

The RAA in its attempt to carry out the final survey of the formation cutting works, engaged survey officials from the National Land Commission(NLC) for a month but failed to conduct the survey in the absence of the initial survey stations and reference points as the same were found disturbed and not protected during the construction operations. Thus, the extent of formation cutting and the actual quantum of earthwork excavations could not be verified and cross checked with the estimated quantum reflected in the estimates and BOQs.

1.21 The status of budgetary releases and expenditures incurred as of 30.06.2017 are a summarized in the table below:

Sl	Stretches NEWH	FIC	Initial Committed Fund 6th PT	Total Revised Committed Amount (M)	Total Revised Contract Amount (M)	Expenditure as of 5/9/2018 (M)	Advances O/S (M)	Exp + Adv	Name of Ros
1	Semtokha – Wangdue	3036	1,197.602	1,233.358	1,035.047	1,225.739	-	<b>1,225.739</b>	Thimphu & Lobeyasa
2	Wangdue-Chuserbu	3037	1,293.291	1,510.567	1,844.012	1,514.813	2.112	<b>1,516.925</b>	Lobeyasa
3	Chuserbu- Trongsa	3038	744.440	744.440	1,022.282	578.612	110.989	<b>689.601</b>	Trongsa
4	Trongsa-Nangar	3039	835.668	835.668	1,277.348	727.057	88.198	<b>815.255</b>	Trongsa
5	Lingmithang - Yadi	3040	1,018.600	1,018.600	1,351.663	736.337	327.843	<b>1,064.180</b>	Lingmethang
		<b>Total</b>	<b>5,089.601</b>	<b>5,342.633</b>	<b>6,530.352</b>	<b>4,782.558</b>	<b>529.142</b>	<b>5,311.700</b>	

## 2. Deficiencies and lapses

Review of the related records and documents including designs and drawings, estimates and BOQs, tendering processes, contract documents, supervision and monitoring controls, contract management, and physical visits and verification of works done at sites with reference to technical specifications indicated inadequacies, irregularities and deficiencies resulting from inadequacies in planning, weak supervisory and monitoring controls and lack of proper contract management system. Major issues observed in planning, tendering processes, implementation of contracts and taking over of works from contractors are as discussed below:

### 2.1 Increase of 1meter width carriageway due to change in design and drawing with resultant cost implication of Nu. 317.637 million

The initial approved design and drawing attached with the bidding documents were prepared as per the approved **Technical Standard and Road Classification and Standard 2009**.

The design provided standard carriageway width of 6.5m, 1m L-drain at hill and hard shoulder of 1.50 m between L-Drain and carriage way and 1.50m at valley side with granular sub soil drain to be provided in marshy areas.

The shoulders provided at both side of the carriage pavement width of 1.50m each was generally to provide for the Safety and efficient traffic operations, emergency storage of disabled vehicles, space for law enforcement activities, an area for drivers to maneuver to avoid crashes, space for maintenance activities and for bicycle accommodation.

The typical cross section of approved drawing which was instrumentally used in conceiving the estimates and BOQs to derive estimated cost of the project as well as obtaining competitive bids and awards of contracts is as depicted in the photograph below:

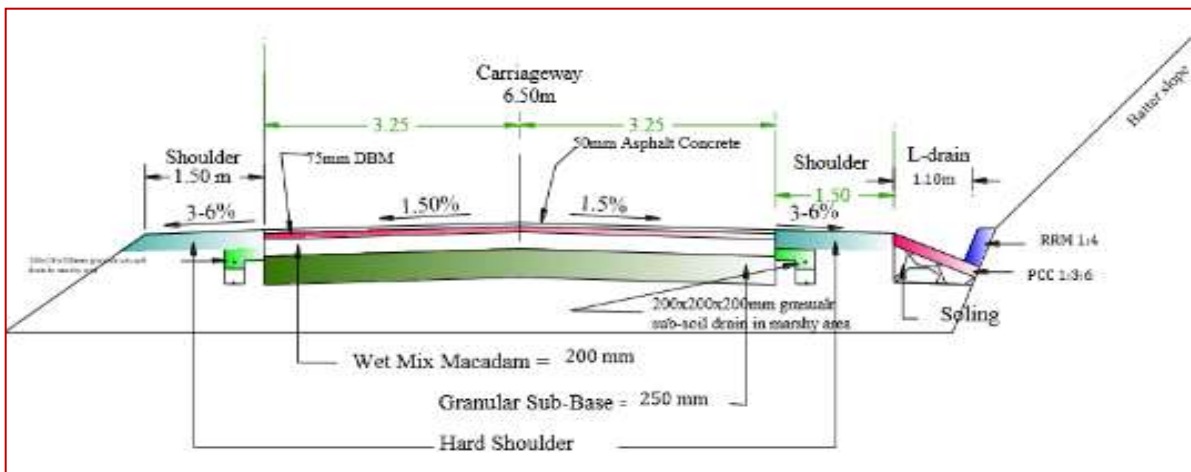
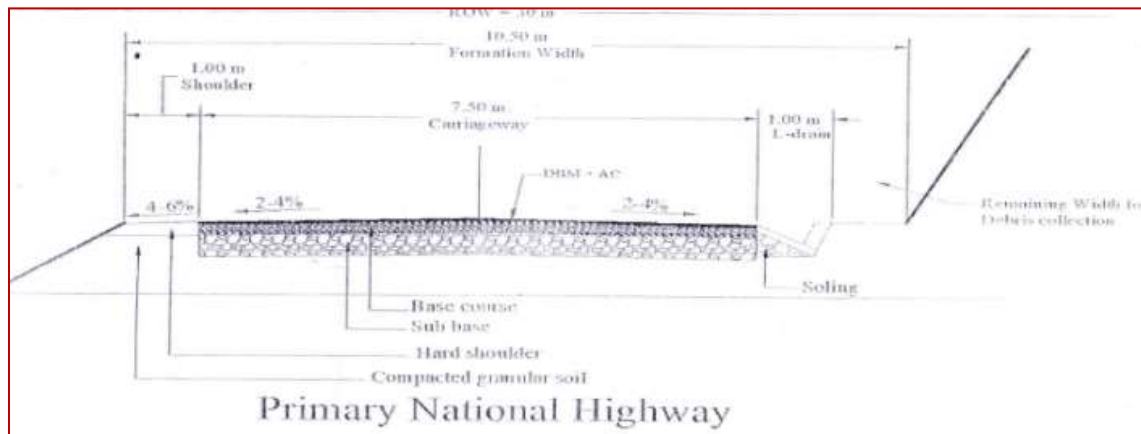


Fig: 2.1 –Initial approved design and drawings

However, vide letter No. MoWHS/Sec-29/2015-2016/524 dated 16<sup>th</sup> October 2015, the Secretary, MoWHS had conveyed the meeting held on **16<sup>th</sup> June 2015** with the contractors and directed the Regional Offices for issuance of amendment to the contract agreements based on the decisions subsequently taken to increase the carriageway width from 6.5m to 7.5 m. Reasons for increase of carriageway width was found not documented.

In addition, vide letter No. DoR/ROL/16/15-16/481 dated 21/10/15, all Regional Offices were informed to increase the pavement width from 6.5 meters to 7.5 meters. In line with change order, the revised drawing developed and circulated by Design Division, DoR Thimphu was as depicted in the photograph below:



*Fig: 2.1(1)-Revised design and drawing*

Thus, the increase of pavement width of 1m from the initial carriageway width of 6.5m to 7.5m after a time lapse of almost eight months from the dates of awards of contract works was irrational and inappropriate as it had not only distorted the drawings, estimates, BOQs, Projected Cost and funding modality but also adversely impacted the overall project cost by **Nu. 317,636,875.54** as summarized in table 2.1 below:

Table 2.1: Status of Cost impact				
Sl. No.	Regional Office	No. of Packages	Amount (Nu. in Million)	Remarks
1	RO, Lobeysa	15 contract packages	119,519,393.84	
2	RO, Thimphu	2 Packages	11,504,832.70	
3	RO Trongsa	13 Contract Packages	112,753,111.00	
4	RO Lingmethang	7 contract packages	50,638,059.00	
5	RO Lingmethang	1 package	23,221,479.00	ZeoCrete pavement works contract
	<b>Total</b>		<b>317,636,875.54</b>	

In addition, the change in design also impeded the following benefits to government and the commuters:

- The provision of 1m width between hillside and L-drain technically benefited the contractors as 1m width were not insisted upon to be maintained as the contractors were allowed to construct L-Drains attaching the hillside.



- Doing away of 1.5m shoulder width between L-Drain and carriageway and reduction of 1.50m to 1m at valley sides had resulted in compromising necessary safety measures and safety of commuters.
- The Physical verifications indicated that overall formation width were not achieved in certain stretches of roads and no cost adjustments were carried out for non-achievement of formation width and non-maintenance of 1m width at hillsides. As a result, contractors benefited financially since the payments were made on the basis of running meters and not based on the quantum of works executed.

The Regional Offices in consultation with the Ministry should comment on the changes of drawings and technical specifications after the awards of contract works that had resulted in additional avoidable financial implication to the extent of **Nu. 317,636,875.54**.

### **Auditee's Response:**

*Increasing of Pavement width from 6.5m to 7.5m came from the need to upgrade our very important Primary National Highway of the country spanning East to West by gradually improving its basic specifications to meet with the growing demands by ever increasing road users and to ensure traffic reliability, passenger comfort and their safety when the opportunity existed for such an intervention under GOI funding.*

*From over several decades of experiences in the construction and maintenance of roads in Bhutan and learning from experiences of many developed countries, it has been established that ingress of water is the top most factor for premature damages to road pavements (especially the flexible pavement system). Factors such as environmental conditions, traffic intensity and increased loadings, and the design inadequacies are some other contributing factor for premature pavement damages. Based on this premise, since pavement works were not commenced in all of the contracts awarded for all stretches from Simtokha to Korilla, the intervention was deemed timely. DoR also appraised this ministry that under GOI funding on NEWH project, it expected huge savings then.*

*Therefore, instead of providing 1.5m wide earthen shoulder on the hillside of the pavement the ministry proposed increasing the pavement width from 6.5m to 7.5m taking up 1.0m of the 1.5m shoulder and fixing the 1.0m wide L-shaped/U-shaped side drains next to the pavement structure only. This intervention brought following improvements and benefits to the overall flexible pavement system.*

1. *Earthen shoulders are a porous medium that will allow gradual seepage of surface run off water and the normal rainwater. The water percolates into underlying pavement layers of DBM, WMM and GSB that are fairly porous in nature. When ground temperatures reach 40 degrees centigrade, the bitumen strips off the aggregates causing segregation of bituminous concrete. During winter in high altitude areas, the water in the pavement layers undergo freezing / icing breaking open the bituminous concrete and when weather warms up in Spring and after, the thawing of frozen ice takes place melting it into water leaving cracks in the bituminous concrete. This phenomenon of icing and thawing leads to crushing of*

*cracked road surfaces under wheels of trucks and vehicles, forming cracks of all kinds and potholes. Addition of this 1.0m extra blacktop instead of earthen shoulder definitely prevents this undesirable phenomenon - saving huge recurrent expenditures.*

- 2. The side drain running parallel to the centerline of the pavement next to the pavement structure not only ensures that road surface is impervious to ingress of water enhancing the life of the pavement, the aesthetics of the pavement alignment improves to a great extent.*
- 3. The 1.0m extra pavement width will allow much desired unrestricted speed of the traffic flow in both directions preventing the pulling force that will otherwise develop between vehicles crossing past in opposite directions close to each other. In fact, to enhance safety, if space permits there should be a solid divider between lanes in opposite directions to avoid pulling (vacuum) force and the glares from headlights.*
- 4. The extra wide road will compensate for the absence of super-elevation at curves as the introduction of which is not possible in our highways due to lack of space to lay the transition curves that precedes the Super-elevation. Super-elevation counter acts the centrifugal force of speeding vehicles.*
- 5. This initiative allows leaving a 1.0m space between the hillside slope toe and the side's L-drain, which not only will hold back the first slides getting into the drain directly from slope erosion under rains, but also improves the sight distance for the drivers at the curves and sharp corners. It also ensured a relatively dust and mud free highway pavement as only valley side shoulder exists.*
- 6. The introduction of 1.0m extra avoided payment for 1.5m wide shoulder, although an additional expenditure was required to be made for 1.0m wide DBM and AC layers. A certain percentage on the cost for BT would have been compensated.*

*The 1.0m extra wide black top pavement did not affect any fundamental geometrics or integrity of the national highway. In fact it definitely has enhanced the longevity of the pavement life, improved the safety and riding comfort of road users, the long desired national highway specification upgraded with aesthetics significantly improved and all of these are vital for the growth and sustenance of our economy.*

*With these positive outcomes in the perspective, the proposal thus submitted was endorsed by the MLTC members and recommendations duly approved jointly by the Ministers for Finance and Works & Human Settlement ministries vide MoWHS/SEC/29/2015/476 dated 5/8/2015 (Copy enclosed). The RAA is therefore requested to consider the submission favorably given the benefits and many positive outcomes from the initiative by not pursuing the matter further please.*

#### **RAA's Further Comments & Recommendations:**

*The RAA had noted that the initial design and drawings incorporated in the tender and contract documents were as per the Road Designs outlined in the **Guidelines on Road Classification***

***System and Delineation of Construction and Maintenance Responsibilities 2009 approved by the Cabinet.***

*In addition, in line with the responses, it was evident that the Ministry despite having several decades of experiences in the construction and maintenance of roads in Bhutan and learning from experiences of many developed countries and having established that ingress of water is the top most factor for premature damages to road pavements (especially the flexible pavement system) had failed to consider such factors in the initial design and drawings. It also indicated that the Ministry had failed to exercise due diligence while preparing the project plans, designs, and specifications to ensure that all information are accurate and complete and prevent changes including time and cost overruns.*

*It is thus evident that the change of designs and drawing and technical specification on the increase of Impavement width after award of contracts and during execution phase of contracts was an adhoc decision and was also not aligned to the approved design and technical specification of the Guidelines. The change of designs by doing away the 1.5m shoulder width between L-Drain and carriageway and reduction of 1.50 m to 1m at valley sides had resulted in compromising necessary safety measures and safety of commuters.*

*In addition, the extra financial burden to the government due to change in design and technical specification particularly due to increase of 1m carriage way alone after the contract awards amounted to Nu. 317.637 million (**Ministerial Level Committee were responsible for the changes**)*

*The Ministry should not only strengthen the Design Divisions for accurate designing of road structures but also institute a technical team to review project plans, designs, and specifications to ensure that the same are accurate and complete including verification of the accuracy of surveys for future projects as to prevent changes in designs as well as time and cost overruns.*

*The huge financial loss to the extent of Nu. 317.637 million to the government Exchequer is brought to the notice of the Government for appropriate decisions and actions.*

**2.2 Decisions in violation to the technical specification and huge cost implication due to enhancement of 15% over the quoted rate for FC work as well as ambiguity in the maintenance of records to support the claims of night working allowances of Nu. 44.275 million**

The rate for FC works was enhanced by 15% on the grounds that the contractors executing the widening works are required to work at night (7pm to 8AM) to allow undisturbed flow of traffic during the day as conveyed by the Secretary, MoWHS under letter No. MoWHS/Sec-29/2015-2016/524 dated 16/10/15 on the basis of the decision taken during the meeting held on **16<sup>th</sup> June 2015** with the contractors.

Accordingly, project cost on account of 15% enhanced rate for contractors executing the widening works increased by **Nu. 44,274,922.00** as shown in table 2.2 below:

<b>Table 2.2: Status of Cost increase</b>			
<b>Sl. No.</b>	<b>Regional Office</b>	<b>No. of Packages</b>	<b>Amount (Nu. in Million)</b>
1	RO, Lobeysa	6 contract packages	11,666,449.74
2	RO Trongsa	13 Contract Packages	24,061,503.00
3	RO Lingmethang	5 contract packages	8,546,469.45
	<b>Total</b>		<b>44,274,922.00</b>

However, the Technical Specifications categorically stipulated on Traffic Safety & Control under Section 100-General Requirement, Clause 105, Sub Clause (2) General Requirements that, *“The Contractor shall at all times carry out works on the road in a manner creating least interferences to the flow of traffic. For all works involving improvement of the existing road, the Contractor shall provide and maintain a passage for traffic either along a part of the existing carriageway under improvement, or along a temporary diversion constructed close to the road. The Contractor shall take prior approval of the Engineer regarding traffic arrangements during construction Traffic Safety & Control. The Contractor may be allowed to stop traffic temporarily. The period of such closure shall be as agreed by the engineer. For this the Contractor shall submit the time and period of the closure to the Engineer at least 14 days in advance, to enable the Engineer to issue the relevant notices”*

In addition, clause 105(5) Traffic Safety & Control, and under sub para on **Measurement and Payment**, stipulated as *“No separate measurement and payment shall be made for the works described in this clause. All the costs in connection with the work specified herein shall be considered included in the related item of work specified in the bill of quantities”*

Thus, in terms of the technical specifications, bidders were to in-built the cost on the “Traffic Safety & Control” as well as hindrances expected to hamper the execution of FC works in rates in the related item of work specified in the bill of quantities.

The enhancement of the rate for formation cutting works by 15% and payment of Nu. 44,274,922.00 as of date of audit for requiring works to be done at night tantamount to double payments to the contractors as the quoted rates of the contractors were inclusive of cost for ensuring least interference to the flow of traffic during execution of works.

Further, the audit team noted that there were no properly defined working procedures for execution of works at night. In addition, maintenance of subsidiary records to substantiate the works done at night for eligibility of claiming of 15% night working allowances and any other related records if maintained were not available on records. In the absence of such records, the correctness of the claims were not susceptible for audit scrutiny.

Considering the huge magnitude and cost of formation cutting works, decision of paying extra 15% having enormous amount of additional financial implication certainly warranted a detailed analysis of incremental cost arising from night work. However, there were no evidence produced indicating analysis carried out to ascertain the cost elements and extent of additional cost entailed in executing the formation cutting works at night that necessitated the compensation payment beyond what was already covered as stipulated under the Technical Specifications.

The Regional Offices in consultation with Ministry should revisit the decisions in terms of the provisions of the contract documents and technical specifications and should recover the built up cost for “traffic safety and control cost” in the quoted rates of contractors. Besides, the Ministry should also direct the site engineer and the contractor to provide documentary evidences of work done at night.

### **Auditee’s Response:**

*The DoR Regional Offices would like to thank the RAA for carrying out the detailed auditing of all the NEWH project packages and for the observations.*

*With great concern to the public travelling on our NEWH projects having to wait at the time of FC work during daytime, the meeting of 16<sup>th</sup> June 2015 chaired by Hon’ble Secretary in presence of all contractors decided to carry out FC work during the night to avoid disturbances to the traffic flow. The contractors had submitted their incentive requirement to the Ministry and it was decided at 15% of FC cost vide order no. DoR/CD GoI PMU/NEWH 19/1522 dated 31<sup>st</sup> July 2015. The RO then issued the letter no. RO/DoR/Trongsa/E-01/2015-2016/85 dated 3<sup>rd</sup> Aug 2015 in line to the above order to contractors to carry out FC work during night time (i.e. 7 PM – 8 AM). However, RO accepts on the ground stated that there was no record keeping for FC done at night but we made sure that FC works were carried out during night ONLY mostly in presence of our site engineers without any incentives working both day and night after the order had been circulated.*

*The improvement works on the Northern East West highway beyond Wangdue was about to be started with 36 contract packages of which 21 have even the widening of existing road widths to 10.5m. Each of these contract packages spanning anywhere from 6 to 10 km in length were located immediately next to each other with men and machines. Crossing past one package and then through the rest was the biggest challenge DoR and the contractors together foresaw since commuters cannot be blocked at series of locations separated by a maximum of five to ten kilometers. We say five to ten kms because most widening operations took place mostly with two sets of machines in each contract package.*

*The objective of the 16th June 2015 meeting was therefore to bring about a slight change to the execution methodology of the Formation Cutting (FC) item and also to improve the pavement specification of the Primary National Highway. The very interactive discussion finally came to an agreement that contracts having FC works would thenceforth work at night from 7PM until 8AM next morning. To this change, contractors submitted a joint application demanding 20% raise in the FC work item for night works, overtime payment to cover risks, and to provide lighting systems. After intense arguments that followed in pursuit for negotiations where the Ministry and DoR actually desired to pay for lights only, contractors finally stayed put with 15% only as against 20%. This 15% on FC item accounts for only 3.29% raise in the overall contractual allocation.*

*International experiences and researches indicate that, “the general opinion is that costs are significantly higher at night than daytime. Night shifts are theoretically more expensive due to overtime and night-premium pay, lighting expense, use of additional traffic control devices, and*

*higher bids. Hinze and Carlisle (6) said that overall contracts costs increase by 10%. In 1990 they (Hinze and Carlisle) found that contract cost was 9% higher at night. Hacher and Taylor (2001) and Al-Kaisy and Nassar (2002) conclude that cooler temperature at night and longer undisturbed working hours can actually increase nighttime work quality.”*

*While the contract stipulates a requirement that contractor shall ensure traffic flow with least interferences requiring the contractor to allow unhindered flow of traffic, the contractor (if lone) as a single entity would easily fulfill this requirement with specific timings for blockings and openings. The next contractor/s at every 6 to 10km distance will have to set yet another timings and so forth by all the 21 widening contractors. It may be perhaps possible with just one direction traffic, but with both directions traffic and added by those with emergency commuters, the permutation and combination coordination set ups would have brought in much commotion and frustration to both contractors and the general road users and the most undesirable complaints and reports to the headquarters in Thimphu on a daily basis. Even with just the two blocks on over 40km stretch between Dochula and Wangdue had caused every road user to sacrifice one to two hours of his/her one-way travel time. The contractors would have also found valid reasons for delaying their work resulting in justifiable cost escalations and time extensions.*

*The night work therefore definitely resulted in many positive outcomes such as inculcating the culture of night work for the construction industry, eased travelers with uninterrupted flow of daytime safe travel, enabled continuation of the conduct of socio-economic activities by one and all, and allowed the administrative functions to continue by local governments served by East West highway corridor in particular without let or hindrances. This initiative also served the contractors with unrestricted amount of time and working spaces for the contractors themselves, which greatly enhanced their work progress. The many indirect benefits thus accrued by this initiative would have far outweighed the cost for 15% extra paid for night FC works.*

*The contract further stipulates, “For all works involving improvement of the existing road, the contractor shall provide and maintain a passage for traffic either along part of the existing carriageway under improvement, or along a temporary diversion constructed close to the road”. Provisionally, and in general the clause makes sense, but in the current situation, unlike for projects plain areas, the requirement cannot be met, as each widening contract location had neither the extra carriageway nor any convenient space for making a temporary diversion, because the widening works were contracted where none of these two conditions existed.*

*The stipulation continues, “the contractor shall take prior approval of engineer at least 14 days in advance, to enable engineer to issue the relevant notices”. Since the fixation of timings for blocks and openings for a series of block points spread over a long distance in a single stretch was not possible, which are perhaps possible for block points that are fairly isolated or lonely, for reasons stated in the foregoing paragraphs, taking engineer’s permission or issuing of relevant notices by engineer obviously did not arise. Supposedly, despite issuance of such notices as per contract requirement, should any of the contract package default in sticking to set timings, the occurrence of which are inevitable given the nature of works in a hostile terrain as ours and the unpredictability nature of equipment’s performance etc. – the whole chain of timings for both direction traffic would get completely distorted. In most times, due to varying speeds of vehicles,*

*a car will cross one block only to meet with series of subsequent blocks in such a long stretch of multiple block points.*

*RAA would consider favorably based on the merits of the initiative and not pursue the matter further la. This initiative was implemented only with the kind approval of the Honorable Ministers for Works & Human Settlement and the Ministry of Finance on the Note vide No. MoWHS/SEC/29/2015/476 dated 5.8.2015 (Copy enclosed for reference please). In view of above justifications, RAA is kindly requested to drop the memo.*

### **RAA's Further Comments & Recommendations:**

*The RAA while noting the rationale of the compensation payments for executing formation works at night, reiterates that the technical specification categorically incorporated the Traffic Safety & Control under Section 100-General Requirement, Clause 105, Sub Clause (2) General Requirements and regulation of payments under Clause 105(5) Traffic Safety & Controls. It was very clear that the contractors were to in-built the cost on the "Traffic Safety & Control" as well as hindrances expected to hamper the execution of FC works in rates in the related item of work specified in the bill of quantities.*

*Further, decisions for the payment of 15% did not outline the procedures and modality of working at night and regulating payments. No documentary evidences were maintained either by the site engineers of ROs or by the contractors to support widening works executed at night. It is also to reiterate that the Director, DOR vide letter No. DOR/CD/GOI-PMU/NEWH19/1522 dated 3.8.2015, had informed ROs that the widening works were being executed as usual with traffic disruption during the day and instructed to notify the contractors to abide by the decisions. Indicating that execution of FC was done during day time in some locations.*

*It is noted that the flat increase of 15% for FC works at night hours was not supported by detailed analysis of additional cost involved in working during night hours which were not specifically covered by the existing contract rates. Thus, the Ministry failed to pursue a prudent and sound financial management practice in utilizing the public resources. Further, Ministry should note that payment were made not in line with the signed contract agreement.*

*Considering the above fact and events, the Ministry should revisit the decisions in terms of the provisions of the contract documents and technical specifications and should recover the built up cost for "traffic safety and control cost" in the quoted rates of contractors. It is also to reiterate that payments amounting to Nu. 44,274,922.00 without regulating to technical terms would tantamount to double payments to the contractor and ineligible expenditures by the government.*

*The huge financial loss to the extent of Nu. 44.275 million to the government Exchequer is bought to the notice of the Government for appropriate decisions and actions.*

### 2.3 Inadmissible Payments of 15% enhanced rate for completed FC works prior to approval of Nu. 5.329million – (5.1.19)

The rate for Formation Cutting (FC) works was enhanced by 15% as per the executive order vide letter No. MoWHS/Sec-29/2015-2016/524 dated 16/10/15. However, the letter did not specify the effective date of the order.

On verification of contractor's bills, MB recording, it was noted that enhanced rate of 15% was paid to those contractors, who had completed the FC works prior to the date of the Secretary's letter No. MoWHS/Sec-29/2015-2016/524 dated 16/10/15 conveying the approval for rate enhancement of 15%.

The payment of RA bill although was made on 14.11.2015, the actual works were carried out prior to the approval conveyed under letter dated 16<sup>th</sup> October 2015. Thus, the contractor was not eligible for enhanced rate of 15% for the completed works prior to the approval Order issued.

The enhanced rate for FC works paid to contractors who had completed the FC works prior to the approval of the enhanced rates resulted in ineligible payments and undue favour to the contractors to the extent of Nu. 5,328,975.00 as detailed in table 2.3 below:

Sl. No.	Regional Office	No. of Packages	Amount (Nu. in Million)	Remarks
1	RO, Lobeysa	( Package V) by M/s Etho Metho Construction Pvt. Ltd	191,070.00	As per work plan, FC of 1.061km should have been completed prior to issuance of the order
2	RO Trongsa	Package II M/s Gaseb construction Ltd	1,224,405.00	RA Bill Amount paid before 16/10/2015
3	RO Trongsa	M/s Rigsar Construction Pvt Ltd	1,190,250.00	RA Bill Amount paid before 16/10/2015
4	RO Lingmethang	M/s Tshering Construction Pvt Ltd	546,750.00	RA Bill Amount paid before 16/10/2015
5	RO Lingmethang	M/s Norbu Construction Pvt Ltd	1,462,500.00	RA Bill Amount paid before 16/10/2015
6	RO Lingmethang	M/s KD Builders Pvt Ltd	714,000.00	RA Bill Amount paid before 16/10/2015
<b>Total</b>			<b>5,328,975.00</b>	

The RO should comment on payment of 15% on FC works prior to issuance of Executive order besides recovering the inadmissible payment of Nu. 5,328,975.00 and the same deposited to Audit Recoveries Account.

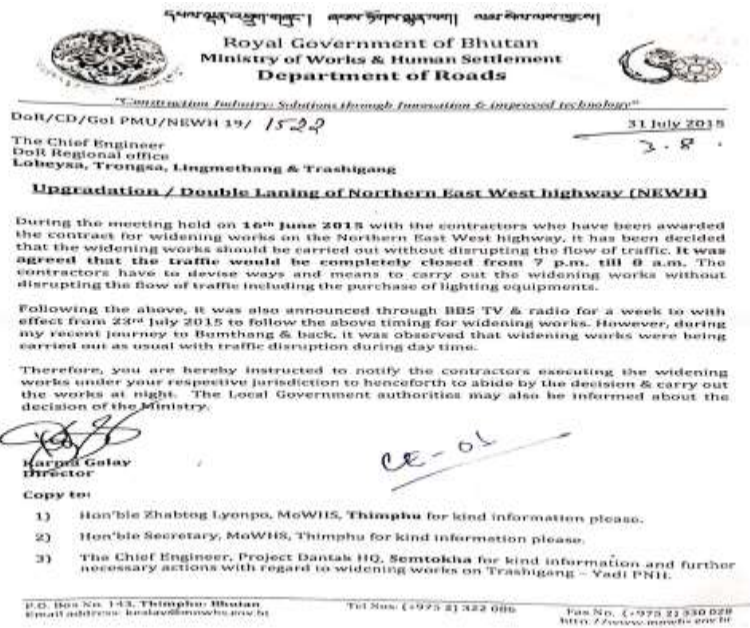
#### **Auditee's Response:**

*Though the execution of FC work has been started prior to approval of 15% incentive, the complete FC width was not achieved due to arrangement for traffic to ply without hindrance during daytime. The actual execution of FC works has been carried out after the announcement of night execution i.e. from 7PM to 8AM was broadcast on BBS TV & Radio for a week w.e.f. 23<sup>rd</sup> July 2015. The RO took the date of the above advertisement as eligible for 15% incentive for carrying out FC works at night. The contractors were instructed to strictly follow the order to*



provide disturbance free movement of vehicles during daytime. The Order of Director, DoR vide letter no. DoR/CD GoI PMU/NEWH 19/1522 dated 31<sup>st</sup> July 2015 is attached for ready reference please.

In view of above justifications, RAA is kindly requested to drop the memo.



**RAA's Further Comments & Recommendations:**

The RAA while taking note of the response on the airing of decision on the payment of 15% enhance rate and requiring execution of formation works at night from 7PM to 8AM on BBS TV & Radio for a week w.e.f. 23<sup>rd</sup> July 2015, reiterates that the executive order for the enhancement of rate for FC works by 15% was notified and instructed the ROs to amendment the contract only in October 2015 in terms of the Secretary, MoWHS letter No. MoWHS/Sec-29/2015-2016/524 dated 16/10/15. In addition, the letter did not specify the effective date of the order and in terms of normal practice, in absence of specified effective date, the date of issuance of order should be considered as the effective date.

Further, the ROs had not amended the contract agreement in line with the executive order. Thus, payment of 15% enhance rate on the RA bills payments was not justifiable. It is also to reiterate that the Director vide letter No. DOR/CD/GOI-PMU/NEWH19/1522 dated 3.8.2015, had informed ROs that the widening works were being executed as usual with traffic disruption during the day and instructed to notify the contractors to abide by the decisions. The audit team during site visits had also noted execution of formation works during day time in some locations

Considering the above fact and events, the Ministry should revisit the payments made by ROs for those completed FC works prior to the executive order of the Secretary and without amendment of the contract agreements and recover payments of Nu. 5.329million.

### Who is accountable?

<b><i>Direct Accountability</i></b>	<b><i>: Refer Accountability Statement attached</i></b>
<b><i>Supervisory Accountability</i></b>	<b><i>:Refer Accountability Statement attached</i></b>

#### **2.4 Non amendment of contract document pertaining to enhancement of defective liability period - (4.4.69)**

One of major component of works for double Lanning of Northern East West Highway Project was FC works by extension of existing pavement roads to facilitate smooth ride to commuters and particularly for the flow of traffic.

The Secretary, MoWHS vide letter No. MoWHS/Sec-29/2015-2016/524 dated 16<sup>th</sup> October 2015, had conveyed the decisions of the meeting held on **16<sup>th</sup> June 2015** with the contractors and directed the Regional Offices for issuance of amendment to the contract agreements on the decisions subsequently taken on the following areas:

- ✓ **Enhance rate of 15% on FC Works**  
Since the contractors executing the widening works are required to work at night (7pm to 8AM) to allow undisturbed flow of traffic during the day, it has been decided to enhance the rate of FC work by 15%
- ✓ **Increase in pavement width from 6.50mtr to 7.50mtr**  
It has also been decided to increase the width of pavement by 1meter from 6.5m- 7.5m.
- ✓ **Enhancement of Defect Liability Period from 1year to 3 years**  
During the meeting held between the Hon'ble Prime Minister and the contractors working on NEWH on 24/8/15, the contractors have agreed to the proposal of increasing the defect liability period for the works from one to three years.

However, the audit team noted that while no amendments were made in the contract documents, the decisions on the payment of 15% extra on FC works, and execution of additional 1m Increase in pavement width from 6.50m to 7.50m were found implemented, the defect liability from 1year to 3 years were found not implemented.

The Ministry besides commenting on the failure to amend the contract agreements should investigate the circumstances leading to non amendments of contract agreement as of date. In addition, the Ministry should take action to recover all the rectification and road maintenance cost incurred by the ROs through award of additional works to the contractors from the FC contractors as these were to be covered under 3 years defect liability periods.

### Auditee's Response:

*Based on the decision of MLTC which was held on 16th June 2015 with the eleven contractors of NEWH vide reference no. MoWHS/Sec/29/2.15-2016/ the RO has written a letter of amendment vide letter no. DoR/ROL/16/2015-2016/481 dt. 21/10/2015.*

*However, none of the contractors whose defect liability period of 1 year enshrined in the initial contract agreement agreed to amend the contract as per the instruction of Ministry. The contractors stated that they have not built probable defect's cost beyond one year, as the initial bidding document did not have the provision of three years DLP. Should they need to increase the DLP to 3 years, they even hinted to compensate the risk factor. The issue of non-acceptance to amend the DLP was made known to the Department and Ministry.*

*It is to inform that three decisions taken during the meeting with the NEWH contractors and MoWHS, chaired by Hon'ble Lyonchoen, Prime Minister of Bhutan are to be understood differently. The 15% extra on FC works is for night allowance, odd hour working time, high risk involved at night working, additional lighting systems required etc. Whilst 1m increase in the pavement width is to prevent the seepage of water through the unpaved shoulder between the paved surface and the L-drain.*

*ROs concern of non- acceptance by the contractors to amend the DLP to 3years, the MLTC that held on 28<sup>th</sup> May 2018 (attached as supporting documents) holistically deliberated at length and in line with the signed contract agreement, which is the mother document for reference in case of litigation, decided to do away with the amendment of defect liability period. However, the DLP of 3 years already incorporated in the later contract agreement shall remain as it since the bidder might have incorporated the risk factor. Therefore, RO requests the RAA to kindly drop the memo & not to pursue further.*

### **Response RO, Lingmethang**

*However, the RO has received a letter of acceptance from only one contractor out of six contractors working under RO (attached for reference). The rest of the firms did not submit their acceptance hence; defect liability period could not be amended. Moreover if the defect liability period has to be increased, contractor could have inbuilt the rates and accordingly the cost of construction would increase substantially. (Refer the letter from Ministry to do away with the 3 yrs defect liability period). Therefore, RO request the RAA to kindly drop the memo & not to pursue further.*

### **RAA's Further Comments & Recommendations:**

*While noting the response, the RAA would like to reiterate that "In terms of letter No. MoWHS/Sec-29/2015-2016/524 dated 16<sup>th</sup> October 2015, the Secretary, MoWHS, had explicitly conveyed the decisions of the meeting held on 16<sup>th</sup> June 2015 with the contractors and directed the Regional Offices for issuance of amendment to the contract agreements on the decisions subsequently taken on the 15% extra on FC Work, Increase in pavement width from 6.50mtr to 7.50mtr and Enhancement of Defect Liability Period from 1year to 3 years". Thus, the decisions were to be read in conjunction to each other and not in isolation.*

*Further, decision on the 15% extra on FC Work and Increase in pavement width from 6.50mtr to 7.50mtr were also not in line with the signed contract agreement and stands recoverable either from the contractors or executives responsible for the unilateral decisions. It is also construed that Enhancement of Defect Liability Period from 1 year to 3 years was to support the decision*

on the payment of 15% extra on FC Work and Increase in pavement width from 6.50mtr to 7.50mtr.

Further, the decision of the MLTC held on 28<sup>th</sup> May 2018 to do away with the amendment of defect liability period was not in the interest of the Government since huge government funds to the extent of Nu. 361.912 million were spent by way of refinancing process towards payments of 15% extra on FC works and execution of 1m increase pavement width.

The decisions for the payment of 15% extra on FC was in contrary to the technical specifications where the contactors were required to built-up their rates for Traffic Safety & Controls envisaged under Technical Specifications Section 100-General Requirement, Clause 105, Sub Clause (2) General Requirements. In addition, the increase of pavement width from 6.5m to 7.5m by doing way the Hard Shoulder between the L-Drain and Carriageway was also in contravention to Road Design Standard outlined in the Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 approved by the Cabinet as well as had compromised the safety of the commuters.

In the light of the decision of the MLTC of doing away with the amendment of defect liability period from 1 year to 3 years which was dully approved by the Government in conjunction to payment of 15% extra on FC Work and 1m increase in carriage width as well as at the verge of the completion of contracts is bought to the notice of the Government for appropriate decisions and actions.

### Who is accountable?

<b>Direct Accountability</b>	<b>: Refer Accountability Statement attached</b>
<b>Supervisory Accountability</b>	<b>:Refer Accountability Statement attached</b>

## 2.5 Inconsistency in the implementation of Double Lanning works

The *Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009* prepared by MoWHS in collaboration with relevant stakeholders (GNHC, MoHCA, MoAF, Dzongkhag Administrations and Department of Roads) was approved by Lhengye Zhungtshog on 24<sup>th</sup> February 2009. The road classifications and its design standards and drawing approved are as shown below:

Road Classification	Primary National Highway				Secondary National Highway				Dzongkhag Road				Farm Road			
	L	R	M	S	L	R	M	S	L	R	M	S	L	R	M	S
Terrain classification																
Design speed (km/h)	60	50	40	30	50	40	30	20	40	30	20	15	30	25	15	10
Traffic volume (vpd)	>200				100-200				30-100				<30			
Width (m)	Right of way				30				30				30			
	Carriageway				6.5				6.5				6.5			
	Shoulder				1.5x2				1.5x2				0.5x2			
	Drain				1.0				0.6				0.6			
Min. radii of horizontal curve (m)	115	80	50	30	75	75	25	15	75	25	15	15	15 Exceptional =10			
Pavement slope (%)	3-5				2-5				4				4			
Shoulder slope (%)	3-6				4				5				5			
Type of pavement	Double bituminous treatment				Dense bituminous premix				Base Course				Single Layer Base Course			
Max. super-elevation (%)	10				10				10				10			
Max. vertical grade (%)	4	5	6	7	5-8				6-10				6-10			
Structure loading (minimum)	HS20-44				As per DoR standard				As per DoR standard				As per DoR standard			

Fig: 2.5- Approved Road Design Standards

NEWH is classified as the Primary National Highway, the Ministry had prepared the design/drawing and estimation for carriageway of 6.5 m with 1.5m hard shoulder each on both side of carriageway and 1m L drain at hillside as depicted below:

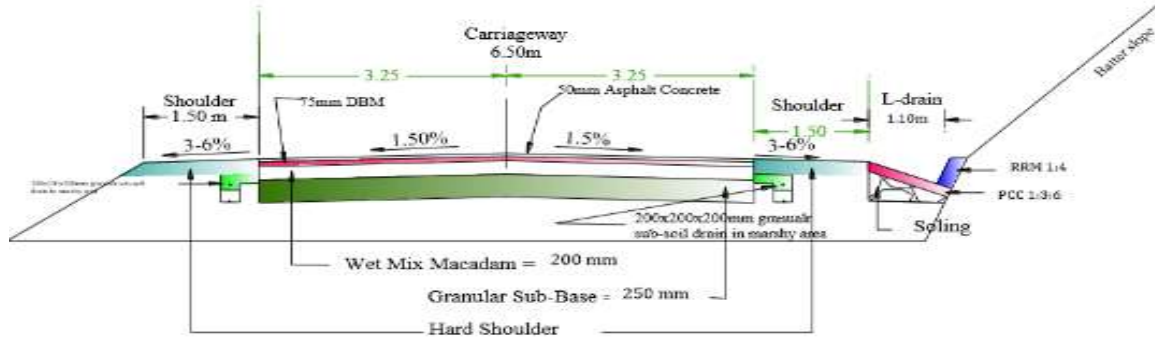


Fig 2.5(1)- Design and Drawing aligned to Road Design Standard

However, the Secretary, MoWHS vide letter No. MoWHS/Sec-29/2015-16/524 dated 16<sup>th</sup> October 2015 amongst others, directed all the Regional Offices on the decisions taken during the meeting held on February, 2016, after a time elapse of more than eight months from the commencement of the contract works, to increase pavement width from 6.5 m to 7.5 m and to issue amendment to the contract agreement signed with the contractors under respective jurisdictions.

In line with change order, the revised drawing was developed and circulated by Design Division, DoR Thimphu. However, during the course of the review of drawings implemented by the four Regional Offices, and site verifications, the audit team noted two (2) different drawings with difference technical specification for the same NEWH Up-gradation works.

It was noted that RO Thimphu and Trongsa were following one drawing and RO Lobeysa and Lingmethang were following a different as shown in Figure 1 & 2 below:

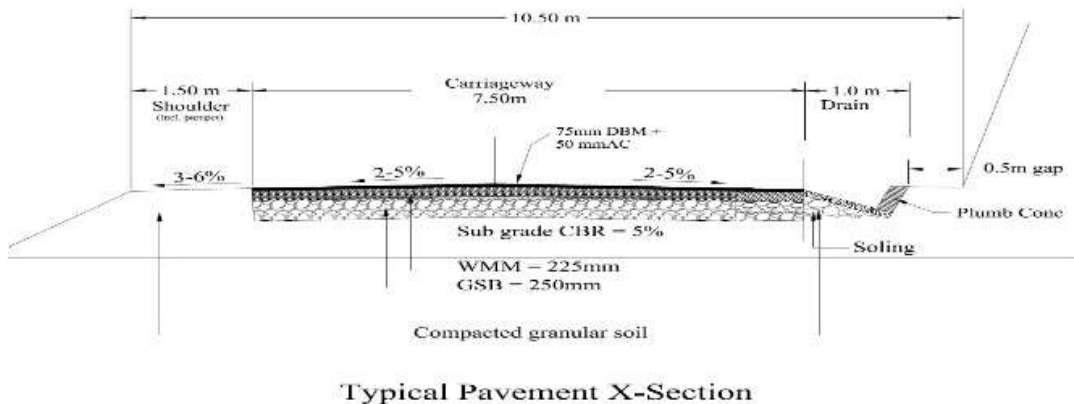
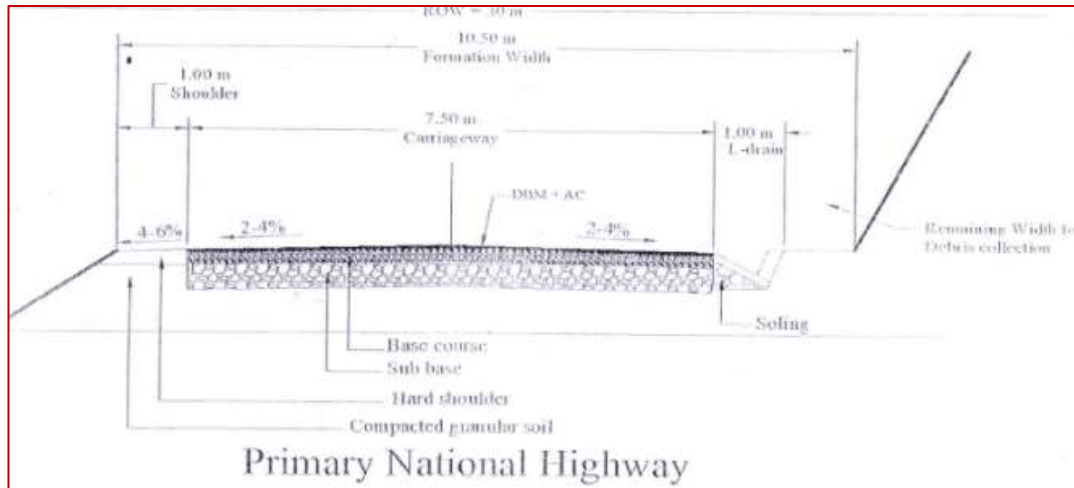


Figure 1.5(2): Revised drawing No. 1: Pavement drawing followed by RO Lobeysa and Lingmethang



**Figure 2.5(3):** Revised drawing No. 2: Pavement drawing followed by RO Thimphu and Trongsa

Thus, for the Primary National Highway, two different types of pavement drawings and specification were applied resulting in inconsistency in the implementation of Double Lanning works as well as non-adherence to the Road Design Standards specified in the *Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009*.

Adoption of two different drawings with varying pavement specifications and non-adherence to the approved Road Design Standard indicated improper planning and lack of due diligence in the preparation of drawings and specifications. Such mismatches in technical specification of road works would inevitably result in execution of two different type of pavement works for the same NEWH double lanning works.

The Ministry should review the adoption of two different types of drawings in the execution of road pavement works besides taking measures to ensure adoption of one type of drawings and technical specifications as outlined in the Road Design Standard to avoid inconsistencies and other impacts on the execution of road works.

**Auditee's Response:**

*DoR ROs would like to acknowledge the observation of RAA and would like to submit the following justifications.*

*The widening & up-gradation of the NEWH was approved in September 2014. A total of 385 kms of the road was to be widened & up-graded to PNH standard & completed within a period of three years by Dec 2017. By any standards, it is a huge task and time was of essence.*

*We partly agree to the observation of RAA regarding improper planning & lack of due diligence in the preparation of drawings & specifications. To be honest, there was not enough time to carry out proper survey, design and drawings. RAA has already noted the fact that the pavement width for PNH was originally 6.5 mtr as per the Guidelines on Road Classification System &*

*Delineation of Construction & Maintenance Responsibilities, 2009. This was however revised later to have a pavement width of 7.5 mtr.*

*As recommended by RAA, the Guidelines on Road Classification System & Delineation of Construction & Maintenance Responsibilities, 2009 has been revised and the new Road Classification System, June 2017 has been circulated to all the Regional Offices of DoR. We hope that uniformity can be achieved in 12<sup>th</sup> FYP projects. In view of the above justifications, RAA is requested to drop the memo.*

### **RAA's Further Comments & Recommendations:**

*While the initial design was prepared as per the Road Design Standard provided in the Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 and was adopted by all the ROs, the adhoc changes in design including technical specification was the main factor for executing NEWH project by the ROs applying two different sets of road designs.*

*It also indicated absence of design review process within the Design Division of the Ministry to review that any changes made in design complies with good practices and relevant standards and guidelines.*

*The ministry should review the circumstances leading to the implementation of two different sets of designs by the ROs besides instituting design review process to ensure consistent and uniform implementation of designs and drawing for similar projects in future.*

*In addition, the Ministry should also revisit the revised designs circulated to ROs, as the requisite gap between hillside and drains was found not maintained in majority of the work due to site specific and alignment problem of the drain works. Further, the Ministry should also relook on doing away of 1.5m Hard shoulders between the L-Drain and Carriageway in terms of risks towards safety of the commuters.*

### **2.6 Ambiguities and flaws in the change of Road designs & Drawings with resultant deviations from the approved Design Standard envisaged in the Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 and almost doing away of 1m formation width vis-à-vis compromising necessary safety measures and safety of commuters**

*The Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 for various categories of roads were as tabulated below:*

### Road Design Standards

Road Classification		Primary National Highway				Secondary National Highway				Dzongkhag Road				Farm Road			
		L	R	M	S	L	R	M	S	L	R	M	S	L	R	M	S
Terrain classification																	
Design speed (km/h)		60	50	40	30	30	40	30	20	40	30	20	15	30	25	15	10
Traffic volume (vpd)		>200				100-200				30-100				<30			
Width (m)	Right of way	30				30				30				30			
	Carriageway	6.5				3.5				3.5				3.5			
	Shoulder	1.5x2				1.5x2				0.5x2				0.5x2			
	Drain	1.0				1.0				0.6				0.6			
Min. radii of horizontal curve (m)		115	80	50	30	75	75	25	15	75	25	15	15	15 Exceptional =10			
Pavement slope (%)		2-5				2-5				4				4			
Shoulder slope (%)		3-6				4				5				5			
Type of pavement		Double bituminous treatment				Dense bituminous premix				Base Course				Single Layer Base Course			
Max. super-elevation (%)		10				10				10				10			
Max. vertical grade (%)		4	5	6	7	5-9				6-10				6-10			
Structure loading (minimum)		HS20-44				As per DoR standard				As per DoR standard				As per DoR standard			

**Note:**

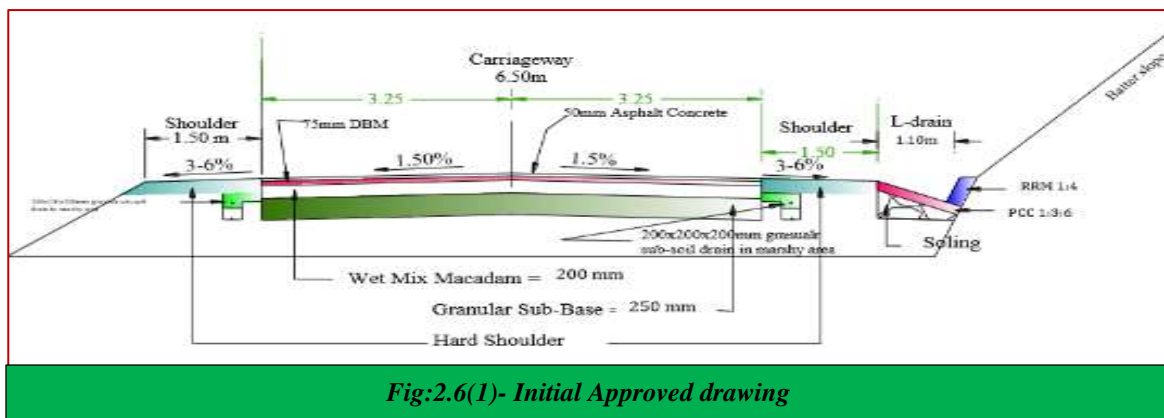
1. Thromde Roads – Design standards to be prepared by DUCDES in consultation with DoR.
  2. Access Road - Design standard to be set by DoR in consultation with the concerned agencies
  3. The Design standards for AH are at par with the design standards for PNH.
  4. Design standard of Farm Roads are equivalent to the design standards of Dzongkhag Roads.
- vpd = vehicles per day  
 L = Level terrain (0 to 10 per cent)  
 R = Rolling terrain (10 to 25 per cent)  
 M = Mountainous terrain (25 to 60 per cent)  
 S = Steep terrain (More than 60 per cent)

Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities

*Fig: 2.6- Road Design standard*

The Guidelines also stipulates that “All AHs, PNHs and SNHs shall have necessary safety measures including road signs and guardrails as per the DoR standards”.

The initial approved drawings attached with the bidding documents were found designed by the Design Division, DOR in line with the approved technical standard and road classification and standard of 2009 as depicted in the photograph below:



*Fig:2.6(1)- Initial Approved drawing*

The drawings outlined the following technical specifications and standards of the road:



- i. Overall Formation width 10.5m
- ii. Carriage paved width 6.5m;
- iii. Hard shoulder of 1.5m between 1m L-drain and carriage paved width and 1.5m hard shoulder at valley side; and
- iv. Line Drain 1m width at hill side
- v. 200X200X200mm granular sub soil drain in marshy area:

In terms of the technical standards of Road Design, the Shoulders provide a number of important functions. Safety and efficient traffic operations can be adversely affected if any of the following functions are compromised:

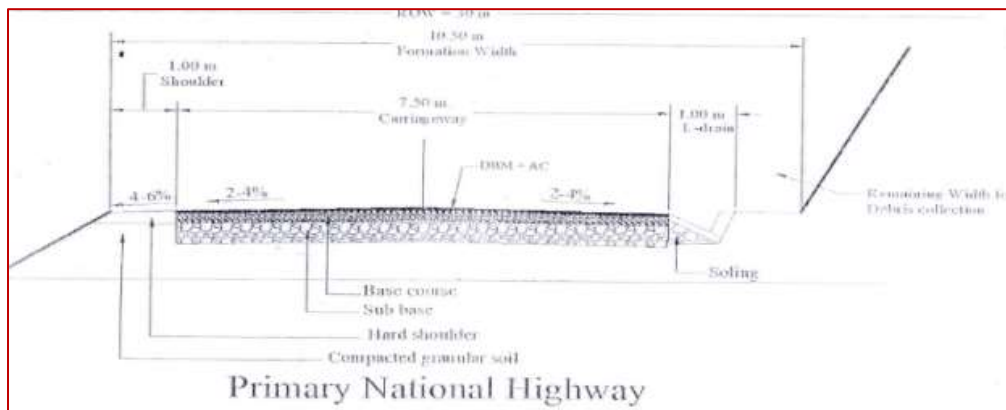
- *Shoulders provide space for emergency storage of disabled vehicles. Particularly on high-speed, high-volume highways such as urban freeways, the ability to move a disabled vehicle off the travel lanes reduces the risk of rear-end crashes and can prevent a lane from being closed, which can cause severe congestion and safety problems on these facilities.*
- *Shoulders provide space for enforcement activities. This is particularly important for the outside (right) shoulder because law enforcement personnel prefer to conduct enforcement activities in this location. Shoulder widths of approximately 8 feet or greater are normally required for this function.*
- *Shoulders provide space for maintenance activities. If routine maintenance work can be conducted without closing a travel lane, both safety and operations will be improved. Shoulder widths of approximately 8 feet or greater are normally required for this function. In northern regions, shoulders also provide space for storing snow that has been cleared from the travel lanes.*
- *Shoulders provide an area for drivers to maneuver to avoid crashes. This is particularly important on high-speed, high-volume highways or at locations where there is limited stopping sight distance. Shoulder widths of approximately 8 feet or greater are normally required for this function.*
- *Shoulders improve bicycle accommodation. For most highways, cyclists are legally allowed to ride on the travel lanes. A paved or partially paved shoulder offers cyclists an alternative to ride with some separation from vehicular traffic. This type of shoulder can also reduce risky passing maneuvers by drivers.*
- *Shoulders increase safety by providing a stable, clear recovery area for drivers who have left the travel lane. If a driver inadvertently leaves the lane or is attempting to avoid a crash or an object in the lane ahead, a firm, stable shoulder greatly increases the chance of safe recovery. However, areas with pavement edge drop-offs can be a significant safety risk. Edge drop-offs occur where gravel or earth material is adjacent to the paved lane or shoulder. This material can settle or erode at the pavement edge, creating a drop-off that can make it difficult for a driver to safely recover after driving off the paved portion of the roadway. The drop-off can contribute to a loss of control as the driver*

tries to bring the vehicle back onto the roadway, especially if the driver does not reduce speed before attempting to recover.

- Shoulders improve stopping sight distance at horizontal curves by providing an offset to objects such as barrier and bridge piers.
- On highways with curb and enclosed drainage systems, shoulders store and carry water during storms, preventing water from spreading onto the travel lanes.
- On high-speed roadways, shoulders improve capacity by increasing driver comfort.

All the estimates and BOQ's were prepared based on the above drawings. Accordingly, the contract works for all packages were awarded based on the initial approved drawings and works commenced from July /August 2015.

However, it was apparent from the records that based on the decisions taken during the meeting held in **February, 2016, after a time elapse of more than eight month from the commencement of the contract works**, drawings were found revised for different category of Road in Bhutan as depicted in the photograph below:



*Fig: 2.6(2)- Revised design and drawing*

As per the record of discussion dated 26/02/2016, the revised drawing and design were circulated to respective ROs vide letter No. MoWHS/Sec-29/2015-16/524 dated 16/10/2015 for adoption. The drawings outlined the following technical specifications and standards of the road:

- i. Overall Formation width of 10.5m;
- ii. Carriage width 7.5m;
- iii. 1m width maintained for Debris collection on hillside;
- iv. Line drain of 1m between the paved carriage way and 1m width at hill side;

In line with the directive, the Regional Office, Lobeyasa had conveyed to all Sub-Division to implement the work as per standard drawing vide letter No. DoR/ROL/2015-2016/Plg-05/1828 dated 11/5/2016.

While the subsequent design and drawing had maintained increased carriage pavement width of 7.5m, other structural drawings were also changed from the initial designs and drawings as evident from the above photograph.

The above changes in the design and drawing not only resulted in extra financial implication to the government exchequer for increase of 1m carriage width to the extent of approximately Nu.317.637 million but also impeded timely completion of work due to grant of time extension for the increased scope of work as well as compromised safety measures by doing away Hard shoulders of 1.5m width between the L-Drain and Paved carriageway width including reduction of 0.5m hard shoulder at valley side. Besides, due to design changes, overall formation width of 10.5m were found not achieved as 1m width supposedly maintained for Debris collections between hillside and L-Drain were found not maintained in entirety for all stretches of the roads as majority of the L-Drain was found constructed attached to the hillside. Further, 1m shoulder width on the valley sides were also found not maintained as in some stretches of roads the pavement road were found executed at the edge of the road width.

In this connection, the Ministry may also comment on the following aspects:

- The design deviation from the approved design stipulated in the Guidelines 2009 and approval of the Lhengye Zhungtshog, if any, obtained as “The *Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 prepared by the Ministry of Works and Human Settlement (MoWHS)* was dully approved in the 31<sup>st</sup> Session of Meeting of Lhengye Zhungtshog held on 24<sup>th</sup> February 2009;
- Doing away of 1.50 m Hard shoulder width between the L-Drain and Paved carriage way;
- Non-achievement and non-maintenance of 1m width for Debris collection at the hillside;
- Non/inconsistent maintenance of 1m width at valley sides; and
- Approval for deviation of design from approved designs and sources for additional funds to the extent of Nu. 317.637million.

Besides, the Ministry must hold the officials responsible for design changes after the award of the contract as well as deviations from the approved design for appropriate decisions and action.

**Auditee’s Response:**

*Increasing of Pavement width from 6.5m to 7.5m came from the need to upgrade our very important Primary National Highway of the country spanning East to West by gradually improving its basic specifications to meet with the growing demands by ever increasing road users and to ensure traffic reliability, passenger comfort and their safety when the opportunity existed for such an intervention under GOI funding.*

*From over several decades of experiences in the construction and maintenance of roads in Bhutan and learning from experiences of many developed countries, it has been established that ingress of water is the top most factor for premature damages to road pavements (especially the flexible pavement system). Factors such as environmental conditions, traffic intensity and*

increased loadings, and the design inadequacies are some other contributing factor for premature pavement damages. Based on this premise, since pavement works were not commenced in all of the contracts awarded for all stretches from Simtokha to Korilla, the intervention was deemed timely. DoR also appraised this ministry that under GOI funding on NEWH project, it expected huge savings then.

Therefore, instead of providing 1.5m wide earthen shoulder on the hillside of the pavement the ministry proposed increasing the pavement width from 6.5m to 7.5m taking up 1.0m of the 1.5m shoulder and fixing the 1.0m wide L-shaped/U-shaped side drains next to the pavement structure only. This intervention brought following improvements and benefits to the overall flexible pavement system.

1. Earthen shoulders are a porous medium that will allow gradual seepage of surface run off water and the normal rainwater. The water percolates into underlying pavement payers of DBM, WMM and GSB that are fairly porous in nature. When ground temperatures reach 40 degrees centigrade, the bitumen strips off the aggregates causing segregation of bituminous concrete. During winter in high altitude areas, the water in the pavement layers undergo freezing / icing breaking open the bituminous concrete and when weather warms up in Spring and after, the thawing of frozen ice takes place melting it into water leaving cracks in the bituminous concrete. This phenomenon of icing and thawing leads to crushing of cracked road surfaces under wheels of trucks and vehicles, forming cracks of all kinds and potholes. Addition of this 1.0m extra blacktop instead of earthen shoulder definitely prevents this undesirable phenomenon - saving huge recurrent expenditures.
2. The side drain running parallel to the centerline of the pavement next to the pavement structure not only ensures that road surface is impervious to ingress of water enhancing the life of the pavement, the aesthetics of the pavement alignment improves to a great extent.
3. The 1.0m extra pavement width will allow much desired unrestricted speed of the traffic flow in both directions preventing the pulling force that will otherwise develop between vehicles crossing past in opposite directions close to each other. In fact, to enhance safety, if space permits there should be a solid divider between lanes in opposite directions to avoid pulling (vacuum) force and the glares from headlights.
4. The extra wide road will compensate for the absence of super-elevation at curves as the introduction of which is not possible in our highways due to lack of space to lay the transition curves that precedes the Super-elevation. Super-elevation counter acts the centrifugal force of speeding vehicles.
5. This initiative allows leaving a 1.0m space between the hillside slope toe and the side's L-drain, which not only will hold back the first slides getting into the drain directly from slope erosion under rains, but also improves the sight distance for the drivers at the curves and sharp corners. It also ensured a relatively dust and mud free highway pavement as only valley side shoulder exists.

6. *The introduction of 1.0m extra avoided payment for 1.5m wide shoulder, although an additional expenditure was required to be made for 1.0m wide DBM and AC layers. A certain percentage on the cost for BT would have been compensated.*

*The 1.0m extra wide black top pavement did not affect any fundamental geometrics or integrity of the national highway. In fact it definitely has enhanced the longevity of the pavement life, improved the safety and riding comfort of road users, the long desired national highway specification upgraded with aesthetics significantly improved and all of these are vital for the growth and sustenance of our economy.*

*With these positive outcomes in the perspective, the proposal thus submitted was endorsed by the MLTC members and recommendations duly approved jointly by the Ministers for Finance and Works & Human Settlement ministries vide MoWHS/SEC/29/2015/476 dated 5/8/2015 (Copy enclosed). The RAA is therefore requested to consider the submission favorably given the benefits and many positive outcomes from the initiative by not pursuing the matter further please.*

*The Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 prepared by the Ministry of Works and Human Settlement (MoWHS) approved in the 31st Session of the Lhengye Zhungtshog Meeting held on 24th February 2009.*

#### **RAA's Further Comments & Recommendation:**

*It is to reiterate that "The Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009" prepared by the Ministry of Works and Human Settlement (MoWHS) was approved in the 31<sup>st</sup> Session of the Lhengye Zhungtshog Meeting held on 24<sup>th</sup> February 2009. As the Guidelines was approved by the Cabinet, the approval, if any, obtained on the changes in technical specification of road was not available on records.*

*It is also to reiterate that the changes in technical specification for providing 1m gap between the Drain works and hill side were found not achieved in all contract packages as the L-Drains were found executed attaching to hills as provided in the initial designs/drawings. Thus, given the present scenario, the RAA is of the opinion, that non-achieving of or maintaining the required gaps was a result of technical flaws.*

*As discussed in the exit meeting, the DOR in consultation with the Ministry should revisit the revised drawing for appropriate decisions and taking measures to address any technical flaws and ambiguities. Besides, the Ministry should also look in to the requirement of approval of Cabinet on the revised designs as it had deviated from "The Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009".*

## 2.7 Inconsistency in the fixation of construction duration for the same design and scope of construction works within and among the Regional Offices

The Construction of East West double lanning works followed the same design and specifications. However, the quoted rates and project durations had huge variations as tabulated in table 2.7 below:

Table 2.7: Inconsistency in fixation of construction durations							
RO	Packages	Type of works	Scope of work in terms of Chainage coverage	Estimated Cost (in millions of Nu)	Quoted rates (in millions of Nu)	Project Duration (in months)	Duration in month per Km
Lobeysa	I, II, III	Pavement works	10 Km each	119,590,876.28	102,286,495.00	15	1.5
Lobeysa	IV	Pavement works	11 Km	127,642,926.26	107,120,422.00	15	1.364
Lobeysa	VI	Pavement works	12.14 km	131,989,514.38	112,652,539.00	25	2.06
Lobeysa	XII	Pavement works	7 km	100,267,497.37	66,128,323.00	11	1.571
Lobeysa	XIII	Pavement works	8 km	126,747,002.70	69,441,930.00	17	2.125
Lobeysa	XIV	Pavement works	3.25 km	46,552,814.61	27,808,65.00	10	3.077
Lobeysa	XV	Pavement works	2.75 km	39,390,946.46	39,390,946.46	12	4.364
Lobeysa	V	Widening & Pavement works	7 Km	92,439,003.48	72,680,325.00	20	2.857
Lobeysa	VII	Widening & Pavement works	6.86 km	90,091,287.54	71,417,679.10	20	2.915
Lobeysa	VIII	Widening & Pavement works	7 km	87,463,950.28	78,967,074.00	25	3.571
Lobeysa	IX	Widening & Pavement works	7 Km	92,798,931.12	93,263,506.00	25	3.571
Lobeysa	X	Widening & Pavement works	6 Km	84,881,450.38	56,974,612.41	24	4.00
Lobeysa	XI	Widening & Pavement works	10 km	153,688,193.47	107,568,025.00	25	2.5
Lingmethang	PKG - VII	Pavement works	4 Km	70,459,887.01	37,106,895.00	15	3.75
Lingmethang	I(a)	Pavement works with ZeoCrete Technology	10 Km	166,708,500.00	166,708,500.00	18	1.8 (Estimated cost higher only due to cost of ZeoCrete materials )
Lingmethang	II	Widening & Pavement works	5.70 Km	82,050,303.45	62,478,155.55	24	4.2
Lingmethang	III	Widening & Pavement works	6 Km	94,700,240.00	73,783,024.22	24	4
Lingmethang	IV	Widening & Pavement works	5 Km	77,382,142.43	59,469,881.70	30	6
Lingmethang	V	Widening & Pavement works	11.56 km	131,001,271.16	111,902,235.00	30	2.6

Lingmethang	VI	Widening & Pavement works	12 Km	140,282,847.00	125,555,774.00	28	2.33
Trongsa	TR-VII	Pavement works	6.4 Km	95,574,000.00	70,131,698.00	18	2.81
Trongsa	TR-XII	Pavement works	5 Km	100,267,497.37	78,928,350.00	20	4.00
Trongsa	TR-I	Widening & Pavement works	12 Km	191,662,477.46	147,882,777.62	30	2.5
Trongsa	TR-II	Widening & Pavement works	7.5 Km	171,993,910.77	111,563,269.46	30	4.0
Trongsa	TR-III	Widening & Pavement works	7.5 Km	151,041,704.92	97,306,916.89	30	4.0
Trongsa	TR-IV	Widening & Pavement works	5 Km	146,426,379.15	94,860,888.47	30	6.0
Trongsa	TR-V	Widening & Pavement works	5.7 Km	131,935,342.62	77,150,269.45	30	5.26
Trongsa	TR-VI	Widening & Pavement works	6.7 Km	138,898,344.12	79,151,909.00	30	4.48
Trongsa	TR-VIII	Widening & Pavement works	7.2 Km	105,297,611.69	73,239,890.20	28	3.89
Trongsa	TR-IX	Widening & Pavement works	7.98 Km	127,405,641.48	120,072,191.07	28	3.51
Trongsa	TR-X	Widening & Pavement works	6.02 Km	150,325,008.00	85,883,906.60	28	4.65
Trongsa	TR-XI	Widening & Pavement works	8 Km	117,475,584.76	89,839,558.00	28	3.5
Trongsa	TR-XIII	Widening & Pavement works	10.10 Km	129,964,945.98	124,174,327.15	28	2.77
Trongsa	TR-XIV	Widening & Pavement works	2.18 Km	55,771,219.28	45,714,110.00	15	6.88
Thimphu	TH-I	Pavement works	8.7 Km	115,642,860.00	81,088,430.15	15	1.72
Thimphu	TH-II	Pavement works	6.5 km +2 km	108,362,690.31	84,347,137.15	15	1.74

It would be apparent from the table above varying construction durations have been derived as the construction durations were neither based on Chainage coverage nor the estimated cost. The construction durations had been estimated differently within the ROs and amongst the ROs indicating absence of systems and procedures for estimation of contract durations.

The Ministry should comment on the adoption of varying practices for the fixation of construction durations and any systems or procedures put in place vis-à-vis Rules of thumb required to be used by engineers for estimating the construction durations on a more realistic, transparent and fair manner.

### **Auditee's Response:**

*Internationally there is hard formula stating definite contract duration. And no two projects are identical in nature, size and conditions. Therefore, the contract duration is either fixed based on the past experiences or considering many factors such as scope of work, unseen geological conditions, availability of resources (materials), process to obtain environmental clearances, settlement nearby the project, availability of suitable machinery etc. Sometimes, the contract duration is even governed by the urgency of the infrastructure needed, like construction of extended class room after the earthquake. In cases, the work can be accomplished by doubling the resources and usually comes at higher cost.*

*In the hill roads, unexpected geological conditions, apart from many factors is predominate factor that often delays the project completion and cost overrun. A good example is Punachangchu Hydro power project. Therefore, please drop the memo.*

### **RAA's Further Comments & Recommendations:**

*While acknowledging the responses on the fixation of contract duration based on experiences and work related factors, the analysis carried out by the RAA indicated flaws and ambiguities as differing durations were determined by ROs for various constructions packages. The contract durations per KM for Pavement Works ranged from as low as 1.4 months to as high as 4.4 months. Similarly, for Formations and Pavement work contracts, the contract duration per km ranged from as low as 2.5 months to as high as 6.8 months.*

*Thus, there is a need for determination of contract duration in an objective manner based on scheduling major quantum of works expected to be executed and assigning activity durations and the minimum resources expected to be committed during the execution including factors such as full work season of the year, weather limitations, concrete curing times, rainfalls, locally available materials and lead time involved in transportation materials from base towns.*

*One of the main reasons for time and cost overruns of most of the construction works is apparently due to fixing of unreasonable contract durations. Besides, there is also possible risk of compromising the quality of works in an effort to complete the contract work within unreasonable deadline.*

*The MoWHS should, therefore, formulate specific guidelines or a Rule of thumb to provide reasonable and consistent basis for determining the construction duration for all construction works undertaken by government agencies.*

## **2.8 Inconsistencies in the incorporation of cost of Bitumen in the preparation of estimates**

The Four Regional Offices had prepared two cost estimates for each contract packages of double Lanning works. One cost estimate prepared is inclusive of cost of bitumen and other one without including the cost of bitumen. The cost estimates without the cost of bitumen were considered for cost comparison with the quoted prices of the bidders as well as for the realization of the differential amount in cases of abnormally low quoted bids.



The RAA made an attempt to cross verify the consistencies in the incorporation of cost of bitumen in the estimates in terms of cost per kilometer since the technical specification including DBM and AC thickness were same for all the contract packages. On review of the cost estimates prepared by the Regional Offices for various contract packages, it was noted that bitumen cost per kilometer within and among the ROs were varying as shown in table 2.8 below:

<b>Table 2.8: Inconsistencies in the incorporation of cost of bitumen in the estimates</b>							
<b>RO Trongsa</b>							
Packages	Estimate without bitumen	Estimate with bitumen	Cost of Bitumen	Chainage Awarded	Total Km awarded	Cost per KM	% Variations
1	191,662,477.46	279,895,177.46	88,232,700.00	0.00 to 12 = 12 Kms.	12	7,352,725.00	87.72
2	171,993,910.77	227,139,348.27	55,145,437.50	12 - 19.5 = 7.5 Kms.	7.5	7,352,725.00	87.72
3	151,041,704.92	206,187,000.00	55,145,295.08	19.5 - 27 = 7.5 Kms	7.5	7,352,706.01	87.72
4	146,426,379.15	187,701,324.56	41,274,945.41	27 - 32 = 5 Kms	5	8,254,989.08	110.75
5	131,935,342.62	171,648,867.12	39,713,524.50	32 - 37.7 = 5.7Kms	5.7	6,967,285.00	77.88
6	138,898,344.12	185,370,135.07	46,471,790.95	37.7 - 44.4 = 6.7 Kms	6.7	6,936,088.20	77.08
7	95,574,000.00	119,467,000.00	23,893,000.00	44.7 - 50.8 = 6.10Kms	6.1	3,916,885.25	0.00
8	105,297,611.69	155,462,063.69	50,164,452.00	50.8 - 58 = 7.2Kms	7.2	6,967,285.00	77.88
9	127,405,641.48	183,004,575.78	55,598,934.30	58 - 65.98 = 7.98 Kms	7.98	6,967,285.00	77.88
10	150,325,008.00	182,465,053.60	32,140,045.60	65.98 - 72 = 6.02Kms	6.02	5,338,878.01	36.30
11	117,475,584.76	174,263,864.76	56,788,280.00	72 - 80 = 8 Kms	8	7,098,535.00	81.23
12	98,619,592.00	130,933,412.42	32,313,820.42	80 - 85 = 5 Kms	5	6,462,764.08	65.00
13	129,964,945.98	201,016,750.70	71,051,804.72	85 - 97.3 = 10.10 Kms	10.10	7,034,832.15	79.60
14	55,771,219.28	65,277,109.28	9,505,890.00	87.62 - 89.8 = 2.18 Kms	2.18	4,360,500.00	11.33

<b>Table 2.8.1: Inconsistencies in the incorporation of cost of bitumen in the estimates</b>							
<b>RO, Lobeysa</b>							
Packages	Estimate without bitumen	Estimate with bitumen	Cost of Bitumen	Chainage Awarded	Total Km awarded	Cost per KM	% Variations
1	114,155,909.36	197,346,703.07	83,190,793.71	477-467 (10 Kms)	10	8,319,079.37	44.92
2	118,573,848.79	201,764,642.50	83,190,793.71	467-457 (10 Kms)	10	8,319,079.37	44.92
3	119,590,876.28	202,781,669.99	83,190,793.71	457-447 (10 Kms)	10	8,319,079.37	44.92
4	127,642,926.26	201,169,182.50	73,526,256.24	447-436 (11 Kms)	11	6,684,205.11	16.44
5	92,439,003.48	150,265,331.42	57,826,327.94	429-422 (7 Kms)	7	8,260,903.99	43.90
6	131,989,272.17	231,546,557.29	99,557,285.12	422-409.86 (12.14)	12.14	8,200,764.84	42.86
7	90,091,287.54	146,348,534.32	56,257,246.78	409.86-403 (6.86 Kms)	6.86	8,200,764.84	42.86
8	87,463,950.28	144,869,304.13	57,405,353.85	379-372 (7 Kms)	7	8,200,764.84	42.86
9				379-389 (10 Kms)	10		0.00

	92,978,931.12	150,384,284.98	57,405,353.86	kms)		5,740,535.39	
10	84,881,450.38	134,086,039.40	49,204,589.02	365-359 (6 Kms)	6	8,200,764.84	42.86
11	153,688,193.47	236,339,379.80	82,651,186.33	379-389 (10 kms)	10	8,265,118.63	43.98
12	100,267,497.37	158,692,087.37	58,424,590.00	436-429 (7 Kms)	7	8,346,370.00	45.39
13	126,747,002.70	193,517,962.70	66,770,960.00	403-395 (8 Kms)	8	8,346,370.00	45.39
14	46,552,814.61	73,678,517.11	27,125,702.50	392.25-389 (3.25 Kms)	3.25	8,346,370.00	45.39
15	39,390,946.46	62,343,463.96	22,952,517.50	395-392.25 (2.75 Kms)	2.75	8,346,370.00	45.39

**Note: Under Lobeysa, DBM and AC thickness for contract packages 12, 13, 14, and 15 were reduced from 75mm to 60 and 50mm to 40mm respectively.**

Table 2.8.2: Inconsistencies in the incorporation of cost of bitumen in the estimates							
RO, Lingmethang							
Packages	Estimate without bitumen	Estimate with bitumen	Cost of Bitumen	Chainage Awarded	Total Km awarded	Cost per KM	% Variations
1 (B)	88,210,000.00	144,900,000.00	56,690,000.00	51.00-61.50 = 10.50 km	10.50	5,399,047.62	0.00
2	82,050,303.45	127,410,000.00	45,359,696.55	73.19-78.89 = 5.79 km	5.79	7,834,144.48	45.10
3	94,700,240.00	142,445,000.00	47,744,760.00	78.89-84.89 = 6.00 km	6	7,957,460.00	47.39
4	77,382,142.43	117,169,000.00	39,786,857.57	84.89-89.89 = 5.00 km	5	7,957,371.51	47.38
5	131,001,271.16	222,969,000.00	91,967,728.84	90.89-102.45 = 11.56 km	11.56	7,955,685.89	47.35
6	140,282,847.00	235,773,000.00	95,490,153.00	102.45- 114.45 = 12.00 Km	12	7,957,512.75	47.39
7	70,459,887.01	96,717,000.00	26,257,112.99	114.45-118.45 = 4 Km	4	6,564,278.25	21.58

**Note: Under Lingmethang, DBM and AC thickness for contract package 7 was reduced from 75mm to 60 and 50mm to 40mm respectively**

Table 2.8.3: Inconsistencies in the incorporation of cost of bitumen in the estimates							
RO, Thimphu							
Packages	Estimate without bitumen	Estimate with bitumen	Cost of Bitumen	Chainage Awarded	Total Km awarded	Cost per KM	% Variations
1	115,642,860.00	169,193,479.02	53,550,619.02	527 to 527.7 & 530 to 538	8.7	6,155,243.57	0.00
2	108,362,690.31	163,597,831.25	55,235,140.94	538 to 544.5 & Simtokha Olakah 2Km	8.5	6,498,251.88	5.57

In consideration to the equal thickness of DBM and AC for all contract packages except 5 packages where DBM and AC thickness were reduced, the bitumen cost per kilometer should have been comparable. It is apparent from the tables above that cost of bitumen incorporated in the cost estimates varied from Nu. 3,916,885.25 per km to as high as Nu. 8,346,370.00 per km indicating flaws and ambiguity in the cost estimates for bitumen.

The Ministry should review the cost estimates and ascertain the circumstances leading to substantial bitumen cost differences in the estimates.

### **Auditee's Response:**

*In compliance to the existing policy, the bitumen required for road works is being procured centrally by the Directorate Services, MoWHS.*

*The cost of bitumen at source is not constant due to fluctuation of price of petroleum products in the international market. In addition, there is also the transportation cost for the bitumen from the source to the Central Stores in P'ling. Also, the cost of transportation of bitumen from Central Stores to the respective Regional offices varies based on the distance from P'ling.*

*As recommended by RAA, DoR RO Trongsa will request the Ministry to review the cost estimates to ascertain the facts leading to substantial difference in the cost of bitumen in the cost estimates.*

### **RAA's Further Comments & Recommendation:**

*While taking note of the response on the fluctuation of price of petroleum products in the international market and the transportation cost for the bitumen from Central Stores to RO Regional Stores and project sites, the fact remains that the bitumen cost per kilometer varied from as low as Nu. 3,916,885.25 per km to as high as Nu. 8,346,370.00 per km representing more than 113% variations indicated flaws and ambiguity in the cost estimates for bitumen.*

*However, as discussed during the exit meeting, the DOR and Ministry should review all the estimates prepared by the ROs to validate the correctness of the estimates and ascertain existence of any systemic flaws and ambiguities in the preparation of estimates for initiating corrective measures for future project works. The Ministry should furnish the outcome of the review and measures put in place to address flaws and ambiguities in the preparation of estimates for future projects.*

### **2.9 Adoption of varying practices of rate analysis by contractors and wrong application of coefficient for 80mm, instead of 75mm design thickness of DBM and also for 50mm thick Asphalt and recoverable amount aggregating to Nu. 69.334 million**

Special Conditions of Contract, Point No. 2, stipulates as ***"The bidder must attach the detail rate analysis for DBM and AC along with the bidding document"***. It was made to understand that submission of rate analysis by contractor was to ensure that the cost of bitumen was not included and that rates incorporated for design thickness for DBM and Asphalt concrete did not exceed 75mm and 50mm thick respectively.

On review of contractor's rate analysis attached with the tender documents, lapses and discrepancies were observed in the application of co-efficient for the item of work 75mm DBM & 50mm AC as the LMC provided were only for 70mm and 80mm, DBM work and 40mm AC work. Thus, the co-efficient used for 75mm DBM was considered for 80mm thick and co-efficient for 50mm thick AC works was randomly worked out by contractors. In addition clerical errors were also found on deriving the analyzed rates.

Thus, due to wrong application of Co-efficient and clerical errors, the rates accepted by the Evaluation Committee and reflected in the BOQs were found inflated. The overall financial implication due to wrong acceptance of rates for the two item of works amounted to Nu. 69,334,409.38 as shown in table 2.9 below:

Sl. No.	Regional Office	No. of Packages	Amount (Nu. in Million)	Remarks
1	RO, Lobeysa	8 Contract packages	20,782,438.38	
2	RO Trongsa	7 Contract Packages	28,468,525.00	
3	RO Lingmethang	73 Contract packages	10,984,878.00	
4	RO, Lobeysa	M/s Chogyal Construction Pvt. Ltd (Packages I, II and III)	7,104,603.83	Acceptance of inflated rate analysis due to inclusion of rate for Bitumen Spreader. The Bitumen Spreader was not specified in the LMC for DBM and Asphalt concrete works.
5	RO, Lobeysa	M/s Welfare Construction Pvt. Ltd –	9,098,568.00	Inclusion of cost for Generator & Control Panel not Complying to LMC and 5% for mobilization and installation of Labour Camps, Machinery yard, tools and plants
6	RO Trongsa	M/s Druk Lamsel Construction Pvt. Ltd(Package 7A) (AM18.6)	1,488,000.00	Acceptance of inflated rate analysis due to inclusion of rate for Bitumen Spreader. The Bitumen Spreader was not specified in the LMC for DBM and Asphalt concrete works
<b>Total</b>			<b>69,334,409.38</b>	

The Ministry must thoroughly review the aforementioned discrepancies involving substantial amounts of financial implication to the Government and also ascertain the circumstances leading to failure on the part of the Evaluation Committee and MLTC despite obtaining the rate analysis from the prospective bidders. The Ministry should also fix the officials responsible for such unwarranted lapses for appropriate decisions and actions.

Besides, the Ministry must either recover the amount of **Nu.69,334,409.38** if already paid or correct the quoted rates to prevent ineligible payments in the upcoming RA Bills.

***Auditee’s Response:***

*The pavement thickness was derived from the pavement chart based on the average traffic in msa and CBR value. For NEWH Project, based on the traffic count and traffic forecast including future traffic, the DBM and AC were determined to be 80mm and 50mm thickness respectively. However, there is no coefficient in the BSR for above thickness. Therefore, the coefficients were interpolated and extrapolated in the departmental estimates.*

*The main objective of asking the rate analysis for DBM and AC with the bid is to ensure that the bidder has not included the cost of bitumen since the bitumen is to be provided by the client. The rate analysis and pricing of the contractor varies from one contractor to another. Also to inform RAA that the issuance of the bitumen is based on the Job Mix Formula and not as per the coefficient of the rate analysis.*

*As per the ABSD recommendation, bitumen has been listed as one of the central procurement materials to ensure quality and the study found that there is substantial saving if it is procured centrally. Initially, there was a practice in the Department to recover the cost of the bitumen issued based on the prevailing rates. However, many bidders did not appreciate the deduction being done from their running bill and also there was contention in using different bitumen rates in the recovery. Therefore, in order to streamline the process and reduce contention in the interpretation, the Department through the approval of the Ministry has decided to issue the bitumen free of cost to the contractors executing the BT works.*

*Since the main objective of the rate analysis was to check the cost of the bitumen as “zero” in the quote, the evaluation team neither the award committee felt necessary to check the LMC of the DBM & AC. In the competitive tender, rate will definitely vary and internationally it is never practiced to increase the coefficient of those items that are less and similarly cutting down the coefficient of those items where the LMC is high. Contractor’s rate vary from item to item.*

*Therefore, RAA is requested to kindly drop the memo based on the justifications provided above.*

#### **RAA’s Further Comments & Recommendations:**

*While taking note of the response, it is clear that the Ministry has failed to incorporate appropriately in the tender documents and TOR of Evaluation Committee on the requirement of Rate analysis to be aligned with the Labour and Material Co-efficient (LMC) and BSR not just to check that the cost of bitumen is “Zero” in the rate analysis.*

*The wrong application of Co-efficient and clerical errors by the contractor in its rate analysis had inflated the quoted rates of the above item of works. The failure on the part of the Evaluation Committee to ensure application of correct labour and material co-efficient during rate analysis had resulted in overall financial implication to the Government Exchequer to the extent of Nu. 60,235,841.38.*

*In view of huge financial implication, the Ministry should consider forming a dedicated technical team to review all the rate analysis of the contractors and measures taken to correct the discrepancies to avoid similar lapses in future contract works.*

*The huge financial loss to the extent of Nu. 69.334 million to the government Exchequer is brought to the notice of the Government for appropriate decisions and actions.*

#### **2.10 Flawed rate analysis through incorporation of transportation cost of bitumen as percentage to the overall derived cost of the item of work with resultant avoidable cost to the project Nu. 12.323 million**

Under SCC (Additional Clause) and Addendum issued vide letter DoR/ROL/Plg-15 (A)14-15/3439 dated 16/4/15, No. R0-T/DoR/2014-2015/W-9/1469 dated April 14, 2015, Clauses amongst others were amended as below:-

- i. *The Department will procure Bitumen(VG-10) and supply to the contractors*

- ii. *The Bidder(s) shall apply “0” Zero for the cost of Bitumen (VG-10) in their rate analysis for Dense Bituminous Macadam (DBM) and Asphalt concrete(AC) as department is to supply bitumen (VG-10)*
- iii. *In order to authenticate the above point No ii, the Bidder (s) should compulsorily submit the details of rate analysis for DBM & AC along with the bids.*
- iv. *The contractor shall lift the required bitumen (VG-10) from Store, Regional Offices, DoR, and transport it to their respective sites(s) at his or her own cost.*

On review, the Rate analysis for the DBM and Asphalt works submitted with the tender documents revealed that eight (8) Contract packages had included transportation cost for lifting of Bitumen from Regional Store to work site either as cost component of the item work or as percentage to the overall analyzed cost of the item work.

Thus, the inclusion of transportation charges as a part of the component of cost in lieu of cost of bitumen in addition to loading, wastage and overhead charges applied for deriving the item rates for the item works was not in compliance to the aforementioned Addendum issued.

The cost implication based on estimated quantities of DBM & AC works for transportation of bitumen from the Regional store to site alone amounted to Nu. 12,322,823.58 as computed in table 2.10 below:

Sl.No.	Regional Office	No. of Packages	Amount (Nu. in Million)	Rate charged	Remarks
1	RO, Lobeysa	M/s Taksing Chungdruk Construction Pvt. Ltd. (Packages 12)	1,758,512.08.	DBM= Nu.19 per Sqm AC= Nu. 14 per Sqm	Added 10% as transportation charges for lifting of bitumen on over cost
2	RO Lingmethang	M/s K.D Builder Pvt Ltd. Bumthang (Packages 3)	803,300.00	DBM= Nu.11.31 per Sqm AC= Nu. 6.63 per Sqm	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the rate analysis for the DBM and AC item of work
3		M/s Rigsar Construction Pvt. Ltd (Package 6)	2,156,400.00	DBM= Nu.13.31 per Sqm AC= Nu. 10.65per Sqm	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the rate analysis for the DBM and AC item of work
4	RO Trongsa	M/s Rinson Construction Pvt. Ltd (Package 13) (AM25.9)	2,053,582.50	DBM= Nu.15.98 per Sqm AC= Nu. 11.13 per Sqm	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the rate analysis under the DBM and AC item of work
5		M/s Rigsar Construction Pvt. Ltd (Package 1)	2,156,400.00	DBM= Nu.13.31 per Sqm AC= Nu. 10.65 per Sqm	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the rate analysis under the DBM and AC item of work
6		M/s Rinson Construction Pvt. Ltd (Package 3)	2,032,875.00	DBM = Nu. 21.30 per Sqm AC=	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the

				Nu. 14.84 per Sqm	rate analysis under the DBM and AC item of work
7		M/s Welfare Construction Pvt. Ltd (Package 9)	239,400.00	DBM= Nu. 2.00 per Sqm AC= Nu. 2.00 per Sqm	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the rate analysis under the DBM and AC item of work
8		M/s Rinson Construction Pvt. Ltd (Package 10)	1,122,354.00	DBM= Nu. 15.98 per Sqm AC= Nu. 11.13 per Sqm	Acceptance of inflated rate analysis due to inclusion of rate for transportation cost of Bitumen in the rate analysis under the DBM and AC item of work
	<b>Total</b>		<b>12,322,823.58</b>		

It is apparent that the Evaluation Committee and MLTC had failed to review the rate analysis submitted by the contractors in line with the addendum and for appropriateness and to take corrective measures prior to acceptance of the rates. The RO in consultation with the Ministry should revisit the analyzed rates. Cost implication due to inclusion of transportation cost as a component of cost of the item work in addition to the wastages and overhead charges applied on the overall item rates should be worked out and recovery effected deposited into ARA.

The Ministry besides commenting on the deficiencies and lapses on the part of the Evaluation Committee and MLTC members should hold the responsible officials accountable to make good the loss in the event contractor disagree to refund the cost implication.

#### **Auditee's Response:**

*As per the section VI of the SCC: the additional clause reads:*

*i) Bitumen VG-10 shall be supplied by the client and no recovery shall be made. However, the contractor shall lift the bitumen from the Regional Offices, DoR, and transport it to respective work site at their own cost.*

*ii) The bidders are required to submit rate analysis for the following items:*

- a. Providing & Laying DBM*
- b. Providing and laying AC.*

***Note: The rate of bitumen VG-10 must be "0" (Zero) in the above rate analysis: however, the transportation cost of bitumen from above store to the respective work site must be included in relevant items of the rate analysis.***

*From the above clauses, it is understood that contractor has to submit the rate analysis for DBM and AC. The contract document also highlights that contractor can add transportation cost of bitumen from RO store to work site in relevant items of the rate analysis. In compliance to the tender document, the contractor has submitted the rate analysis and added the transportation cost in the relevant coefficient.*

## RAA's Further Comments & Recommendations:

*Evaluation committee plays a crucial role in procurement as it is their due diligence and decision that determines the outcome of the tendering process. The members have to be competent and charged with the responsibility to uphold the core principles of procurement to ensure procurements at most competitive manner.*

*It was the responsibility of the Evaluation Committee to present the facts correctly to the MLTC on the incorporation of transportation charges as component cost of the item of works against the cost of bitumen though was to be "Zero" in the rate analysis. The cost of transportation should have been covered under overheads and profit charges as incorporated by other contractors. The decisions on the evaluation committee to ignore such flaws in the rates analysis had resulted in overall financial implication to the Government Exchequer to the extent of Nu.12,322,823.58.*



*Failure of evaluation committee members seem to be a major cause for most procurement errors or non-compliances. The absence of consistent structures in place in different procuring agencies leave room for isolated approach and differing practices undermining the PRR's objective of achieving uniformity and effectiveness of procurement procedures.*

*Considering huge financial implication, the Ministry should institute technical team to review all the rate analysis of contractors and formulate specific guidelines in carrying out rate analysis by the ROs and contractors detailing the processes for incorporating transportation and other related cost if construction materials are to be supplied to the contractors by the executing agencies to avoid flaws, ambiguities and complications in future project works.*

*The huge financial loss to the extent of Nu. 12.323 million to the government is brought to the notice of the Government for appropriate decisions and actions.*

### **2.11 Award of three work packages in contravention to the Nganglam Resolution**

The review of documents relating to the construction of the NEWH indicated following pre-construction decisions taken by the Ministry as discussed below:

-  *Coordination Meeting held at Nganglam on **23<sup>rd</sup> December, 2014** deliberated series of issues on management of Double Lanning of NEWH, such as formation of Project Management Team(PMT), Division of contract packages, Monitoring and Supervision issue, Requirement of sign boards. Amongst other decisions, the procurement of contract was decided that only two work packages were to be awarded to each contractor.*
  
-  *Subsequently, the Project Management Team met on **12<sup>th</sup> January 2015** at Thimphu with the objective to follow-up and take immediate action on the resolutions of Nganglam's meeting held on 23<sup>rd</sup> December, 2014.*

*During the Meet, besides formation of the Technical team and assigning the tasks to the GoI project coordinator on the maintenance of keep updated financial information,*



manpower & HR issues again reiterated on the award of two work packages each to the individual contractor by the Chief Engineer of Regional Office of Trongsa, Lobeysa & Lingmithang.

☞ 75 mm thick Dense Bituminous Macadam and 50mm Asphalt concrete was designed by Design Division, Ministry of Works & Human Settlement, Thimphu to withstand the plying of heavy traffic.

However, the approved design particularly was beyond the purview of Bhutan Schedule of Rates 2015, thus bidder was ask to submit separate rate analysis with bidding documents, further, it was stipulated in additional clause in the Special Condition of Contract to analyze the rate for the said item excluding the cost of bitumen.

However, it was noted that four contractors were awarded three contract packages each in contravention to the resolutions of the Nganglam Meet **23<sup>rd</sup> December 2014** and Project Management Team **12<sup>th</sup> January 2015** at Thimphu to award maximum of two packages to each contractor.

The three contract packages awarded with a total road stretch ranging from 13 km to 30 km along with contract amounts are as tabulated below:

Table 2.11: Award of three contract packages						
M/s Chogyal Construction Pvt. Limited, Thimphu holding trade license No.1032785, CDB No.7640						
Package (RO, Lobeysa)	Estimated amount (Nu)	Contract Amount (Nu)	% of deviation (Estimate-Contract value)	Contract duration in month(s)	Work done value (Nu)	% of Deviation (Contract value – Work done value)
I-(Ch:477-467) (10km)	114,155,909.36	100,376,501.11	-12.07	15	116,399,663.99	15.97
II- Ch: 467-457)(10km)	118,573,848.79	102,070,100.40	-13.92	15	115,511,304.38	13.17
III-(Ch:457-447)(10km)	119,590,876.28	102,286,495.00	-14.48	15	115,504,285.38	12.93
<b>Total stretch of 30Km</b>		<b>304,733,096.51</b>				

Table 2.11.1: Award of three contract packages						Delays in months from the initial completion periods
M/s Chogyal Construction Pvt. Limited, Thimphu holding trade license No.1032785, CDB No.7640						
Package (RO, Trongsa)	Estimated amount (Nu)	Contract Amount (Nu)	% of deviation (Estimate-Contract value)	Contract duration in month(s)		
VIII Ch: 50.8-58 (7.2km)	150,298,000.00	73,239,890.20	-30.45%	28		12
XI Ch: 72-80 (8 km)	117,475,584.76	89,839,558.00	-23.52%	28		12(Ongoing)
XII Ch: 80-85 (5km)	106,509,159.36	78,928,350.00	-25.89%	20		12
<b>Total road stretch of 20.2 Km</b>		<b>242,007,798.20</b>				

Table 2.11.2: Award of three contract packages					Delays in months from the initial completion periods
M/s Rigzar Construction Pvt. Limited, Trashigang holding trade license 6004726, CDB No. 2435					
Package	Estimated amount (Nu)	Contract Amount (Nu)	% of deviation (Estimate-Contract value)	Contract duration in month(s)	

X- Ch 365-359 (6Km) (Lobeysa)	78,073,915.54	56,974,612.41	-27.03%	24	15.7
I- Ch 0-12 ( 12 Km) (Trongsa)	191,662,477.46	147,882,777.62	-22.84%	30	7
VI- Ch:102.45-114.45 (12Km) (Lingmithang)	140,282,847.00	125,557,813.70	-10.49%	28	2
<b>Total road stretch of 30 Km</b>		<b>330,415,203.73</b>			

Table 2.11.3: Award of three contract packages					Delays in months from the initial completion periods
M/s Rinson Construction Pvt. Limited holding trade license No.1000488 and CDB No.1965					
Package ( RO, Trongsa)	Estimated amount (Nu)	Contract Amount (Nu)	% of deviation (Estimate-Contract value)	Contract duration in month(s)	
III-(Ch: 19.5-27) (7.5km)	151,041,704.92	97,306,916.89	-35.58	30	12
X- Ch: 65.98 -72)(6.02km)	150,325,008.00	85,883,906.60	-42.87	28	13 (On-going)
XIII-(Ch:85-97.3)(12.3km)	139,964,945.98	124,174,327.15	-11.28	28	12
<b>Total road stretch of 25.82 Km</b>		<b>307,365,150.60</b>			

Table 2.11.4: Award of three contract packages					Delays in months from the initial completion periods
M/s Empire Construction Pvt. Ltd, Punakha					
Package (RO, Lobeysa)	Estimated amount (Nu)	Contract Amount (Nu)	% of deviation (Estimate-Contract value)	Contract duration in month(s)	
XIV-Ch-392.25-389 (3.25 Kms)	46,552,814.61	27,808,65.00	-40.26%	10	13.2
XV-Ch-395-392.25 (2.75 Kms)	39,390,946.46	39,390,946.46	Direct on estimated cost	12	7.4
VIII_Ch-379-372 (7 Kms)	87,463,950.28	78,967,074.00	-9.71%	25	17(Ongoing)
<b>Total road stretch of 13 Km</b>		<b>118,358,020.46</b>			

While the other contract works were in progress, the contract packages awarded to M/s Chogyal Construction Pvt. Limited, Thimphu were found completed prior to start of the audit. On review, the RAA noted that the contract works including additional works were found completed with delays by more than 3.8 months except one package as tabulated below:

Table 2.11.5: Award of three contract packages with resultant delay completion of contract						
M/s Chogyal Construction Pvt. Limited, Thimphu holding trade license No.1032785, CDB No.7640						
	Chainage	Contract Amount (Nu)	Work done value (Nu)	Due completion Date	Actual Completion Date	Delays in Months
Dochula-Lampari	477-467 (10 Kms)	100,376,501.11	116,399,663.99	28/9/2016	26/09/2016	-
Lamperi-Menchuna	467-457 (10 Kms)	102,070,100.40	115,511,304.38	28/9/2016	20/01/2017	3.8
Menchuna-Chasagang	457-447 (10 Kms)	102,286,495.00	115,504,285.38	9/11/2016	03/01/2017	3.8

The Regional Office in consultation with the MTLC should comment on the circumstances leading to award of three packages disregarding the critical resolution of the Nganglam Coordination Meet of Ministry, Departments and Regional Offices, besides, the Regional Offices should also comment on the decision taken to scope in pavement works with stretches in packages ranging from 5km to 12.3km deviating from the projected average allotment of 6.7 Kms per package.

### ***Auditee's Response:***

*During the 1<sup>st</sup> Coordination meeting for NEWH held in Nganglam on 23<sup>rd</sup> Dec 2014, it was discussed & resolved to award only two packages to one bidder in order to ascertain timely completion of the works & to the desired quality. However, in subsequent discussions with CDB & PPPD, MoF it was pointed out by the two agencies that a contractor can have a minimum of five works in hand at any given time. Therefore, the decision to award only two works could not be adhered to.*

*Widening & improvement works on the NEWH was a major project of the DoR, MoWHS. The duration for completion of the project was 3 years only until Dec 2017. So, for the project time was of essence.*

*The e-tool system allows the contractors to bid for several packages using the same set of equipment & human resources; these resources do not get blocked until the contract is formally signed between the contractor & the procuring agency.*

*The decision to award the three packages to the same contractor (lowest evaluated) was taken by the MLTC in view of the financial advantages. Moreover, awarding the three packages to the same contractor made sense as the management of the works on the part of the contractor would be easier & more productive on the same stretch of road. Timely completion & quality deliverance of the work was anticipated. In view of the above justifications, the para may please be dropped.*

### ***Response of RO, Lobeysa***

*The up-gradation of the 385 km Northern East West Highway (NEWH) from Semtokha to Trashigang was a priority project of the Government then and started from 1st January 2015 with three years' time period. The first coordination meeting between the Ministry and Department including Regional Offices was held in Nganglam, Pema Gatshel on 23<sup>rd</sup> December 2014 under the chairmanship of Zhabtog Lyonpo. Issues pertaining to project implementation such as contract packaging & size, tendering, uniform bidding document, quality control etc. were discussed in the coordination meeting. Following the first coordination meeting in Nganglam, the first Project Management Team Meeting was convened on 12<sup>th</sup> January 2015 at Thimphu and one of the issues discussed was to award only two contract packages of double lanning of east west highway per contractor. The meeting also decided that approval of Ministry of Finance would be sought for change in the procurement standard.*

*Based on the recommendation of the first Project Management Meeting, a separate consultative meeting was held on 14<sup>th</sup> January 2015 under the chairmanship of Hon'ble Zhabtog Lyonpo. Officials from ACC, CDB and MoF were present during the meeting (a copy of minutes attached for ready reference). The meeting discussed many issues including the proposal to award only two NEWH works to one contractor.*

*Although, it is not captured in the minutes of the meeting, the meeting indeed discussed and decided that the proposal of MoWHS to award only two works to one contractor is a violation of PRR 2009 and CDB e-tool work in hand information. Therefore, the MLTC had to follow the existing procurement rules and regulations i.e. maximum of five works in hand as per the e-tool report. Based on above stated facts and justifications submitted, RAA is requested to kindly drop the memo.*

### **RAA's Further Comments & Recommendations:**

*While the RAA takes note of the responses, the fact remains that the Ministry had failed to strictly adhere to its own decisions taken during the Coordination Meeting held at Nganglam on 23<sup>rd</sup> December, 2014 and affirmation of the decision taken during the Project Management Team met on 12<sup>th</sup> January, 2015 at Thimphu. It is to put on records that contractors who were awarded one or two contract packages had failed to complete projects in time let alone those contractors who were awarded three contract packages.*

*The maximum of five works in hand as allowed by CDB e-tool is for evaluation purpose. Decision as to how many packages should be awarded to each contractor must be based on the capacity of contractor to undertake and complete the work within the prescribed contract period. A maximum of five works in hand would not mean that the Contractors without any work in hand should be awarded five works as otherwise it would constitute violation of procurement norms as suggested in the response.*

*Thus, the decisions of MLTC to award of three contract packages to the five firms were not in the interest of project as the contractors failed to complete the packages on time with overall delays in completion of the Project.*

*In the light of the failure to implement its own decisions on the award only two contract packages due to overriding of decisions by the MLTC, it is imperative for the Government and the authority concern to review the existing policy and system of MLTC functions and responsibilities and take measures to prevent overriding of decisions for future similar project.*

### **2.12 Flawed decision on the realization of differential amount between estimated and quoted value net of 20% with resultant non- realization of Nu. 446.142 million as well as short realization of Nu. 52.150 million due to application of approved percentage on the quoted contract price and subsequently non-renewal of BG for approved differential amount of Nu. 203.406 million**

*Clause 5.4 Evaluation of Bids sub clause 5.4.5 Abnormally Low Bid of Procurement Manual 2009, states as "Where the prices in a particular bid appear abnormally low or the bid appears seriously unbalanced, the Procuring Agency may reject it only after seeking written explanations from the bidder submitting the low or seriously unbalanced bid. In the case of a bid which*

*appears seriously unbalanced, the procuring agency shall request from the bidder an analysis of rates of the relevant items”.*

*“If the Procuring Agency decides to accept the abnormally low bid or the bid with the seriously unbalanced rates after considering the above factors, the bidder shall be required to provide additional differential security equivalent to the difference between the estimated amount and the quoted price in addition to the performance security”.*

In addition, ITB Clause 29.6 stipulates as *“If the Bid which results in the lowest evaluated Bid price is abnormally low, seriously unbalanced and/or front loaded in the opinion of the Employer, the Employer shall require the Bidder to produce written explanation of, justifications and detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices if the Procuring Agency decides to accept the abnormally low, seriously unbalanced and /or front loaded price, the bidder shall be required to provide additional differential security equivalent to the difference between the estimated amount and the quoted price in addition to the performance security”.*

On review of the documents and accounting records relating to realization of differential amounts, flaws and deficiencies were observed as discussed below:

### **2.12.1 Non-realization of differential amounts to the extent of Nu. 446.142 million**

On review of the bidding processes and tender evaluation reports, the contract packages were found awarded to the lowest evaluated bidders. It was noted that on the basis of tender evaluation reports, the MLTC had passed decisions to award the contract to the lowest evaluated bidder on realization of differential amounts. However, the Awarding Committee had taken decisions to realize the differential amounts net of 20% variations.

In line with the decisions of the MLTC and Awarding Committee, the ROs had realized differential amounts net of 20% amounting to Nu. 203,406,293.05 as against the actual differential amounts of Nu. 649,557,598.08 as detailed below:

<b>Table 2.12.1: Short realization of differential amounts</b>						
<b>Name of contractor</b>	<b>Estimated Amount (Nu.)</b>	<b>Quoted Amount (Nu.)</b>	<b>Differential Amount (Nu.)</b>	<b>% Differential Amount</b>	<b>% Differential Amount realized</b>	<b>Total Amount realized (Nu.)</b>
RO, Trongsa						
<b>(Package 1) M/s Rigsar Construction Pvt. Ltd.</b>	191,662,477.46	147,882,777.62	43,779,699.84	22.84%	2.84%	4,199,870.88
<b>(Package 2) M/s Gaseb Construction Pvt. Ltd</b>	171,993,910.77	111,563,269.46	60,430,641.31	<b>35.14%</b>	15.14%	<b>16,890,000.00</b>
<b>(Package 3) M/s Rinson Construction Pvt. Ltd</b>	151,041,704.92	97,306,916.89	53,734,788.03	<b>35.58%</b>	15.58%	<b>15,160,417.65</b>
<b>(Package 4) M/s Gyalcon Infrastructure Pvt. Ltd</b>	146,426,379.15	94,860,888.47.	51,565,490.68	35.22%	15.22%	14,437,827.23
<b>(Package 5) M/s Druk Lhayul Construction Pvt. Ltd</b>	131,935,342.62	77,150,269.45.	54,785,073.17	41.52%	21.52%	16,602,737.99

(Package 6) M/s Raven Construction Pvt. Ltd	138,898,344.12.	79,151,909.00	59,746,435.12	<b>43.01%</b>	23.01%	18,212,854.26
(Package 7A) M/s Druk Lamsel Construction Pvt. Ltd	95,574,000.00	70,131,689.00.	25,442,311.00	<b>26.62%</b>	6.62%	6,326,100.00
(PKG-8) M/s. Dungkar Construction Pvt Ltd. Thimphu	105,297,611.69.	73,239,890.20.	32,057,721.49	30.44%	10.44%	10,993,070.66
(Package 10) M/s Rinson Construction Pvt. Ltd	150,325,008.00	85,883,906.60.	64,441,101.40	42.87%	22.87%	<b>34,379,329.33</b>
(Package 11) M/s Dungkar Construction Pvt. Ltd	117,475,585.00	89,839,558.00.	27,636,027.00	23.52%	3.52%	<b>4,135,140.59</b>
(Package 12) M/s. Dungkar Construction Pvt Ltd. Thimphu	98,620,000.00	78,930,000.00.	19,690,000.00	19.97%		-
RO, Lobeysa						
(Package VII) M/s Loden Construction Pvt. Ltd	90,091,287.54	71,417,679.10.	18,673,608.44	<b>20.73%</b>	0.73%	657 666.40
(Package XI) M/s Hi-Tech Company Pvt. Ltd	153,688,193.47	<b>107,568,025.00</b>	46,120,168.47	<b>30.01%</b>	10.01%	15,369,197.50
(Package XII) M/s Taksing Chungdruk Construction Pvt. Ltd	100,267,497.37	66,128,323.00.	34,139,174.37	34.05%	14.05%	14,087,583.38
(Package XIII) M/s U.P Construction Pvt. Ltd	126,747,002.70.	69,441,930.80	57,305,072.7	45.21%	25.21%	31,953,919.38
Total			<b>649,547,312.22</b>			<b>203,405,715.25</b>
	<b>Short realization</b>					<b>446,141,596.97</b>

Thus, differential amounts to the extent of Nu. 446.151 million were not realized thereby failing to safeguard the interest of the Government. In addition, the decisions of the Awarding Committee to realize net of 20% variations was in deviation to Clause 29.6 of ITB of Standard Bidding Document which clearly stipulated requirement to realize the differential amount between the estimated amount and the quoted price in addition to the performance security.

### 2.12.2 Short realization of differential amount to the extent of Nu. 52.150 million due to wrong application of differential percentages on contract prices

On cross check on the differential amounts realized in terms of the approved differential percentages with that of the estimated cost, it was noted that the differential percentages were found applied to the contract prices instead of estimated costs. Thus, wrong application of differential percentages had resulted in short realization of differential amounts to the extent of Nu. 52,150,092 which benefited six contractor to that extent. The short realization of differential amounts is as tabulated below:

Name of contractor	Estimated Amount (Nu.)	Quoted Amount (Nu.)	% Differential percentage realized	Differential amount on estimated cost (Nu.)	Amount realized on contract price (Nu.)	Total Amount short realized (Nu.)
<b>RO, Trongsa</b>						
(Package 1) M/s Rigsar Construction Pvt. Ltd.	191,662,477.46	147,882,777.62	2.84%	5,443,214.36	4,199,870.88	1,243,343.48
(Package 2) M/s Gaseb	171,993,910.77	111,563,269.46	15.14%	26,039,878.09	16,890,000.00	9,149,199.09

Construction Pvt. Ltd						
(Package 3) M/s Rinson Construction Pvt. Ltd	151,041,704.92	97,306,916.89	15.58%	23,532,297.63	15,160,417.65	8,371,879.98
(Package 4) M/s Gyalcon Infrastructure Pvt. Ltd	146,426,379.15	94,860,888.47	15.22%	22,286,094.91	14,437,827.23	7,848,267.68
(Package 5) M/s Druk Lhayul Construction Pvt. Ltd	131,935,342.62	77,150,269.45	21.52%	28,392,485.73	16,602,737.99	11,789,747.75
(Package 6) M/s Raven Construction Pvt. Ltd	138,898,344.12	79,151,909.00	23.01%	31,960,508.98	18,212,854.26	13,747,654.72
<b>Total</b>				<b>137,654,479.70</b>	<b>85,504,387.00</b>	<b>52,150,092.69</b>

Wrong application of differential percentages indicated existence of either weak management system or possible unhealthy practices.

The Ministry should to recover short realization of differential amounts of Nu.52.150 million and deposited into Audit Recoveries Accounts, besides taking action against the responsible official for wrong computation of differential amount for six contract packages..

### 2.12.3 Non-renewal of Bank Guarantees/Cash warrants obtained against differential amounts on expiry of the initial validity periods

Provisions of PRR 2009 and SBD provides that, “*the bidder shall be required to provide additional differential security equivalent to the difference between the estimated amount and the quoted price in addition to the performance security*”.

*In addition Clause 51, sub-clause 51.1 state that, “The Performance security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount specified in the SCC by a bank or surety acceptable to the Employer, and in denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance security shall be valid until a date 30 days from the date of issue of the Certificate of Completion”.*

*Thus, in terms of the above provisions, the security for the differential amounts was to be obtained with validity period aligned to the performance security validity periods.*

On review of the Bank Guarantee and Cash Warrant related records, it was noted that while the contractors had renewed the Performance Guarantees, the ROs had failed to renew the Bank Guarantees for the differential amounts of **Nu. 203,406,293.05** initially obtained in the form of Bank Guarantee/Cash Warrant on expiry of the validity periods as detailed below:

Name of contractor	Contract Duration in month	Total Amount realized (Nu.)	Bank Guarantees/ Cash warrants validity period	Validity periods in months	Expiry date of the BG/ CW	Remarks
RO, Trongsa						
(Package 1) M/s Rigsar Construction Pvt. Ltd.	5 <sup>th</sup> December 2017	4,199,870.88	BG No. PG/TG/2015-10 of 2.6.2015 that too with validity till <b>31<sup>st</sup> May, 2016.</b>	12 month	<b>31<sup>st</sup> May, 2016.</b>	Only Bank Guarantee for performance security renewed on 20 <sup>th</sup> June 2016
(Package 2) M/s Gaseb	30 months i.e., until	<b>16,890,000.00</b>	No. PG/PL2015-50 &51 of 1.6.2015 with validity	6 months	30 <sup>th</sup> November	Only BG for performance security renewed on 1 <sup>st</sup>

Construction Pvt. Ltd	05.12.2017 with time extension granted up to 18 <sup>th</sup> March 2018		period of just 6 months up to 30 <sup>th</sup> November 2015		2015	December 2015 with validity period of 12 months up to 29 <sup>th</sup> November 2016 as evident from BG No.. G/PL2015-50 E of 1.12.2015.
(Package 3) M/s Rinson Construction Pvt. Ltd	contract duration of up to 15.12.2017	<b>15,160,417.65</b>	Bank Guarantee that too with validity till <b>26<sup>th</sup> June, 2016</b>	12 months	<b>26<sup>th</sup> June, 2016</b>	Only Performance Guarantee (PS) PG/HO/2016-447E amounting to Nu. 9,715,000.00(that too less by Nu.30,691.69) representing performance security of 9.98% only on 27/06/2017 which was valid till 31 <sup>st</sup> December 2017
(Package 4) M/s Gyalcon Infrastructure Pvt. Ltd	30 months up to 17 <sup>th</sup> December 2017	14,437,827.23	BG No. PREGRNTEE/2015/4300 dated 18/6/2015) that too valid till 15/6/2016	12 months	15/6/2016	Only Bank Guarantee PS was renewed on 8 <sup>th</sup> October 2016 up to 3 <sup>rd</sup> October 2017 for a period of another 12 months
(Package 5) M/s Druk Lhayul Construction Pvt. Ltd	30 months up to 12 <sup>th</sup> December 2017.	16,602,737.99	BG No. 00101150115 dated 11.6.15) that too valid till 15/6/2016	12 months	15/6/2016	Only Bank Guarantee (PRFGRNTEE/2017/6443 dt.20/4/2017) for performance security amounting to Nu 8,000,000.00 on 20 <sup>th</sup> April 2017 up to 31 <sup>st</sup> December 2017 that too after a time lapse of almost 10 months
(Package 6) M/s Raven Construction Pvt. Ltd	30 months up to 21.11.2017	18,212,854.26	Bank Guarantee obtained with validity period of just 12 months up to 9.6.2016	12 months	9.6.2016	only BG for PS renewed on 19.8.2016 with validity period up to 19.8.2017
(Package 7A) M/s Druk Lamsel Construction Pvt. Ltd	18 months up to 12.1.2018	6,326,100.00	Cash Warrant with validity period of just 6 months up to 10.1.2017	6 months	10.1.2017	only BG for PS renewed on 6.6.2017 as evident from BG/CORP/2017-326 OF 6.6.2017 with validity till 2.2.2018
(PKG-8) M/s. Dungkar Construction Pvt Ltd. Thimphu		10,993,070.66				Not realized
(Package 10) M/s Rinson Construction Pvt. Ltd	28 months up to 31.12.2017	<b>34,379,329.33</b>	Bank guarantee <b>which was valid till 28<sup>th</sup> February 2016</b> under BG No. BH/HO/2015-892 of 29.8.2015	6 months	<b>28<sup>th</sup> February 2016</b>	PS expired on 28 <sup>th</sup> February 2016 and renewed only the PS on 28 <sup>th</sup> March 2017 with validity till 31 <sup>st</sup> December 2017 as evident form the BG No. PG/HO/2017-160 of 28.3.2017 after a delay of 13 months
(Package 11) M/s Dungkar Construction Pvt. Ltd	28 months up to 31.01.2018.	<b>4,135,140.59</b>	Bank guarantee <b>which was valid till 30<sup>th</sup> September 2016</b> under BG No. 000101150223of 16/9/2015 & 000101150224 of 16/9/2015	12 months	<b>30<sup>th</sup> September 2016</b>	Only PS was renewed on 18 <sup>th</sup> April 2017 with validity of just 9 months till 31 <sup>st</sup> January 2018 as evident form the BG No. 00001170109 of 18.4.2017 that too after delays of 6 1/2 months
<b>RO, Lobeysa</b>						
(Package VII) M/s Loden Construction	3 <sup>rd</sup> August 2015 to 24 <sup>th</sup> March	657 666.40	Bank Guarantee vide BG No. 167801/PG/PL/2015/111(E)			



Pvt. Ltd	2017		dated 18 <sup>th</sup> April 2017.			
(Package XI) M/s Hi-Tech Company Pvt. Ltd	26 <sup>th</sup> Nov 2015 to 14 <sup>th</sup> December 2017	15,369,197.50	Bank Guarantee vide BG No. 126603 dated 16 <sup>th</sup> November 2015.			
(Package XII) M/s Taksing Chungdruk Construction Pvt. Ltd	3 <sup>rd</sup> March, 2016 to 26 <sup>th</sup> January, 2017	14,087,583.38	Bank Guarantee vide BG No.			
(Package XIII) M/s U.P Construction Pvt. Ltd	22 <sup>nd</sup> February 2016 to 15 <sup>th</sup> July 2017	31,953,919.38	Guarantee vide BG No. PRFGRNTE1/ 2016/23 of 13.2.16.			
<b>non-renewal of BG</b>		<b>203,406,293.05</b>				

The Ministry should investigate the circumstances leading to the failure to renew the Bank Guarantee for differential amounts after expiry of initial validity period along with the renewal of Performance Guarantee. Besides, the Ministry must recover the interest on the differential amounts for time periods not renewed including one month period for issuance of certification of completion.

In addition, the Ministry should take appropriate action against the ROs for laxity and extension of undue favour to the contractor. The inaction on the part of the ROs to recover the differential amounts indicated apathy towards enforcement of contract provisions and safeguards the government interest.

#### **Auditee's Response:**

*In the case of NEWH project, the MLTC in its wisdom had decided that the additional performance security would only be imposed for bids after allowing for deduction of 20% from their quoted amount.*

*Clause 5.4.5.3 under Abnormally Low Bid of PRR 2009 (revised July 2015) allows the Procuring Agency to accept abnormally low bid or bid with seriously unbalanced rates after considering factors specified under clause 5.4.5.2. The bidder shall be required to provide additional bid security equivalent to the difference between estimated amount & the quoted price in addition to the performance security.*

*In the Ministry, it is a generally accepted fact that bids within the range of +/- 20% of the departmental estimated cost is workable.*

*In view of the above, the decision of MLTC to ask the lowest evaluated bidders to submit the additional differential security beyond (-) 20% only may be considered by RAA.*

*Also, as RAA is aware of, Bhutanese contractors in their effort to win the bids quote low rates to the tune of (-) 40% also. However, if the full (-) 40% is to be deposited by the bidder as differential security, the bidder would be seriously constrained with working capital. Thus, the decision of MLTC to get the differential security beyond (-20)% only.*

*The Ministerial Tender Committee (MLTC) is the highest decision making body in the Ministry for procurement of goods, services & works. MLTC takes decisions based on consensus in the best interest of the works and the Government. Therefore, the decision of MLTC may kindly be reviewed holistically & honored. In view of the above justifications, the para may please be dropped.*

**RAA's Further Comments & Recommendations:**

*While taking note of the response, it is reiterated that under Instructions to Bidder ITB under section "Evaluation and Comparison of Bids, the decisions and actions on the part of the MLTC and Awarding Committee to realize net of 20% variations were in violation to the provisions of the PRR and Standard Bidding Documents (SBD). There is no scope provided in the PRR to adjust +/- 20% for the purpose of depositing differential security.*

*The Ministry in consultation with the Ministry Finance should take immediate decisions and measures to either amend the provisions in the PRR and SBD for consistency and uniform adoptions by all government agencies or take actions against the MLTC and Awarding Committees for the violations which had resulted in non-realization of differential amounts to the extent of Nu. 446.151 million to ensure timely completion of contracts and safeguard the interest of the Government in the event of the failure to fulfil the contractual obligations by the contractors.*

*Regarding the wrong application of approved differential percentages with resultant short realization of differential amounts of Nu. 52.150 million, the Ministry should ascertain the circumstances leading to such lapses only for 6 contract packages besides taking actions against the officials responsible for the failure to appropriately apply the percentage to the estimated amounts.*

*Further, the Ministry should investigate the circumstances leading to the failure to renew the Bank Guarantee for differential amounts after expiry of initial validity period along with the renewal of Performance Guarantee. Besides, the Ministry must recover the interest on the differential amounts for time periods not renewed either from the contractors or officials responsible for the violation of the Procurement norms.*

*Furthermore, in the light of flaws and deficiencies in the applications and realization of security for differential amounts and performance security, the Ministry should institute a mechanism to create responsiveness on the procedures and process for the realization and disposal of bank Guarantees in the best interest of the Government.*

**2.13. Non-deployment/Mismatch of Personnel at site as per the requirements and non-deduction of penalty approximately - Nu. 40,579,000.00 (4.4.15)**

As per the bidding data sheet, Section II, Employer's Requirements (ERQ) key personnel requirements on the widening and pavement construction works were found met by contractors in terms of the declared individual CV submitted along with the project profile.

During the site verification conducted by the joint team comprising of audit team and officials from RO, an attempt was made to cross check the personnel present at site with that of committed key personnel in the contract documents. It revealed that the personnel committed were not present but different set of key personnel were found deployed at site. The status of key personnel committed as per bidding document and actual employment at work sites as noted during the physical verification for all the contract packages were as tabulated and discussed below:

## **RO, Lobeysa**

### **2.13.1 Dochula to Chasagang (Packages I, II and III) executed by M/s Chogyal Construction Pvt. Ltd recoverable penalty Nu.7.144 million (RO, Lobeysa)**

The joint verification of site conducted on *29 September 2017 & 2 October 2017* revealed the following lapses:

- On reviewing associated HR and equipment aspects in new point based system of evaluation in e-tools through hard copy of e-tools report noted few HR and Equipment were used commonly to evaluate in system all the three packages I, II and III. However, the evaluation committee used same HR & Equipment for evaluation in e-tools system for contract packages II & III.
- This particular concern was presented to in MLTC meeting convened on 3<sup>rd</sup> June, 2015 wherein, MLTC unanimously decided that contractor should allocate separate HR & Equipment considering the work being separate package and also on contractor's commitment to provide separate HR & Equipment as per letter No. CCCPLT/T&Q-11/2015/11 dated June 19, 2015.
- Following the decisions of the MLTC convened on **3<sup>rd</sup> June, 2015**, the Regional Office vide letter No. DOR.ROL/Plg-15/2014-2015/3721 dated June 9, 2015 had directed the contractor to submit the letter of commitment for deployment of separate resources for the two packages.
- In response, the contractor had sought one-week time extension for submission of additional resources vide letter **No. CCCPLT/T&Q-11/2015/10 dated June 12, 2015** and had subsequently assure availability of adequate resources for the deployment of separate HR and equipment **vide letter No. CCCPLT/T&Q-11/2015/11 dated June 19, 2015**.
- The audit team could not verify the documentary evidences as Regional Office had failed to produce documents relating the deployment of separate HR and equipment in particular for package III despite repeated request.
- On probing further, the RO stated the contractor had used the same HR & Equipment for package II & III. This scenario proved that the contractor had failed to allocate separate HR & Equipment for package II & III, resulting in fundamental breach of contractual obligation.

- The Regional Office have neither invoked the termination clause nor enforced the penalty clause GCC 10.1

Particular of HR	Penalty amount /month (Nu)	penalty amount for the duration of the contract 18.8 months
Project Engineer	50,000.00	940,000.00
Materials Engineer	40,000.00	752,000.00
Project Manager	50,000.00	940,000.00
Junior Engineer	25,000.00	470,000.00
Laboratory Technician	15,000.00	282,000.00
Site Supervisor	15,000.00	282,000.00
<b>Total:</b>		<b>3,666,000.00</b>

Similarly, the contractor had failed to deploy separate HR and equipment against the same HR and equipment committed for the three packages. Thus, in line with the penalty provisions under Clauses GCC 10.1 and SCC and failure to terminate the contract, the Regional Office should recover the salaries of such personnel and hire charges of equipment at a rate stipulated in the Special Condition of Contract per month per personnel and equipment for the duration of the contract amounting to Nu. 3,478,000.00 as computed below:

Particular of HR	Name	Packages	Penalty amount /month (Nu) (II)	Penalty amount for the duration of the contract 18.8 months (Nu.)
Project Manager	Biren Thapa	Same for all packages (I,II, & III)	50,000.00	940,000.00
Project Engineer	Babu Madhavan Puthenpurayil	Same for all packages (I,II, & III)	50,000.00	940,000.00
Material Engineer	Sonam Tobgay Dorji	Same for all packages (I,II, & III)	40,000.00	752,000.00
Surveyor	Karchung	Same for all packages (I,II, & III)	15,000.00	282,000.00
Lab Technician	Megraj Gurung	Same for all packages (I,II, & III)	15,000.00	282,000.00
Site supervisor	Nidup Lhamo	Same for all packages (I,II, & III)	15,000.00	282,000.00
Site supervisor	Lhendup Tshering Lepcha	Same for all packages (I,II, & III)	15,000.00	282,000.00
<b>Total:</b>				<b>3,478,000.00</b>

- The following correspondences apparently indicated failure of the Pavement works for Packages II and III valuing Nu. 26.490 million and additional compensation payment of Nu. 3.593 million in addition to the insurance claim of Nu. 19.453 million.
  - DoR/CE(TMT)/2015-16/8 date 1<sup>st</sup> June 2016
  - CCCPL/ROL-(III)/Works-09/2016-2017/002 dated 7<sup>th</sup> January 2017
  - DoR/Lobeysa/construction Division(09)/2016-2017/037 dated 24<sup>th</sup> January 2017
  - CCCPL/ROL-(II)/Works-07/2016-2017/049 dated 13<sup>th</sup> April 2017
  - DoR/CE(CD)/2016-2017/W-7/3795 dated 17<sup>th</sup> April 2017
  - DoR/CD/7/2016-2017/4059 dated 26<sup>th</sup> June 2017
  - DoR/CD/28/2017-2018/4245 dated 8<sup>th</sup> August 2017

The failure of such magnitude of pavement works is a clear evidence of non-deployment of separate HR by the contractor as well as laxity on the part of the Regional Office and MLTC in allowing the contractor to execute three packages with the same HR for all the three works.

### 2.13.2 Langkena-Tekizampa (Package V) executed by M/s Etho Metho Construction Pvt. Ltd (RO, Lobeysa)

Table 2.13.2:HR requirement/employed as per bidding documents				HR as per physical verification at site			
Sl. No.	Key Personnel Required	Qualification Required	Nos.	Nos.	Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	J.D Karchung	Sonam Dorji, Degree in Tourism	
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Ashok Maheswari	Nil	Not present at site
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Phuntsho Wangdi Diploma in Civil Engg		Not present at site
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Kinley Penjor	Bhawana, Degree in Civil Engg	
5	Surveyor	Diploma in Survey or trained surveyors	1	1	Mr. Gurung	Surya Bdr Chettri	
6	Lab Technician	Class X pass with experience	1	1	Kinley Chopel	Choki, Class X passed	
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Sangay Phuntsho	Lok Bdr	
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Tshering Tobgay	Pema Wangchuk	

- The site engineer was also not aware of unauthorized replacements
- The Project Engineer and Material Engineer were not at site during physical verifications.

The Regional Office should work out the penalty amounts as per the above-referred clause for non deployment of project engineer and other key personnel and accordingly deposit into Audit Recoveries Account.

### 2.13.3 Pelela to Bumilo (Package VIII) executed by M/s Empire Construction Pvt. Ltd, recoverable penalty Nu. 1,125,000.00 (RO, Lobeysa)

Table 2.13.3.: Key Personnel deployed at site				
Designation	Name & CID at site	Qualification	Working Experience	Remarks
Project Manager	Ugyen Dorji, CID No. 11909000813			Documents produced for Dawa Tenzin, graduate of 2008, but person available at site is Ugyen Dorji
Project Engineer	Lobzang Chodup, CID No. 11007001278	Degree	May - 2014 - 2016 (2 yrs)	Not meeting the criteria
Material Engineer	Kinga, CID No. 10306001264	Diploma	9 years	
Junior Engineer	Yejay, CID No. 11506005017	Diploma	pass out in 29.6.15 from JNEP	Not meeting the criteria
Surveyor	Sonam Tshering, CID No. 11909000811	Certificate in survey		Not at site

Laboratory Tech.	Jigme Dawa, CID No. 11405001432	12 pass	5 years	Not at site
Work Supervisor	Jigme Wangdi, CID No. 11806001347			Documents not produced
Work Supervisor	1. Sonam Tshewang, CID No. 10904000060	VTI	3 years	Not at site

- Set of key personnel committed in the bid documents were replaced without meeting the criteria stated in the GCC and without appropriate approvals of the client.
- During physical verification conducted at site, Mr. Ugyen Dorji, bearing CID No. 11909000813 present at work site was stated as Project Manager. However, the available documents submitted by the company for verification showed Mr. Dawa Tenzin, bearing CID No. 11007001276 as Project Manager.
- The Project Engineer & Junior Engineer were replaced by personnel having less working experience. The Project Engineer has 1-year working experience (i.e. 2015 with M/s D Builders) and Mr. Yejay, JE had just passed out from JNP, Deothang.
- The contractor had failed to deploy the Surveyor, Laboratory Technicians and one work supervisor, as they were not available at site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Surveyor	15,000.00	375,000.00	Deduction for 25 months
Laboratory Technician	15,000.00	375,000.00	Deduction for 25 months
Work Supervisor	15,000.00	375,000.00	Deduction for 25 month
<b>Total:</b>		<b>1,125,000.00</b>	

#### **2.13.4 Pelela to Dungdungnesa (Package XI) executed by M/s Hi-Tech Company Pvt. Ltd and recoverable penalty Nu. 2,125,000.00 (RO, Lobeysa)**

Sl. No.	Key Personnel Required	Qualification Required	Nos.	HR Committed	HR recruited at site	
				Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	Kharka Prasad Upreti	Tshewang Norbu, Diploma in civil Eng.	Owner
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	Tshewang Norbu, Diploma	Mon Bhadur Subba,	Not at site
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	Karma Renzin	Not available	-
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	Pema Wangchey	Karchung, Diploma in civil	
5	Surveyor	Diploma in Survey or trained surveyors	1			
6	Lab Technician	Class X pass with experience	1			
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	Mon Bdr. Mongar	Sherub, VTI	
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	Not mentioned	Not available	

- Set of key personnel committed in the bid documents were changed without meeting the criteria stated in the GCC and made without approval of appropriate authority.

- During physical verification conducted at site, except the site supervisor, all the HR personnel were engaged on Gas Secondary National Highway (SNH) work site.
- The contractor had failed to deploy separate personnel for two different contract works.
- All the committed key personnel were replaced with lesser qualification and working experiences.
- The contractor had not deployed the Material Engineer, Surveyor, Laboratory Technicians and one work supervisor

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	penalty amount for the duration of the contract 25 months
Materials Engineer	40,000.00	1,000,000.00
Laboratory Technician	15,000.00	375,000.00
Surveyor	15,000.00	375,000.00
Site Supervisor	15,000.00	375,000.00
<b>Total:</b>		<b>2,125,000.00</b>

### **2.13.5 Razhau to Nobding (Package XIII) executed by M/s U.P Construction Pvt. Ltd and recoverable penalty Nu. 1,190,000.00 (RO, Lobeysa)**

- The contractor had failed to recruit Material Engineer, Lab-Technician and Site supervisor as committed in the contract documents.
- The site engineer was not aware of absence of HR personnel at site.
- The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	penalty amount for the duration of the contract 17 months
Materials Engineer	40,000.00	680,000.00
Laboratory Technician	15,000.00	255,000.00
Site Supervisor	15,000.00	255,000.00
<b>Total:</b>		<b>1,190,000.00</b>

### **RO, Trongsa**

### **2.13.6 Chuserbu to Nyelazam (Package 1) executed by M/s Rigsar Construction Pvt. Ltd- recoverable penalty - Nu.195,000.00 (RO, Trongsa)**

HR requirement/employed as per bidding documents				HR recruited at site			
Sl. No.	Key Personnel Required	Qualification Required	Nos.	No s.	Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	Pema Khenrub, B.Com 10yrs	Sonam Chogyel BA with 23 years' experience	Not at site

2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Jampel, BE Civil, 7yrs	Nidup Chong, BE civil with 12 years' experience	Not at site, and also the project engineer was overseeing all the 3 packages awarded to the firm
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Sachitra Pokhrel, BE Civil	Phuntsho Wangdi, BE Civil 3years experience	
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Ram Bhadur Rai, Diploma in civil	Namgay Tshering, Diploma in Civil with 3 years' experience	
5	Surveyor	Diploma in Survey or trained surveyors	1	1	Phuntsho, Diploma in Civil	Puran Ghalley Class XII with locally trained surveyor with 7 years' experience	
6	Lab Technician	Class X pass with experience	1	1	Tashi Dorji, Class X passed	Tashi Dorji, Class X	Not at site
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Dechen Yangden, VTI graduate	Sacha, Class 12 with 7 years' experience	
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1		Thinley Yoezer, X pass with 9 years' experience	

- All committed key personnel except Lab Technician, Tashi Dorji, were substituted with different sets of key personnel without approval.
- Project Manager, Project Engineer and Lab-Technician were not at work site during the physical verification of key personnel.
- The Site Engineer, RO was also not aware of unauthorized replacements and absence of the Project Engineer.
- Mr. Nidup Chong, the Project Engineer was handling all the three 3 packages awarded to the firm

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Project Manager	50,000.00	150,000.00	Deduction for 3 months
Laboratory Technician	15,000.00	45,000.00	Deduction for 3 months
Project Engineer			Separately worked out under different audit memo
<b>Total:</b>		<b>195,000.00</b>	

### **2.13.7 Nyelazam to Sakachawa (Package 2) executed by M/s Gaseb Construction Pvt. Ltd (RO, Trongsa)**

Table 2.13.7: HR committed as per Agreement			Present at Work site on		
Sl/ No	Name of HR Personnel with Designation	Qualification &No. of years' experience	Name of HR Personnel with Designation	Qualification &No. of years' experience	Remarks
1	Kumar Poudyel, Project Manager	Degree in Civil engg. 25 years	Not present		Stated on leave



2	Sonam Kuenga Tshering, PE	Master in Geitech & Degree in CE, 24 years	Saji Thomas	Diploma in civil engg. 23 years	
3	Kinley Wangchuk, ME	Degree in Civil Engg	Indraman Limby	Diploma in Civil engg. 2.5 years	
4	Saji Thomas, JE	Diploma in civil engg. 23 years	Bhim Kumar Gurung, SE	Diploma in civil engg. No experience	
5	Doten, Surveyor	Degree in civil engg. Trained surveyor	No present		
6	Yam Kumar Pradhan, laboratory	Class 12 passed out	Not present		
7	Tandin Wangchuk	VTI Graduate	Bhim Mukha, VTI	6 years	
8	Tshering	VTI Graduate	Tshering	3 years	

- All committed key personnel except three personnel were substituted with different sets of key personnel without approval.
- Project Manager, Material Engineer, Surveyor and Lab-Technician were not present at work site during the physical verification of key personnel.
- The Site Engineer, RO was also not aware of unauthorized replacements and absence of the key personnel
- Mr. Saji Thomas, JE, Diploma in civil engineering with 23 years of experiences was designated as Project Engineer in place Mr. Sonam Kuenga Tshering, PE with Master in Geitech & Degree in CE, having 24 years experiences.

### 2.13.8 Sakachawa to Tsangkha (Package 3) executed by M/s Rinson Construction Pvt. Ltd –recoverable penalty Nu. 1,765,000.00 (RO, Trongsa)

Table 2.13.8: HR requirement/employed as per bidding documents				HR recruited at site			
Sl. No	Key Personnel Required	Qualification Required	Nos	Nos	Key Personnel Stated in Proposal	Present at site & Qualification Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	Tity Varu Ghese, Degree in civil, 29 yrs.	Rinzin Dorji Diploma in Electrical	Not qualified to become Project Manager
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Sonam Dorji, Dip. In civil, 19 yrs.	Sonam Dorji, Dip. In civil, 19 yrs.	
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Tara Rai, Dip. In civil, 14 yrs.	No.	-
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Pema Dorji Wangdi, Diploma in civil	No	
5	Surveyor	Diploma in Survey or trained surveyors	1	1	Kumar Pradhan, Surveyor	Kumar Pradhan, Surveyor	
6	Lab Technician	Class X pass with experience	1	1	Lachimi Narayan	Thinley Tenzin...General Degree	
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Wangchuk, VIT, 8 yrs.	Wangdi. Class VIII passed	Inexperienced for site supervision
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Rinzin Dorji, VTI, 8 yrs.	Surjaman Rai, Class 12 passed	Inexperienced for site supervision

- Material Engineer and Junior Engineer not recruited.
- The Project Manager and Site Supervisors were substituted with lesser qualification and experiences.
- Except the Project Engineer and Surveyor, all other committed Key personnel were replaced without approval.

The Site engineer not aware of absence of HR personnel at site. The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Materials Engineer	40,000.00	240,000.00	Deduction for 6 months
Project Manager	50,000.00	1,500,000.00	Deduction for 30 months
Junior Engineer	25,000.00	25,000.00	Deduction for 1 month
<b>Total:</b>		<b>1,765,000.00</b>	

### **2.13.9 Tshangkha to View Point (Package 4) executed by M/s Gyalcon Infrastructure Pvt. Ltd-recoverable penalty Nu. 750,000.00 (RO, Trongsa)**

Sl/ No	Name of HR Personnel with Designation	Qualification &No. of years' experience	Present at Work site on		
			Name of HR Personnel with Designation	Qualification &No. of years' experience	Remarks
1	Thinley Dem, Project Manager	Master in Environment Engg.	Ugyen Dorji	Diploma in Civil Engg	Replaced with low qualifications
2	Ugyen Dorji, PE	Diploma in Civil Engineering	Mewash Gurung	Degree in Civil Engg	<i>only 1 and ½ years' experience</i>
3	Passang Dorji, ME	Diploma in Civil Engineering	Tshering Dorji,	Diploma in Civil Engg. Years	Replaced with less work experience (Fresh graduate)
4	Kamal Chhetri, JE	Diploma in Civil Engineering			Not present
5	Kaamba Singh Singdhan, w/s	RBIT	GB Gurung	No qualification	Working experience 25 years
6	Rinzin Wangchuk, WS	VTI	Sonam Tobgay	12 passed	2 years

- Junior Engineer not recruited.
- The Project Manager and Site Supervisors were substituted with lesser qualification and experiences.
- All Committed Key Personnel were replaced without approval.
- The Site engineer not aware of absence of HR personnel at site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.9.1: Penalty deductions			
Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Junior Engineer	25,000.00	750,000.00	Deduction for 30 months
<b>Total:</b>		<b>750,,000.00</b>	

**2.13.10 View Point- BjeeZam (Package 5) executed by M/s Druk Lhayul Construction Pvt. Ltd-recoverable penalty Nu. 1,200,000.00 (RO, Trongsa)**

Table 2.13.10: HR committed as per Agreement			Present at Work site on		
Sl/No	Name of HR Personnel with Designation	Qualification &No. of years' experience	Name of HR Personnel with Designation	Qualification &No. of years' experience	Remarks
1	Karma Phuntsho, Project Manager	Degree in Civil Engineering, Experience around 15 years	Kuenzang Wangchuk, PM	BBA with 2.5 years	Replaced with no experience and required qualification
2	Choki Dorji, Material Engineer	Diploma in Civil Engineering, 15 years' Experience			<i>Not deployed at site</i>
3	Kinley Penjor, Junior Engineer	Diploma in Civil Engineering, 16 years' Experience	Sonam Dendup, JE	Diploma in Civil Engg. 3 years	Replaced with less work experience
4	Deo Prakash Rai, Project Engineer	Diploma in Civil Engineering, 16 years' Experience	Jigme Tashi, PE	B.Tech Civil, 1 year	Replaced with no experience and required qualification
5	Nil		Yeshi Wangmo, SS	Class X, 2 years	
6	Nil		Sunjok Subha, SS	Class X, 2 years	

- Material Engineer not recruited.
- The Project Manager, Project Engineer and Junior Engineer were substituted with lesser qualification and experiences.
- All Committed Key Personnel were replaced without approval.
- The Site engineer not aware of absence of HR personnel at site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.10.1: Penalty deductions			
Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Material Engineer	40,000.00	1,200,000.00	Deduction for 30 months
<b>Total:</b>		<b>1,200,000.00</b>	

**2.13.11 Bjeezam- Trongsa (Package 6) executed by M/s Raven Builders & Company Pvt. Ltd recoverable penalty Nu. 3,210,000.00 (RO, Trongsa)**

Table 2.13.11: HR requirement /employed as per bidding documents				HR recruited at site			
Sl. No	Key Personnel Required	Qualification Required	Nos	Nos	Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	Sangay Dorji, B.Com, 11years expel	Phub Tshering, Diploma in Civil	Fresh graduate
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Dorji Tshering, BE Civil, 35 yrs	-	Not present
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Tenzin Wangdi, BE Civil, 15 yrs	-	Not present since start of the project
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Kinley, Diploma in Civil, 7yrs	Yogita, B.E Civil	
5	Surveyor	Diploma in Survey or trained surveyors	1	1	Sonam Phuntsho, Survey Engg	-	Not present
6	Lab Technician	Class X pass with experience	1	1	Cheku, Class 12 passed, 7yrs	-	Not present since start of the project
7	Site Supervisor	VTI Graduate or equivalent with more than 2 years' experience	1	1	Choten, VTI Civil, 4yrs	Karma Tshomo, VTI, 1year graduate	
8	Site Supervisor	VTI Graduate or equivalent with more than 2 years' experience	1	1	Neten Dorji, VTI Civil, 5yrs	-	Not present since September 2017

- The Project Manager was found substituted with fresh graduate.
- All Committed Key Personnel were replaced without approval.
- Except Project Manager, Junior Engineer and one site supervisor, all other key personnel were not present at work site during the physical verification of key personnel's
- The Site engineer not aware of absence of HR personnel at site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.11.1: Penalty deductions			
Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Project Engineer	50,000.00	1,500,000.00	Deduction for 30 months
Materials Engineer	40,000.00	1,200,000.00	Deduction for 30 months
Project Manager	50,000.00	-	
Junior Engineer	25,000.00	-	
Laboratory Technician	15,000.00	450,000.00	Deduction for 30 months
Site Supervisor	15,000.00	60,000.00	Deduction for 4 months
<b>Total:</b>		<b>3,210,000.00</b>	

**2.13.12 Pinzhi-Tashipokto (PKG-8) executed by M/s. Dungkar Construction Pvt Ltd. Thimphu -recoverable penalty Nu. 5,180,000.00 (RO, Trongsa)**

Table 2.13.12: HR committed as per Agreement			Present at Work site on		
Sl/No	Name of HR Personnel with Designation	Qualification &No. of years' experience	Name of HR Personnel with Designation	Qualification &No. of years' experience	Remarks
1	Sherab Penjor, Project Manager	B.Com (computer Science)			Not present at site
2	Om Kumar Pradhan, project Engineer	Diploma in Civil Engineering			Not present at site
3	MD. Alludin Aanasari, Material Engineer	Degree in Civil Engineering			Not present at site
4	Yonten Dorji, Laboratory	Class 12 passed			Not present at site
5	Patitapaban Jagamohan, Junior Engineer	Diploma in Civil Engineering	Sanvir Singh, Junior Engineer	Diploma in Civil Engineering	
6	Karma Wangchuk, Work Supervisor	VTI Graduate			Not present at site
7	Pema Lethro, Work supervisor	VTI Graduate			Not present at site

- All Committed Key Personnel were either not recruited or deployed for the three packages
- Except Junior Engineer, all other key personnel were not present at work site during the physical verification of key personnel's
- The Site engineer not aware of absence of HR personnel at site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.12.1: Penalty deductions				
Sl/No	Name of HR Personnel with Designation	Penalty deductible per month Nu.	No. of months	Amount Nu.
1	Sherab Penjor, Project Manager	50,000.00	28	1,400,000.00
2	Om Kumar Pradhan, project Engineer	50,000.00	28	1,400,000.00
3	MD. Alludin Aanasari, Material Engineer	40,000.00	28	1,120,000.00
4	Yonten Dorji, Laboratory	15,000.00	28	420,000.00
5	Karma Wangchuk, Work Supervisor	15,000.00	28	420,000.00
6	Pema Lethro, Work supervisor	15,000.00	28	420,000.00
				<b>5,180,000.00</b>

**2.13.13 Tashipokto to Dorjigonpa (Package 9) executed by M/s Welfare Construction Pvt. Ltd.-recoverable penalty Nu. 2,665,000.00 (RO, Trongsa)**

Table 2.13.13: HR requirement/employed as per bidding documents				HR recruited at site			
Sl. No	Key Personnel Required	Qualification Required	Nos	Nos	Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	Tshelthrim Dukar, Degree in science, 10yrs	Dradul, Degree in geology	Not present since December 2017
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Sujith N.S, Diploma in C.Engg, 10yrs	Karma, B.E Civil, 18yrs	
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Chandra Kumar Giri, Diploma in C.Engg, 7yrs	Nil	Not present since start of project

4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1		Nil	Was at site only for 5 months
5	Surveyor	Diploma in Survey or trained surveyors	1	1	DD Gurung, Certificate in Surveying, 20yrs	Nil	Not present since start of project
6	Lab Technician	Class X pass with experience	1	1	Mon Maya Tamang, Class X, 10yrs	Nil	Not present since start of project
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Yeshey Kuenzang, VTI, 7yrs	Tshering Dorji,	Not at site since December 2017
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Pema Tshering, Class 12, 10yrs	Nil	Not present since start of project

- Committed Key Personnel viz. Material Engineer, Surveyor, Lab Technician and One Site Supervisor were not recruited since the start of the contract works
- Project Manager, Project Engineer and One Site Supervisor though deployed were substitute of committed key personnel and were replaced without approval and verification of qualifications and experiences
- Project Manager and One Site Supervisor was stated to have been deployed but were not present since December 2017.
- Junior Engineer stated to have been deployed for just 5 months
- The Site engineer not aware of absence of HR personnel from the site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Project Manager	50,000.00	100,000.00	Deduction for 2 months
Material Engineer	40,000.00	1,120,000.00	Deduction for 28 months
Junior Engineer	25,000.00	575,000.00	Deduction for 23 months
Lab Technician	15,000.00	420,000.00	Deduction for 28 months
Site Supervisor I	15,000.00	30,000.00	Deduction for 2 months
Site Supervisor II	15,000.00	420,000.00	Deduction for 28 months
<b>Total:</b>		<b>2,665,000.00</b>	

#### **2.13.14 Dorji Gonpa to Yotongla (Package 10) executed by M/s Rinson Construction Pvt. Ltd-recoverable penalty Nu. 2,670,000.00 (RO, Trongsa)**

Sl. No	Key Personnel Required	Qualification Required	Nos	HR recruited at site			
				Nos	Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	Angela Alexander, B.Com, 8yrs	Tara Rai, Diploma in Civil	On leave

2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Tity Varu Ghese, Degree in civil, 29 yrs.	Ugyen, B.E.Civil	On leave
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Tara Rai, Diploma in Civil, 14yrs	Jigme Wangchuk, Diploma in Civil, 2yrs	
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Sonam Dorji, Diploma in Civil, 19yrs	Som Bdr Rai, Diploma in Civil, 1 yr	Transferred to Package 13
5	Surveyor	Diploma in Survey or trained surveyors	1	1	Pema Namgyel, Class 12	Nil	Not present since start of project
6	Lab Technician	Class X pass with experience	1	1	Bir Bdr Adikari, VTI	Nil	Not present since start of project
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Rinzin Dorji, RBIT pass, 8yrs	Wangdi, 10yrs	Only present for 4 months
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Wangchuk, VTI, 3 yrs	Nil	Not present since start of project

- Committed Key Personnel viz. Surveyor, Lab Technician and One Site Supervisor were not recruited since the start of the contract works
- All key personnel deployed at work site were substitutes of committed key personnel and replaced without approval and verification of qualifications and experiences
- Project Manager, Project Engineer and One Site Supervisor was stated to have been deployed but were either on leave and not present at work during the physical verifications of the key personnel
- One Site Supervisor was stated to have been deployed for just 4 months
- Junior Engineer was not present at work site during physical verification but stated to have been transferred to Package 13.
- The Site engineer not aware of absence of HR personnel from the site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	Amount	Remarks
Junior Engineer	25,000.00	50,000.00	Deduction for 2 months
Lab Technician	15,000.00	435,000.00	Deduction for 29 months
Surveyor	15,000.00	375,000.00	Deduction for 29 months
Site Supervisor I	15,000.00	375,000.00	Deduction for 25 months
Site Supervisor II	15,000.00	435,000.00	Deduction for 29 months
<b>Total:</b>		<b>2,670,000.00</b>	

**2.13.15 Yotongla to Bongzam (Package 11) executed by M/s Dungkar Construction Pvt. Ltd-recoverable penalty Nu. 6,440,000.00 (RO, Trongsa)**

Table 2.13.15: Human Resource required as per ITB 4.3 (e) of Section II, Bidding Data sheet						Status at site during physical verification
SL. No.	Position	Name of personnel	Qualification	No.		
1	Project Manager	Ms. Pema Lhadon	Degree in any field OR Diploma in Civil Engineering	1	No separate HR deployed at site but HR same as HR deployed for Contract Package XII	
2	Project Engineer	Mr.Prasant Kumar	Degree in civil Engineering OR Diploma in Civil Engineering	1		
3	Material Engineer	Mr. Namgay Dorji	Degree in Civil Engineering OR Diploma in Civil Engineering	1		
4	Engineer/Junior Engineer	Not provided	Degree in Civil Engineering OR Diploma in Civil Engineering	1		
5	Surveyor	Ms. Sonam Zam	Diploma in Survey Or trained surveyors	1		
6	Laboratory Technician	Mr. Sonam Tashi	Class X pass with experience	1		
7	Work/Site supervisor	Mr. Namdak Rinchen	VTI graduate	2		
	Work/Site supervisor	Not Provided	VTI graduate			

- No separate HR deployed at site but same HR deployed for Contract Package XII were used for the management of the contract works
- The Site engineer and RO had failed to ensure deployment of separate HR personnel for the contract package

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.15.1: Penalty deductions					
Particular of HR	No.	Penalty amount /month (Nu)	Penalty amount for the duration of the contract 28 months (XI)	Remarks	
Project Engineer	1	50,000.00	1,400,000.00	On Completion of works, the RO should work out and recover the deductions for the extended contract periods	
Materials Engineer	1	40,000.00	1,120,000.00		
Project Manager	1	50,000.00	1,400,000.00		
Junior Engineer	1	25,000.00	700,000.00		
Surveyor	1	20,000.00	560,000.00		
Laboratory Technician	1	15,000.00	420,000.00		
Site Supervisor	2	15,000.00	840,000.00		
	<b>Total:</b>		<b>6,440,000.00</b>		

**2.13.16 Bongzam to Gyatsa Zam (Package 12) by M/s Dungkar Construction Pvt. Ltd-recoverable penalty Nu. 2,380,000.00 (RO, Trongsa)**

Table 2.13.16: Human Resource required as per ITB 4.3 (e) of Section II, Bidding Data sheet						Status at site during physical verification
SL. No.	Position		Name of personnel	Qualification	No.	
1	Project Manager	<b>Qualification</b>	Ms. Pema Lhadon	BA Eco	1	No separate HR deployed at site but HR same as HR deployed for Contract Package XI
2	Project Engineer	Degree in any field OR Diploma in Civil Engineering	Mr.Prasant Kumar	Degree in civil Engineering	1	
3	Material Engineer	Degree in civil Engineering OR Diploma in Civil	Mr. Namgay Dorji	Diploma in Civil Engineering	1	



		Engineering			
4	Engineer/Junior Engineer	Degree in Civil Engineering OR Diploma in Civil Engineering	Not provided		1
5	Surveyor	Degree in Civil Engineering OR Diploma in Civil Engineering	Ms. Sonam Zam	Bachelor in Architecture	1
6	Laboratory Technician	Class X pass with experience	Mr. Sonam Tashi	Degree in Electrical Engineering	1
7	Work/Site supervisor	VTI graduate	Mr. Namdak Rinchen	Class XII passed	2
			Not Provided		

- No separate HR deployed at site but same HR deployed for Contract Package XII were used for the management of the contract works
- All key personnel deployed at work site were substitutes of committed key personnel and replaced without approval and verification of qualifications and experiences
- Material engineer, Laboratory Technician and two Work Site Supervisors, if deployed, were not present at work site during the physical verification of the key personnel conducted on 3<sup>rd</sup> January 2018.
- The Site engineer and RO had failed to ensure deployment of separate HR personnel for the contract package .

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.16.1: Human Resource required as per ITB 4.3 (e) of Section II, Bidding Data sheet					HR personnel available at site		
Sl/ No	Position	Name of personnel	Qualification	No.	Name & Qualification	Penalty Amount (Nu.)	Remarks
1	Project Manager	Ms. Pema Lhadon	BA Eco	1	Tharpa Tashi, Ph.D Economics		Present
2	Project Engineer	Mr. Prasant Kumar	Degree in civil Engineering	1	Prabat Rai, Master in Engg.		Present
3	Material Engineer	Mr. Namgay Dorji	Diploma in Civil Engineering	1		Nu. 1,120,000.00 (i.e.,40,000.00 * 28)	Not present
4	Engineer/Junior Engineer	Not provided		1	Dipak Galey, Diploma in Civil Engg.		Present
5	Surveyor	Ms. Sonam Zam	Bachelor in Architecture	1	Ms. Sonam Zam		Present
6	Laboratory Technician	Mr. Sonam Tashi	Degree in Electrical Engineering	1		Nu. 420,000.00 (i.e., 15,000.00 * 28)	Not present
7	Work/Site supervisor	Mr. Namdak Rinchen	Class XII passed	2		Nu.840,000.00 (i.e.,15,000.00*28*2)	Not present
			<b>Total</b>			<b>2,380,000.00</b>	

**2.13.17 Gyatsazam to Ngangar (Package 13) executed by M/s Rinson Construction Pvt. Ltd-recoverable penalty Nu. 2,240,000.00 (RO, Trongsa)**

Table 2.13.17: HR requirement/employed as per bidding documents				HR recruited at site		
Sl. No.	Key Personnel Required	Qualification Required	Nos.	Nos.	Key Personnel Stated in Proposal	Present at site Qualification & Experience
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1	Angela Alexander, BCom., 8 years	Tashi Norbu, Diploma in civil, 8 years
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Tity Varu Ghese, Degree in civil, 29 yrs.	Som Raj Rai, Diploma in civil, 1 yr.
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Tara Rai, Dip. In civil, 14 yrs.	No.
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1	Sonam Dorji, Dip. In civil, 19 yrs.	No
5	Surveyor	Diploma in Survey or trained surveyors	1	1	Pema Namgyel, class XII with certificate	No
6	Lab Technician	Class X pass with experience	1	1	Bir Bdr. Adhikari, VTI, 15 yrs.	No
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Wangchuk, VIT, 8 yrs.	Wangchuk, VIT, 8 yrs.
8	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1	Rinzin Dorji, VTI, 8 yrs.	Sher Bdr. Tamang, work experience

- Committed Key Personnel viz. Material Engineer, Junior Engineer, Surveyor, Lab Technician were not recruited since the start of the contract works
- All key personnel except One Site Engineer deployed at work site were substitutes of committed key personnel and replaced without approval and verification of qualifications and experiences
- The Site engineer not aware of absence of HR personnel from the site.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Table 2.13.17.1: Penalty deductions		
Particular of HR	Penalty amount /month (Nu)	28 months (Nu.)
Materials Engineer	40,000.00	1,120,000.00
Laboratory Technician	15,000.00	420,000.00
Junior Engineer	25,000.00	700,000.00
<b>Total:</b>		<b>2,240,000.00</b>

**2.13.18 Sonam Kuenphen to Hurjee (Package 14) executed by M/s Lamnekha Construction Pvt. Ltd-recoverable penalty Nu. 1,050,000.00 (RO, Trongsa)**

table 2.13.18: HR requirement/employed as per bidding documents				HR recruited at site			
Sl. No.	Key Personnel Required	Qualification Required	Nos.	Nos.	Key Personnel Stated in Proposal	Present at site Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	1		Tshering Wangdi, Ex- policemen	No qualification

2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1		Yonten Tobgay, Degree in civil	
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1		No	-
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	1		Karma Tsundru, Diploma in Civil	
5	Surveyor	Diploma in Survey or trained surveyors	1	1		No	
6	Lab Technician	Class X pass with experience	1	1		No	
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	1	1		Tshering Dorji, VIT	

- The RO and the project manager had failed to produce the companies' profile. In the absence of which the committed key personnel in the proposal, tender as well as in put in e-tool could not be verified in audit.
- The Project Manager should have bachelor degree in any field with 7 years' experience or diploma in civil engineer with 10 years' work experience but had deployed ex-policeman and no profile of the official was made available on record.
- Key personnel viz. Material Engineer, Junior Engineer & Lab-Technician were not recruited since the start of the contract works.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed below:

Particular of HR	Penalty amount /month (Nu)	15 months (Nu.)
Materials Engineer	40,000.00	600,000.00
Surveyor	15,000.00	225,000.00
Laboratory Technician	15,000.00	225,000.00
<b>Total:</b>		<b>1,050,000.00</b>

## RO, Lingmethang

### 2.13.19 Korila-Pangser (Package-2) executed by M/s. Tshering Construction Pvt Ltd. Bumthang (RO, Lingmethang)

The status of key personnel required and committed by the Contractor as per bidding document are as tabulated below:

S l. N o.	Key Personnel Required	Qualification Required	Number require	Name of committed personal	Qualification
1	Project Manager	Degree in any field with 1 to 7 years or more work experience or Diploma in Civil Engineering with 3 to 10 years or more work experience and Any other	1	Sonam Jamtsho	Bachelors in Commerce

		qualification			
2	Project Engineer	Degree in Civil Engineering and and with 1 to 5 years or more work experience or Diploma in Civil Engineering and also with 3 to 10 years or more work experience in road/bridge works and Any other qualification	1	Karsang Norbu	Post graduate diploma in water supply and treatment engineering
3	Material Engineer	Degree in Civil Engineering with 3 to 5 years' experience or Diploma in Civil Engineering with 3 to 10 years' experience and Any other qualification	1	Binod Rana Mongar	Degree in Civil Engg
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering with experience 5 to 10 years or more other than road work	1	Vinod Kumar Lal	Diploma in Civil Engg
5	Surveyor	Diploma in Survey and also with 3 to 7 or more work experience or Certified/trained surveyor with 1 to 10 years or more work experience and Any other qualification	1	Dilli Ram Baraily	Diploma in Survey
6	Lab Technician	Class XII pas with 5 years experiences as lab technician or Class X pass with 3 to 5 years' experience as Lab Technician and Any other qualification	1	Nil	
7	Work/Site Supervisors	VTI Graduate or equivalent with 1 to 5 years or more work experience ans Any other level of qualification or experience	2	Tshtrim Dorji	Diploma in electrical
				Lham Chenzom	VTI

The status of key personnel committed as per bidding document and actual employment at work site as noted during the physical verification are as tabulated below:

Sl. No	Key Personnel Required	Name of the committed personal	Qualification	Personnel Engaged At Site as per record	Qualification & Experience	Status during physical verification	Remarks
1	Project Manager	Sonam Jamtsho	Bachelors in Commerce	Sonam Jamtsho	Bachelors in Commerce	Present	
2	Project Engineer	Karsang Norbu	Post graduate diploma in water supply and treatment engineering	Jucdeep,	Degree in Civil	Not Present	Need to review the score assigned
3	Material Engineer	Binod Rana Mongar	Degree in Civil Engg	Phub Dorji,	Diploma in Civil, 1 year experience		Need to review the score assigned as replacement is by diploma holder as against Degree holder
4	Junior Engineer	Vinod Kumar Lal	Diploma in Civil Engg	Surja Ghalley,	Diploma in Civil, 2 years		Review experience of Vinod Kumar Lal and score assigned
5	Surveyor	Dilli Ram Baraily	Diploma in Survey	Nil		Not Available/engaged	
6	Lab Technician	Nil		Narayan,	Class 12 Passed		
7	Site Supervisors	Tshtrim Dorji	Diploma in electrical	Tashi Tshering,	VTI		Review the score assigned during evaluation
8	Site Supervisors	Lham Chenzom	VTI	Nil		Not available /engaged	

- Set of key personnel committed in the bid documents were replaced without meeting the criteria stated in the GCC and without appropriate approvals of the client.

- The contractor had failed to deploy the Surveyor, Laboratory Technicians and one work supervisor, as they were not available at site.

### 2.13.20 Pangser-Kilikhar (Package-3) executed by M/s. K. D Builder Pvt Ltd (RO, Lingmethang)

The status of key personnel required and committed by the Contractor as per bidding document are as shown in table 2.13.20 below:

Sl. No.	Key Personnel Required	Qualification Required	Number require	Name of committed personal	Qualification
1	Project Manager	Degree in any field with 1 to 7 years or more work experience or Diploma in Civil Engineering with 3 to 10 years or more work experience and Any other qualification	1	Dorji Wangda	B.Com, 8 years
2	Project Engineer	Degree in Civil Engineering and and with 1 to 5 years or more work experience or Diploma in Civil Engineering and also with 3 to 10 years or more work experience in road/bridge works and Any other qualification	1	Chencho Tshering	Diploma in Civil Engg, 26yrs
3	Material Engineer	Degree in Civil Engineering with 3 to 5 years' experience or Diploma in Civil Engineering with 3 to 10 years' experience and Any other qualification	1	Prasenjit Mukhoadhyay	Diploma in Civil Engg, 23 yrs
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering with experience 5 to 10 years or more other than road work	1	Ranjan Kumar	Diploma in Civil Engg, 23 yrs
5	Surveyor	Diploma in Survey and also with 3 to 7 or more work experience or Certified/trained surveyor with 1 to 10 years or more work experience and Any other qualification	1	Nil	
6	Lab Technician	Class XII pas with 5 years experiences as lab technician or Class X pass with 3 to 5 years' experience as Lab Technician and Any other qualification	1	Kuenzang Wangmo	Class XII, 8 years
7	Work/Site Supervisors	VTI Graduate or equivalent with 1 to 5 years or more work experience ans Any other level of qualification or experience	2	Tshering	VTI, 8 years
				Sonam Choden	VTI, 7 years

The status of key personnel committed as per bidding document and actual employment at work site as noted during the physical verification is shown in table 2.13.20.1 below:

Sl. No.	Key Personnel Required	Name of committed personal	Qualification	Personnel Engaged At Site as per record	Qualificati on & Experience	Status during physical verification	Remarks
1	Project Manager	Dorji Wangda	B.Com, 8 years	Karma Dema	BBM	Present	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
2	Project Engineer	Chencho Tshering	Diploma in Civil Engg.	Chencho Tshering	Diploma in Civil Engg	Present	

			26yrs				
3	Material Engineer	Prasenjit Mukhoadhyay	Diploma in Civil Engg, 23 yrs	Dorji Wangdi	Diploma in Civil Engg	Present	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
4	Junior Engineer	Ranjan Kumar	Diploma in Civil Engg, 23 yrs	Tenzin Norbu	BE Civil engg	Present	Need to furnished documents to validate Experience though replaced by a Degree holder.
5	Surveyor	Nill		Ram Chandra	Diploma in Survey	Present	Need to furnish documents to validate qualification and experience met the requirements
6	Lab Technician	Kuenzang Wangmo	Class XII, 8 years	Norbu	VTI	Present	Need to furnish documents to validate Experience met the requirement.
7	Work/Site Supervisors	Tshering	VTI, 8 years	Bikash Rai,	Class X passed	Present	Need to furnish documents to validate Experience met the requirement
		Sonam Choden	VTI, 7 years	Ganga Raj,	Class X passed	Present	Need to furnish documents to validate Experience met the requirement

Set of key personnel committed in the bid documents were replaced without meeting the criteria stated in the GCC and without appropriate approvals of the client.

### 2.13.21 Kilikhar to Mongar (Package 4) executed by M/s Gongphel Construction Pvt. Ltd

The status of key personnel required and committed by the Contractor as per bidding document are as tabulated in table 2.13.21 below:

Sl. No.	Key Personnel Required	Qualification Required	Number require	Name of committed personal	Qualification
1	Project Manager	Degree in any field with 1 to 7 years or more work experience or Diploma in Civil Engineering with 3 to 10 years or more work experience and Any other qualification	1	Dawa Rinchen	BA
2	Project Engineer	Degree in Civil Engineering and with 1 to 5 years or more work experience or Diploma in Civil Engineering and also with 3 to 10 years or more work experience in road/bridge works and Any other qualification	1	Parimal Das Gupta	Diploma in Civil Engg
3	Material Engineer	Degree in Civil Engineering with 3 to 5 years' experience or Diploma in Civil Engineering with 3 to 10 years' experience and Any other qualification	1	Paltu Datta	Diploma in Civil Engg
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering with experience 5 to 10 years or more other than road work	1	Partha Partim Basu	Diploma in Civil Engg
5	Surveyor	Diploma in Survey and also with 3 to 7 or more work experience or Certified/trained surveyor with 1 to 10 years or	1	A.K.Mohanan	Diploma in Civil Engg

		more work experience and Any other qualification			
6	Lab Technician	Class XII pas with 5 years experiences as lab technician or Class X pass with 3 to 5 years' experience as Lab Technician and Any other qualification	1	Pema Luwang	Class 12 passed
7	Work/Site Supervisors	VTI Graduate or equivalent with 1 to 5 years or more work experience ans Any other level of qualification or experience	2	Ugyen Tobgay	BBA
				Mon Bdr Rai	Class 6 pass

The status of key personnel committed as per bidding document and actual employment at work site as noted during the physical verification is shown in table 2.13.21.1 below:

Sl. No	Key Personnel Required	Number required	Name of committed personal	Qualification	Personnel Engaged At Site as per record/	Qualification & Experience	Remarks
1	Project Manager	1	Dawa Rinchen	BA	Dawa		
2	Project Engineer	1	Parimal Das Gupta	Diploma in Civil Engg	Sherab Phuntsho	Master in transportation engineering	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
3	Material Engineer	1	Paltu Datta	Diploma in Civil Engg	Jambay	BE Civil Engg	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
4	Junior Engineer	1	Partha Partim Basu	Diploma in Civil Engg	Parimal Das	Diploma in Civil Engg	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
5	Surveyor	1	A.K.Mohanan	Diploma in Civil Engg	AK Mohanan		Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
6	Lab Technician	1	Pema Luwang	Class 12 passed	Divanath Sharma	Class X passed	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
7	Work/Site Supervisors	2	Ugyen Tobgay	BBA	Kinley Penjor,	Class X passed	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation
			Mon Bdr Rai	Class 6 pass	Wangchuk	Certificate in Civil	Need to furnish documents to validate Experience met the requirement and score assigned during evaluation

- The cross check revealed that the personnel committed were not present but different set of key personnel were found deployed at site and without appropriate approvals of the client.
- The contractor had failed to deploy the Surveyor, as was not present at site.

### **2.13.22 Mongar-Gongola (Package-5) executed by M/s. Norbu Construction Company Pvt. Ltd, Gelephu (RO, Lingmethang)**

The status of key personnel required and committed by the Contractor as per bidding document are as shown in table 1.13.22 below:

Sl. No.	Key Personnel Required	Qualification Required	Number require	Name of committed personal	Qualification
1	Project Manager	Degree in any field with 1 to 7 years or more work experience or Diploma in Civil Engineering with 3 to 10 years or more work experience and Any other qualification	1	Sangay Rinzin	Bachelor of Arts
2	Project Engineer	Degree in Civil Engineering and and with 1 to 5 years or more work experience or Diploma in Civil Engineering and also with 3 to 10 years or more work experience in road/bridge works and Any other qualification	1	Karthik Muthu	BE Civil Engineering
3	Material Engineer	Degree in Civil Engineering with 3 to 5 years' experience or Diploma in Civil Engineering with 3 to 10 years' experience and Any other qualification	1	Pankaj Baruwa	Diploma in Civil Engg
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering with experience 5 to 10 years or more other than road work	1	Abdur Rahman	Diploma in Civil Engineer
5	Surveyor	Diploma in Survey and also with 3 to 7 or more work experience or Certified/trained surveyor with 1 to 10 years or more work experience and Any other qualification	1	Suren Pradhan	Trained Surveyor
6	Lab Technician	Class XII pas with 5 years experiences as lab technician or Class X pass with 3 to 5 years' experience as Lab Technician and Any other qualification	1	Phuentsho Wangdi	VTI Graduate
7	Work/Site Supervisors	VTI Graduate or equivalent with 1 to 5 years or more work experience and Any other level of qualification or experience	2	Tsheten Dorji	VTI Graduate
				Yonton Jamtsho	VTI Graduate

The status of key personnel committed as per bidding document and actual employment at work site as noted during the physical verification is shown in table 2.13.22.1 below:

Sl. No.	Key Personnel Required	Name of committed personal	Qualification	Personnel Engaged At Site as per record	Qualification & Experience	Status during physical verification	Remarks
1	Project Manager	Sangay Rinzin	Bachelor of Arts	Karma Dema	Sangay Rinzin	Present	
2	Project Engineer	Karthik Muthu	BE Civil Engineering	Karthik Muthu	BE Civil Engg	Present	
3	Material Engineer	Pankaj Baruwa	Diploma in Civil Engg	Dhendup Tshering	BE Civil Engg	Present	Need to review the score assigned as replacement is by a Degree holder (Experience need to be reviewed)
4	Junior Engineer	Abdur Rahman	Diploma in Civil Engineer	Nil		Not Engaged	Need to review the score assigned
5	Surveyor	Suren Pradhan	Trained Surveyor	Suren Pradhan		Present	Need to review the score assigned and Experience need to be reviewed.
6	Lab Technician	Phuentsho Wangdi	VTI Graduate	Pema Tshewang,	VTI	Stated on leave	Experience to be reviewed
7	Work/Site	Tsheten	VTI Graduate	Pema Lhamo	VTI	Present	Score assigned and



	Supervisors	Dorji				Experience to be reviewed
		Yonton Jamtsho	VTI Graduate	Nil		Not Engaged Score assigned to be reviewed

- The cross check revealed that the personnel committed were not present but different set of key personnel were found deployed at site and without appropriate approvals of the client.
- The contractor had failed to deploy the Junior Engineer, one Work Site Supervisor.
- The Lab Technician was stated to be on leave as was not present at site.

### 2.13.23 Gangola-Kurizampa (Package 6) executed by M/s. Rigсар Construction Pvt Ltd. Trashigang (RO, Lingmethang)

The status of key personnel required and committed by the Contractor as per bidding document is as tabulated below:

Sl. No.	Key Personal Required	No. of Personnel Required	Present Personnel At Site,	Qualification & Experience	Remarks
1	Project Manager	Degree in any field or Diploma in Civil Engineering	1	Karma Wangchuk	Bachelor of Arts
2	Project Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	Nidup Chong	BE Civil Engineering
3	Material Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	Karma Tenzin	Diploma in Civil Engg
4	Junior Engineer	Degree in Civil Engineering or Diploma in Civil Engineering	1	Karma Dizang	Diploma in Civil Engineer
5	Surveyor	Diploma in Survey or trained surveyors	1	Pema Wangchuk	Trained Surveyor
6	Lab Technician	Class X pass with experience	1	Rinzin Pelden	VTI Graduate
7	Site Supervisors	VTI Graduate or equivalent with more than 2 years' experience	2	Yani Maya Newar	VTI Graduate
				Khandu Wangmo	VTI Graduate

The status of key personnel committed as per bidding document and actual employment at work site as noted during the physical verification is shown in table 2.13.23.1 below:

Sl. No.	Key Personal Required	No. of Personnel Required	Present Personnel At Site,	Qualification & Experience	Remarks
1	Project Manager	1	Karma Wangchuk,	General Degree	
2	Project Engineer	1	Nidup Chong,	Degree in Civil Engg	Not present at site
3	Material Engineer	1	Dorji Dhendup,	Diploma in Civil Engg	
4	Junior Engineer	1	Om Prakash Puri,	Diploma in Civil Engg	
5	Surveyor	1	Puran Ghalley,	Class XII Passed	
6	Lab Technician	1	Rinzin Pelden,	Class X passed	
7	Site Supervisor	1	Tashi Phuntsho		Not present at site
8	Site Supervisor	1	Karma Tshering,	Class XII passed	

- The cross check revealed that the personnel committed were not present but different set of key personnel were found deployed at site and without appropriate approvals of the client.
- The contractor had failed to deploy one Work Site Supervisor.
- The Project Engineer was not present at site during the physical verification.

As per General Conditions of Contract (GCC) clauses 10 – Personal, 10.1 “ *the Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the SCC, to carry out the functions stated in the Schedule or other personnel approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the schedules. If the contractor fails to deploy the personnel as committed in the Bid documents, the employer shall stop the work if the quality of work is going to suffer or otherwise deduct the salaries of such personnel at a rate stipulated in the SCC per month per personnel for every month of absence of such personnel from the site. Such deductions shall continue till such time that the contractor deploys the key personnel acceptable to the employer. If the contractor fails to deploy such key personnel within one to four months, the deduction shall be discontinued and the contractor’s failure to deploy such personnel shall be treated as a fundamental breach of contract*”.

As evident from above tables all the contractors had violated the aforementioned terms and condition of the contract. In this context, the audit had observed following lapses:

- Set of key personnel committed in the bid documents were changed without following due process as outlined in the GCC of the contract documents. The replacements and substitutions were also found made without the approval of appropriate authority.
- Committed key personnel were found replaced by those having less qualification and working experiences. The replacements were in contrary to the contractual provisions wherein it categorically stipulated that their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Schedules of key personnel.
- The contractors had failed to recruit and deploy key personnel since the start of the contract works.
- The personnel deployed were not available at site during the physical verifications of key personnel.
- The RO and the Site Engineer had allowed the contractors to deploy same key personnel for two or three contract packages instead of ensuring deployment of separate key personnel for each contract package.
- The RO and the Site Engineers had failed to either ensure deployment of committed key personnel by the contractors or take action as per the provisions of the contract agreements against the defaulting contractors.

Non-deployment of committed key personnel was in total violation of the contract with reference to clause GCC 10.1 GCC and keeping in view that the firms had qualified the technical category by obtaining scores based on the proposed deployment of key personnel. Further, it was the responsibility of site engineer to report the matter to Regional Office for appropriate decisions

and actions. The inaction on the part of the site engineer indicated laxity and complacency as well as extension of undue favour to the contractor

The RO, should comment on the basis of accepting the key personnel other than those committed in the contract including acceptance of same Project Engineer for all 3 packages whose service is critical for providing technical support to construction staff under the supervision of the Project Manager, overseeing progress of work, scheduling and ensuring execution of works as per drawings and technical specifications.

Besides, the RO must also comment on course of action taken against the contractors in term of the contract Clause SCC 10.1 of the GCC for deployment of different set of key personnel in the event no approval were sanctioned for change of key personnel.

The Regional Office besides recovering the penalties computed by the RAA should also work out the exact penalty amounts deductible taking into consideration the revised and actual completion dates, and non deployment of committed key personnel and deposited in to Audit Recoveries Account.

#### **Auditee's Response:**

*It is to inform RAA that M/s. Chogyal construction had deployed separate set of machineries and human resources for all three packages during the execution. RAA was provided with the set of resources deployed for two packages during the auditing time itself. However, RO could not able to produce documentation for one package due to its misplacement. We regret for not having produced the documents as required during the auditing. Finally, after hard work of searching every day, finally RO could able to find the documents for the third package. The copy of HR and equipment for package II & III attached for reference and record, please. Therefore, RAA is requested to kindly drop the memo. Further RO also assures RAA that such important documents shall be kept under safe custody for future works.*

*The Project Engineer, Mr. Ashok Maheshwari was replaced by Mr. Ugyen Penden, Degree in Civil Engineering. However, during the site visit by RAA Mr. Ugyen Penden & Mr. Phuntsho Wangdi, Material Engineer may not have been present. The deduction of penalty for non-enrolment of key personnel is found not applicable. Therefore, please drop the memo. (His signatory attested for reference in the annexure)*

*During the initial stage of pavement strengthening works, the precise requirement of Key personnel was not felt necessary. However, during the actual execution the required key personnel are deployed and as per work requirement. Actually, Mr. Ugyen Dorji is Site Supervisor and Mr. Dawa Tenzin is Project Manager. However, during the visit of RAA team it was erroneously acknowledged Ugyen Dorji as Project Manager although both of them were present at site.*

*During the field visit by RAA team, it was peak winter season (December) during which almost all the works were stopped due to adverse climatic conditions. The required HR personnel were engaged by the contractor for execution of work when the weather favored.*

### **RAA's Further Comments & Recommendations:**

*While taking note of the response, the fact remains that timely deployment of committed key personnel is a critical factor for project success in terms of time, cost, and quality. The RO had failed to ensure not only deployment of requisite and committed personnel at work site but also replacement of personnel in line with the procedures and process outlined in the contract document. The change of entire or partial key personnel by the contractor without following due process and the failure on the part of the RO and the Site Engineer to ensure deployment of all committed personnel at work site and adoption of due processes for replacements as envisaged in the contract documents indicated laxity and complacency as well as existence of systemic flaws, deficiencies and poor contract management.*

*It is apparent that abnormal delays of the contract works beyond the original contract period and revised completion period were attributed by the absence of deployment of adequate and committed key personnel by the contractor for the works as well as replacement of personnel with lower qualification and experiences to save cost. The contract delays were also possible due to engagement of same key personnel for the both contract packages II and VII.*

*Non- enforcement of contract clauses strictly and non-levy of penalty as envisaged in the contract document tantamount to extension of undue favour as the contractors not only benefit financially from not having to entirely deploy personnel at site and incur associated cost but also annulling the payment of penalty for non- deployment of personnel at site. It is to reiterate that the quoted rates of contractor for the related items of works is built up cost inclusive of cost of committed key personnel and all risks factors.*

*However, as agreed during the exit meeting, DOR and RO should work out the amount to be deducted for non-deployment of key personnel and recover within three months from the date of issue of the report beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016.*

*Further DoR and the Ministry should review and analyze the impact of poor human resource management particularly in relation to non-deployment of key committed personnel on delays in completion of work as well as quality of work executed. Besides, the DoR and the Ministry should also conduct appropriate studies in terms of skills and experiences required for key personnel and labourer including number requirements, as well as adequate human resources deployment plan in relation to the quantum of works and cost of the project for effective human resource management by both the site engineer and the contractor.*

*The studies conducted and actions and measures initiated to improve the human resource management system to prevent such flaws and lapses intimated to RAA for records and follow-up in future audits.*

**Who is accountable?**

<b><i>Direct Accountability</i></b>	<b><i>: Refer Accountability Statement attached</i></b>
<b><i>Supervisory accountability</i></b>	<b><i>:Refer Accountability Statement attached</i></b>

**2.14 Non-deployment of equipment at site as per the requirements and non-deduction of penalty approximately - Nu.94,388,400.00 (4.4.15)**

As per the bidding data sheet, Section II, “Employer’s Requirements (ERQ)”, Equipment requirements on the widening and pavement construction works were found met by contractors in terms of the declared individual CV submitted along with the project profile.

A joint team comprising of audit team and officials from RO visited the construction sites for carrying out measurements of completed structures. During the course of the site visits, an attempt was made to cross check the equipment deployed at site with that of committed equipment in the contract documents. The status of equipment committed as per bidding document and actual deployment at work sites as noted during the physical verification for all the contract packages were as tabulated and discussed below:

**RO, Lobeyisa**

**2.14.1 Dochula to Chasagang (Packages I, II and III) executed by M/s Chogyal Construction Pvt. Ltd recoverable penalty Nu. 57.302 million (RO, Lobeyisa)**

The joint verification of site conducted on **29 September 2017 & 2 October 2017** revealed the following lapses:

- On reviewing associated HR and equipment aspects in new point based system of evaluation in e-tools through hard copy of e-tools report noted few HR and Equipment were used commonly to evaluate in system all the three packages I, II and III. However, the evaluation committee used same HR & Equipment for evaluation in e-tools system for contract packages II & III.
- This particular concern was presented to in MLTC meeting convened on 3<sup>rd</sup> June, 2015 wherein, MLTC unanimously decided that contractor should allocate separate HR & Equipment considering the work being separate package and also on contractor’s commitment to provide separate HR & Equipment as per letter No. CCCPLT/T&Q-11/2015/11 dated June 19, 2015.
- Following the decisions of the MLTC convened on 3<sup>rd</sup> June, 2015, the Regional Office vide letter No. DOR.ROL/Plg-15/2014-2015/3721 dated June 9, 2015 had directed the contractor to submit the letter of commitment for deployment of separate resources for the two packages.
- In response, the contractor had sought one-week time extension for submission of additional resources vide letter No. CCCPLT/T&Q-11/2015/10 dated June 12, 2015 and

had subsequently assure availability of adequate resources for the deployment of separate HR and equipment vide letter No. CCCPLT/T&Q-11/2015/11 dated June 19, 2015.

- The audit team could not verify the documentary evidences as Regional Office had failed to produce documents relating to the deployment of separate HR and equipment in particular for package III despite repeated request.
- On probing further, the RO stated the contractor had used the same HR & Equipment for package II & III. This scenario proved that the contractor had failed to allocate separate HR & Equipment for package II & III, resulting in fundamental breach of contractual obligation.
- The Regional Office have neither invoked the termination clause nor enforced the penalty clause GCC 10.1

Particular of Equipment	Penalty/day of non- deployment	Total duration contract in Months	Total Contract duration in Days	Penalty calculated as per approved work schedule (Nu)
Asphalt plant	10,000.00	18.8	564	5,640,000.00
Excavator	10,000.00	18.8	564	5,640,000.00
Backhoe Loader	7,000.00	18.8	564	3,948,000.00
Motor Grader	10,000.00	18.8	564	5,640,000.00
Paver	8,000.00	18.8	564	4,512,000.00
Static Roller	4,000.00	18.8	564	2,256,000.00
Concrete Mixer	500	18.8	564	282,000.00
Water tanker	1,000.00	18.8	564	564,000.00
Four Tipper truck	1,500.00	18.8	564	3,384,000.00
Vibrator roller	5,000.00	18.8	564	2,820,000.00
Total station	500	18.8	564	282,000.00
Tandem Roller	6,000.00	18.8	564	3,384,000.00
Bitumen Sprayer	3,000.00	18.8	564	1,692,000.00
Plate compactor	300	18.8	564	169,200.00
Air compressor	5,000.00	18.8	564	2,820,000.00
<b>Total:</b>				<b>43,033,200.00</b>

Similarly, the contractor had failed to deploy separate HR and equipment against the same HR and equipment committed for the three packages. Thus, in line with the penalty provisions under Clauses GCC 10.1 and SCC and failure to terminate the contract, the Regional Office should recovered the salaries of such personnel and hire charges of equipment at a rate stipulated in the Special Condition of Contract per month per personnel and equipment for the duration of the contract amounting to Nu. 14,269,200.00 as computed below:

Particular of Equipment	Name	Packages	Penalty/day of non- deployment	Total Contract duration of 18.8 month in Days (II)	penalty amount for the duration of the contract 18.8 months
Backhoe Loader	BP-1-1124	Same for Packages I, II & III	7,000.00	564	3,948,000.00
Concrete Mixer	Inv. 365 of 22.12.05	Same for Packages I, II & III	500.00	564	282,000.00
Tipper truck	BP-2-A5481	Same for Packages I, II & III	1,500	564	846,000.00
Tipper truck	BP-1-A1910	Same for Packages I, II & III	1,500	564	846,000.00
Tipper truck	BP-2-A5479	Same for Packages I, II & III	1,500	564	846,000.00
Tipper truck	BP-2-A5480	Same for Packages I, II & III	1,500	564	846,000.00
Vibratory roller	BP-1-A1918	Same for Packages I, II	5,000	564	2,820,000.00

		& III			
Total station		Same for Packages I, II & III	500	564	282,000.00
Tandem Roller	BP-2-A7572	Same for Packages I, II & III	6,000	564	3,384,000.00
Plate compactor	Inv. 165 of 1.2.12	Same for Packages I, II & III	300	564	169,200.00
<b>Total:</b>					<b>14,269,200.00</b>

- The following correspondences apparently indicated failure of the Pavement works for Packages II and III valuing Nu. 26.490 million and additional compensation payment of Nu. 3.593 million in addition to the insurance claim of Nu. 19.453 million.
- DoR/CE(TMT)/2015-16/8 date 1<sup>st</sup> June 2016
- CCCPL/ROL-(III)/Works-09/2016-2017/002 dated 7<sup>th</sup> January 2017
- DoR/Lobeysa/construction Division(09)/2016-2017/037 dated 24<sup>th</sup> January 2017
- CCCPL/ROL-(II)/Works-07/2016-2017/049 dated 13<sup>th</sup> April 2017
- DoR/CE(CD)/2016-2017/W-7/3795 dated 17<sup>th</sup> April 2017
- DoR/CD/7/2016-2017/4059 dated 26<sup>th</sup> June 2017
- DoR/CD/28/2017-2018/4245 dated 8<sup>th</sup> August 2017

The failure of such magnitude of pavement works is a clear evidence of non-deployment of separate equipment by the contractor as well as laxity on the part of the Regional Office and MLTC in allowing the contractor to execute three packages with the same equipment for all the three works.

#### 2.14.2 Langkena-Tekizampa (Package V) executed by M/s Etho Metho Construction Pvt. Ltd (RO, Lobeysa)

Equipment	Numbers Required	Numbers Committed	Remarks
Excavator	5	5	Available
Total Station	1	0	Not committed
Asphalt Plant	1	1	Available
Paving Machine	1	1	Available
Vibrating Road Roller	1	1	Not Available
Tandem Roller	1	1	Available
Motor Grader	1	1	Available
Backhoe	1	1	Available
Static Road Roller	1	1	Available
Bitumen Sprayer	1	1	Not Available
Tripper Truck	6	6	Available
Concrete Mixer	1	1	Available
Water Tanker	1	1	Available
Plate Compactor	1	1	Not Available
Air Compressor	2	2	Only 1 Available

- The Contractor had failed to deploy some critical equipment/plants namely vibrating road roller, bitumen sprayer, plate compactor and one air compressor at work site at work site.
- One number Total Station was not committed as per the tender document. The contract did not deploy the equipment at site.

## RO, Trongsa

### 2.14.3 Chuserbu to Nyelazam (Package 1) executed by M/s Rigsar Construction Pvt. Ltd (RO, Trongsa)

Table 2.14.3: Status of Equipment			Present at Work site on		
Equipment committed as per Agreement			Present at Work site on		
Sl/ No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Excavator	4 Nos.	Excavator	4	
2	Excavator with rock breaker	2 Nos.	Excavator with bucket	2	
3	Trucks Tripper	6 Nos	Trucks Tripper	4	2 Nos. not available
4	Pay Loader	2 No.	Pay Loader	1	1 No. not available
5	Asphalt plant	1 No.	Asphalt plant	1	
6	Paver finisher	1 No.	Paver	1	
7	Static Roller	1 No.	Static Roller	1	
8	Air Compressor	2 No	Air Compressor	1	1 No. not available
9	Bitumen sprayer	1 No.	Bitumen sprayer	1	
10	Pneumatic Roller	1 No.	Pneumatic Roller	1	
11	Water Tanker	1 No.	Water Tanker	1	
12	Plate Compactor	2 No.	Plate Compactor	1	1 No. not available
13	Motor Grader	1 No.	Motor Grader	1	
14	Crusher plant	1 No	Crusher plant	1	
15	Vibratory road roller	1 No	Vibrator	1	
16	Total station	1 No	Total station	1	

- Two trippers and one each of Pay Loader, Air Compressor and Plate Compactor were not deployed at site.

### 2.14.4 Nyelazam to Sakachawa (Package 2) executed by M/s Gaseb Construction Pvt. Ltd (RO, Trongsa)

Table 2.14.4: Status of Equipment			Present at Work site on (7 <sup>th</sup> December 2017)		
Equipment committed as per Agreement			Present at Work site on (7 <sup>th</sup> December 2017)		
Sl/ No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Asphalt plant	1 No.	Asphalt plant	Not available	
2	Paver	1 No.	Paver	Not available	
3	Bitumen sprayer	1 No.	Bitumen sprayer	Not available	
4	Pneumatic Roller	1 No.	Pneumatic Roller	Not available	
5	Water Tanker	1 No.	Water Tanker	Not available	

The Contractor had failed to deploy some critical equipment/plants namely Asphalt Plant, Paver, Pneumatic Roller, Bitumen Sprayer, at work site.



**2.14.5 Sakachawa to Tsangkha (Package 3) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)**

Table 2.14.5: Status of Equipment			Present at Work site on 7.12.2017		
Equipment committed as per Agreement			Present at Work site on 7.12.2017		
Sl/ No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Status/Remarks
1	Excavator	4 Nos.	Excavator	4	2 off road
2	Excavator with rock breaker	2 Nos.	Excavator with bucket	2	1 off road
3	Trucks Tripper	6 Nos	Trucks Tripper	4	3 off road
4	Pay Loader	2 No.	Pay Loader	1	Off road
5	Asphalt plant	1 No.	Asphalt plant	0	
6	Paver finisher	1 No.	Paver	0	
7	Static Road Roller	1 No.	Static Roller	1	Off road
8	Air Compressor	2 No	Air Compressor	3	2 off road
9	Bitumen sprayer	1 No.	Bitumen sprayer	0	
10	Pneumatic Roller	1 No.	Pneumatic Roller	0	
11	Water Tanker	1 No.	Water Tanker	0	
12	Plate Compactor	2 No.	Plate Compactor	0	
13	Motor Grader	1 No.	Motor Grader	0	
14	Crusher plant	1 No	Crusher plant	1	Manual crusher not as per the requirement
15	Vibratory road roller	1 No	Vibrator	1	Off road
16	Total station	1 No	Total station	0	

- Majority of machineries and equipment deployed were found off road during the physical verification.
- Machineries and equipment required for bituminous works were found not deployed
- Manual Crusher plant was installed instead of requisite Crusher plant
- Committed machineries were not deployed but deployed different machineries

**2.14.6 Tshangkha to View Point (Package 4) executed by M/s Gyalcon Infrastructure Pvt. Ltd (RO, Trongsa)**

Table 2.14.6: Status of Equipment			Present at Work site on 3/1/2018		
Equipment committed as per Agreement			Present at Work site on 3/1/2018		
Sl/ No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Asphalt plant	1 No.	Asphalt plant	0	
2	Paver Machines	1 No.	Paver	0	
3	Static Roller (8-10MT)	1 No.	Static Roller	1	Off road
4	Vibratory Road Roller	1 No	Vibratory Road Roller	1 No	
5	Pneumatic Roller	1 No.	Pneumatic Roller	0	
6	Water Tanker	1 No.	Water Tanker	1	Off road
7	Bitumen sprayer	1 No.	Bitumen sprayer	0	
8	Motor Grader	1 No.	Motor Grader	0	

- Machineries and equipment required for bituminous works were found not deployed
- Static Roller and Water Tanker deployed were found off road during the physical verification.

**2.14.7 View Point- BjeeZam (Package 5) executed by M/s Druk Lhayul Construction Pvt. Ltd (RO, Trongsa)**

Table 2.14.7: Status of Equipment			Present at Work site on 7 <sup>th</sup> December, 2017		
Equipment committed as per Agreement			Present at Work site on 7 <sup>th</sup> December, 2017		
Sl/ No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Excavator	4 Nos.	Excavator	2	
2	Excavator with bucket	2 Nos.	Excavator with bucket	1	Off road
3	Trucks Tripper	6 Nos	Trucks Tripper	2 Nos.	Primer equivalent to 2 trippers
5	Asphalt plant	1 No.	Asphalt plant	0	
6	Paver	1 No.	Paver	0	
9	Bitumen sprayer	1 No.	Bitumen sprayer	0	
10	Pneumatic Roller	1 No.	Pneumatic Roller	0	
11	Water Tanker	1 No.	Water Tanker	0	
12	Plate Compactor	1 No.	Plate	0	

- Asphalt plant and paver machine and related equipment which are critically required at site for bituminous works were not deployed at work site.
- One out of two excavators deployed was found off road during the physical verification
- Two tripper trucks were deployed against Six committed as per contract agreement

**2.14.8 Bjeezam- Trongsa (Package 6) executed by M/s Raven Builders & Company Pvt. Ltd (RO, Trongsa)**

Table 2.14.8: Status of Equipment			Present at Work site on 14.12.2017		
Equipment committed as per Agreement			Present at Work site on 14.12.2017		
Sl/No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Excavator	4 Nos.	Excavator	3	1 off road
2	Excavator with rock breaker	2 Nos.	Excavator with bucket	1	
3	Trucks Tripper	6 Nos	Trucks Tripper	3	
4	Pay Loader	2 No.	Pay Loader	1	
5	Asphalt plant	1 No.	Asphalt plant	0	
6	Paver finisher	1 No.	Paver	0	
7	Static Roller	1 No.	Static Roller	0	
8	Air Compressor	2 No	Air Compressor	1	
9	Bitumen sprayer	1 No.	Bitumen sprayer	0	
10	Pneumatic Roller	1 No.	Pneumatic Roller	1	
11	Water Tanker	1 No.	Water Tanker	1	
12	Plate Compactor	2 No.	Plate Compactor	0	
13	Motor Grader	1 No.	Motor Grader	0	
14	Crusher plant	1 No	Crusher plant	1	
15	Vibratory road roller	1 No	Vibrator	1	
16	Total station	1 No	Total station	0	

- Asphalt plant and paver machine and related equipment which are critically required for bituminous works were not deployed at work site.
- One out of three excavators deployed was found off road during the physical verification
- Three tripper trucks were deployed against Six committed as per contract agreement
- One Excavator with rock breaker was deployed against two required and committed

- One each of Pay Loader and Air Compressor were deployed against two required and committed.

#### 2.14.9 Pinzhi-Tashipokto (PKG-8) executed by M/s. Dungkar Construction Pvt Ltd. Thimphu (RO, Trongsa)

Table 2.14.9: Status of Equipment					
Equipment committed as per Agreement			Present at Work site on 18 <sup>th</sup> January, 2018		
Sl/No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Excavator	4 Nos.	Excavator	2	2 Nos not available at site
2	Excavator with rock breaker	2 Nos.	Excavator with rock breaker	1	1 Nos not available at site
3	Trucks Tripper	6 Nos	Trucks Tripper	1	5Nos not available at site
4	Water Tanker	1 No	Water Tanker	0	Not available at site
5	Asphalt plant	1 No.	Asphalt plant	0	Not available at site
6	Paving Machine (Paver)	1 No.	Paving Machine (Paver)	1	Not available at site
7	Vibratory roller (8-10mt)	1No	Vibratory roller (8-10mt)	0	Not available at site
8	Static Road Roller (8-10Mt)	1No	Static Road Roller (8-10Mt)	0	Not available at site
9	Bitumen sprayer	1 No.	Bitumen sprayer	0	Not available at site
10	Pneumatic Roller	1 No.	Pneumatic Roller	0	Not available at site
11	Water Tanker	1 No.	Water Tanker	0	Not available at site
12	Plate Compactor	1 No.	Plate Compactor	0	Not available at site
13	Crusher (min 30TPH)	1 No.	Crusher (min 30TPH)	0	Not available at site
14	Pay loader/back hoe	2 Nos.	Pay loader/back hoe	0	Not available at site

- Asphalt plant and paver machine and related equipment which are critically required for bituminous works were not deployed at work site.
- Majority of key machineries and equipment were found not deployed at work site during the physical verification.

#### 2.14.10 Tashipokto to Dorjigonpa (Package 9) executed by M/s Welfare Construction Pvt. Ltd. (RO, Trongsa)

Table 2.14.10: Status of Equipment				
Equipment required as per Agreement			Present at Work site on	
Sl/No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)
1	Excavator	4 Nos.	Excavator	4
2	Excavator with rock breaker	2 Nos.	Excavator with rock breaker	1
3	Tripper Trucks	6 Nos	Tripper Trucks	2
4	Pay Loader	2 No.	Pay Loader	0
5	Asphalt plant	1 No.	Asphalt plant	0
6	Paver finisher	1 No.	Paver	0
7	Static Road Roller	1 No.	Static Roller	0
8	Air Compressor	2 No	Air Compressor	2
9	Bitumen sprayer	1 No.	Bitumen sprayer	0
10	Pneumatic Roller	1 No.	Pneumatic Roller	0
11	Water Tanker	1 No.	Water Tanker	0
12	Plate Compactor	2 No.	Plate Compactor	0
13	Motor Grader	1 No.	Motor Grader	0
14	Concrete Mixer	1 No.	Concrete Mixer	1
15	Crusher plant	1 No	Crusher plant	1

16	Vibratory road roller	1 No	Vibratory road roller	0
17	Total station	1 No	Total station	1

- Asphalt plant and paver machine and related equipment which are critically required for bituminous works were not deployed at work site.
- Majority of key machineries and equipment were found not deployed at work site during the physical verification

#### 2.14.11 Dorji Gonpa to Yotongla (Package 10) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)

Table 2.14.11: Status of Equipment			Present at Work site on 18.1.2018		
Equipment committed as per Agreement					
Sl/No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Excavator	4 Nos.	Excavator	4	2 off road
2	Excavator with rock breaker	2 Nos.	Excavator with bucket	1	off road
3	Tripper Trucks	6 Nos	Tripper Trucks	6	5 off road
4	Pay Loader	2 No.	Pay Loader	1	
5	Asphalt plant	1 No.	Asphalt plant	0	
6	Paver finisher	1 No.	Paver	0	
7	Static Road Roller	1 No.	Static Roller	0	
8	Air Compressor	2 No	Air Compressor	2	
9	Bitumen sprayer	1 No.	Bitumen sprayer	0	
10	Pneumatic Roller	1 No.	Pneumatic Roller	0	
11	Water Tanker	1 No.	Water Tanker	1	Same for Package 13
12	Plate Compactor	2 No.	Plate Compactor	0	
13	Motor Grader	1 No.	Motor Grader	0	
14	Concrete Mixer	1 No.	Concrete Mixer	1	
15	Crusher plant	1 No	Crusher plant	1	
16	Vibratory road roller	1 No	Vibratory road roller	1	Same for Package 13
17	Total station	1 No	Total station	0	

- Same machineries and equipment committed for Package 10 and package 13.
- Majority of machineries and equipment deployed were found off road during the physical verification.
- Machineries and equipment required for bituminous works were found not deployed.
- One Water Tanker and one Vibratory Road Roller deployed was also used for package 13 instead of separate deployment
- One Excavator with rock breaker, One Pay Loader were deployed against requirements/commitment of two each.

#### 2.14.12 Yotongla to Bongzam (Package 11) executed by M/s Dungkar Construction Pvt. Ltd. recoverable penalty Nu. 37,086,000.00 (RO, Trongsa)

Table 2.14.12: Status of Equipment			Status at site during physical verification on 03/1/2018		
Machinery/Equipment required as per ITB 4.3 (a) of Section – II, Bidding Data Sheet			Commitment as per tender document		
Sl/No	Name of Equipment's	Qty. (Nos.)	Qty. (Nos.)	Qty (Nos.)	Remarks

1	Excavator	4	2	Nil	No separate Machinery/equipment deployed at site but same as Machinery/equipment deployed for Contract Package XII
2	Excavator with rock breaker	2		Nil	
3	Total Station set	1	1	Nil	
4	Asphalt Plant (Min 30TPH)	1		Nil	
5	Paving Machine (Paver)	1		Nil	
6	Vibratory Road Roller (8-10 ton Capacity)	1	1	Nil	
7	Pneumatic Tyred Roller	1		Nil	
8	Motor Grader	1	1	Nil	
9	Pay Loader/Backhoe	2	1	Nil	
10	Static Road Roller (8-10 ton capacity)	1		Nil	
11	Air Compressor	2		Nil	
12	Bitumen sprayer	1	1	Nil	
13	Tipper Trucks	6	3	Nil	
14	Concrete Mixer 7/5 cft. capacity or more	1	1	Nil	
15	Water Tanker	1		Nil	
16	Plate Compactor	2		Nil	
17	Crusher (Min 30 TPH)	1		Nil	

- On reviewing associated machineries and equipment aspects in new point based system of evaluation in e-tools through hard copy of e-tools report noted that for both the packages XI and XII, awarded to the firm, same HR and Equipment were used for evaluation in e-tools system.
- The contractor had failed to allocate separate HR & Equipment for package XI & XII, resulting in fundamental breach of contractual obligation.

The Site Engineer had failed to enforce the contract Clause SCC 10.1 of the GCC on the deduction of amounts as specified in the SCC for absence of officials at site as computed in table 2.14.12.1 below:

Particular of Machinery/Equipment	No.	Penalty/day of non-deployment	Total contract duration in Months	Total Contract duration in Days (III)	Penalty calculated as per approved work schedule (Nu)
Asphalt plant	1	10,000.00	28	420	4,200,000.00
Excavator	4	10,000.00	28	420	4,200,000.00
Excavator with rock breaker	2	10,000.00	28	420	4,200,000.00
Backhoe Loader	2	7,000.00	28	420	2,940,000.00
Motor Grader	1	10,000.00	28	420	4,200,000.00
Paver	1	8,000.00	28	420	3,360,000.00
Static Roller	1	4,000.00	28	420	1,680,000.00
Concrete Mixer	1	500.00	28	420	210,000.00
Water tanker	1	1,000.00	28	840	840,000.00
Tipper truck	6	1,500.00	28	840	1,260,000.00
Vibrator roller	1	5,000.00	28	420	2,100,000.00
Total station	1	500.00	28	420	210,000.00
Pneumatic Tyred Roller	1	5,000.00	28	420	2,100,000.00
Bitumen Sprayer	1	3,000.00	28	420	1,260,000.00

Plate compactor	2	300.00	28	420	126,000.00
Air compressor	2	5,000.00	28	840	4,200,000.00
Crusher (Min 30 TPH)	1	5,000.00	28	840	4,200,000.00
<b>Total:</b>					<b>37,086,000.00</b>

### 2.14.13 Bongzam to Gyatsa Zam (Package 12) by M/s Dungkar Construction Pvt. Ltd (RO, Trongsa)

Table 2.14.13: Status of Equipment					
Equipment required as per ITB 4.3 (a) of Section – II, Bidding Data Sheet			Commitment as per tender document		Status at site during physical verification on 03/1/2018
Sl/No	Qty. (Nos.)	Qty. (Nos.)	Qty. (Nos.)	Qty (Nos.)	Remarks
1	Excavator	2	2	2	
2	Excavator with rock breaker				
3	Total Station set	1	1	1	
4	Asphalt Plant (Min 30TPH)	1	1	0	<b>Not available</b>
5	Paving Machine (Paver)	1	1	0	<b>Not available</b>
6	Vibratory Road Roller (8-10 ton Capacity)	1	1	1	
7	Pneumatic Tyred Roller				
8	Motor Grader	1	1	1	
9	Pay Loader/Backhoe	1	1	1	
10	Static Road Roller (8-10 ton capacity)				
11	Air Compressor				
12	Bitumen sprayer	1	1	0	<b>Not available</b>
13	Tipper Trucks	3	3	3	
14	Concrete Mixer 7/5 cft. capacity or more	1	1	1	
15	Water Tanker	1	Nil	0	<b>Not available</b>
16	Plate Compactor	1	Nil	0	<b>Not available</b>
17	Crusher (Min 30 TPH)	1	Nil	1	

- On reviewing associated machineries and equipment aspects in new point based system of evaluation in e-tools through hard copy of e-tools report noted that for both the packages XI and XII, awarded to the firm, same HR and Equipment were used for evaluation in e-tools system
- Machineries and equipment which are critically required for bituminous works were not provided as on the date of physical verification.
- The contractor has been allowed to execute three contract packages with the same HR and equipment and that too without adequate deployment of HR and machinery/equipment for contract packages VIII and XI.
- 

### 2.14.14 Gyatsazam to Ngangar (Package 13) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)

Table 2.14.14: Status of Equipment					
Equipment committed as per Agreement			Present at Work site on 18.1.2018		
Sl/No	Name of Equipment's	Qty (Nos.)	Name of Equipment's	Qty (Nos.)	Remarks
1	Excavator	4 Nos.	Excavator	2	1 off road

2	Excavator with rock breaker	2 Nos.	Excavator with bucket	0	
3	Tripper Trucks	6 Nos	Tripper Trucks	3	
4	Pay Loader	2 No.	Pay Loader	1	
5	Asphalt plant	1 No.	Asphalt plant	0	
6	Paver finisher	1 No.	Paver	0	
7	Static Road Roller	1 No.	Static Roller	1	
8	Air Compressor	2 No	Air Compressor	2	
9	Bitumen sprayer	1 No.	Bitumen sprayer	0	
10	Pneumatic Roller	1 No.	Pneumatic Roller	0	
11	Water Tanker	1 No.	Water Tanker	1	<b>Same for Package 10</b>
12	Plate Compactor	2 No.	Plate Compactor	0	
13	Motor Grader	1 No.	Motor Grader	0	
14	Concrete Mixer	1 No.	Concrete Mixer	0	
15	Crusher plant	1 No	Crusher plant	0	
16	Vibratory road roller	1 No	Vibratory road roller	1	<b>Same for Package 10</b>
17	Total station	1 No	Total station	0	

- On reviewing associated machineries and equipment aspects in new point based system of evaluation in e-tools through hard copy of e-tools report noted that for both the packages X and XIII, awarded to the firm, same machineries and Equipment were used for evaluation in e-tools system
- Machineries and equipment which are critically required for bituminous works were not provided as on the date of physical verification.
- One Excavator deployed was found off road during the physical verification.
- One Water Tanker and one Vibratory Road Roller deployed was also used for package 10 instead of separate deployment
- Deployed: Two Excavators against 4 committed, three trippers against 6 committed and one Pay Loader against 2 committed.
- Different sets of machineries and equipment were found deployed at site as against committed as per contract documents.

## RO, Lingmethang

### 2.14.15 Korila-Pangser (Package-2) executed by M/s. Tshering Construction Pvt Ltd. Bumthang (RO, Lingmethang)

Type of Equipment	Equipment Numbers Required/ and Committed	Status of availability of equipment during physical verification at site	
		Available at site	Not Available at site
Excavator	2	Available	
Excavator with rock breaker	2	Available	
Total Station	1	Available	
Asphalt Plant	1		<b>Not Available</b>
Paving Machine	1	Available	
Vibrating Road Roller	1	Available	
Pneumatic Tyred Roller	1		<b>Not Available</b>
Motor Grader	1	Available	

Backhoe	2	Available	
Static Road Roller	1		<b>Not Available</b>
Bitumen Sprayer	1		<b>Not Available</b>
Tripper Truck	6	Available	
Concrete Mixer	1		<b>Not Available</b>
Water Tanker	1	Available	
Crusher	1	Available	
Plate Compactor	1		<b>Not Available</b>
Air Compressor	2	1 Available	<b>1 Not Available</b>

The Contractor had failed to deploy some critical equipment/plants namely Asphalt plant, Pneumatic Tyred Roller, Static Road Roller, bitumen sprayer, Concrete Mixer, plate compactor and one air compressor at work site.

#### 2.14.16 Pangser-Kilikhar (Package-3) executed by M/s. K. D Builder Pvt Ltd (RO, Lingmethang)

Equipment	Numbers Required	Numbers Committed	Status of availability of equipment during physical verification at site	
Excavator	2	2	Available	
Excavator with rock breaker	2	-		<b>Not Available</b>
Total Station	1	1	Available	
Asphalt Plant	1	1		<b>Not Available</b>
Paving Machine	1	1	Available	
Vibrating Road Roller	1	1	Available	
Pneumatic Tyred Roller	1	-		<b>Not Available</b>
Motor Grader	1	1		<b>Not Available</b>
Backhoe	1	1	Available	
Static Road Roller	1	-		<b>Not Available</b>
Bitumen Sprayer	1	1		<b>Not Available</b>
Tripper Truck	6	6	Only Available 4	<b>2 No. Not Available</b>
Concrete Mixer	1	1	Available	
Water Tanker	1	1	Available	
Crusher	1	1	Available	
Plate Compactor	1	1		<b>Not Available</b>
Air Compressor	2	2	Only Available 1	<b>1 No. Not Available</b>

- The contractor had failed to deploy some critical equipment/plants namely Excavator with rock breaker, Asphalt Plant, Pneumatic Tyred Roller, Motor Grader, Static Road Roller, Bitumen Sprayer, Plate compactor, two Tripper Trucks and one air compressor at work site.
- Two numbers Excavator with rock breaker, Pneumatic Tyred Roller and Static Road Roller were not committed as per the tender document. Accordingly, the contractor did not deploy the plant and equipment at site.



**2.14.17 Kilikhar to Mongar (Package 4) executed by M/s Gongphel Construction Pvt. Ltd (RO, Lingmethang)**

<b>Table 2.14.17: Status of Equipment</b>				
<b>Equipment</b>	<b>Numbers Required</b>	<b>Equipment Committed</b>	<b>Status of availability of equipment during physical verification at site</b>	
Excavator	4	4	4	Available
Excavator with rock breaker	2	2	2	Available
Total Station	1	1	1	Available
Asphalt Plant	1	1	-	<b>Not Available</b>
Paving Machine	1	1	-	<b>Not Available</b>
Vibrating Road Roller	1	1	1	Available
Pneumatic Tyred Roller	1	2	-	<b>Not Available</b>
Motor Grader	1	1	1	Available
Backhoe	1	1	1	Available
Static Road Roller	1	1	-	Not Available
Bitumen Sprayer	1	1	-	Not Available
Tripper Truck	6	6	5	<b>One tripper truck not available</b>
Concrete Mixer	1	1	1	Available
Water Tanker	1	1	1	Available
Crusher	1	1	1	Available
Plate Compactor	2	2	-	<b>Not Available</b>
Air Compressor	2	2	2	Available

- The contractor had failed to deploy some critical equipment/plants namely Asphalt Plant, Paving Machine, Pneumatic Tyred Roller, Static Road Roller, Bitumen Sprayer, Plate compactor and one number tripper truck at work site.

**2.14.18 Gangola-Kurizampa (Package 6) executed by M/s. Rigzar Construction Pvt Ltd. Trashigang (RO, Lingmethang)**

<b>Table 2.14.18: Status of Equipment</b>			
<b>Equipment</b>	<b>Numbers Required</b>	<b>Numbers Committed</b>	<b>Remarks</b>
Excavator	4	4	Available
Excavator with rock breaker	2	2	Available
Total Station	1	1	Available
Asphalt Plant	1	1	Available
Paving Machine	1	1	Available
Vibrating Road Roller	1	1	Available
Pneumatic Tyred Roller	1	1	<b>Not Available</b>
Motor Grader	1	1	Available
Exca drill	1	1	Available
Backhoe	2	2	Available
Steel Road Roller	1	1	Available
Bitumen Sprayer	1	1	<b>Available but off road</b>
Tripper Truck	6	7	Available
Concrete Mixer	1	1	Available
Water Tanker	1	1	Available
Crusher	1	1	Available

Plate Compactor	1	1	Available
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- The contractor had failed to deploy some critical equipment/plants namely Pneumatic Tyred Roller and the Bitumen Sprayer though available at site was found off road.

#### 2.14.19 Kurizampa-Lingmethang Highway (Package-7) executed by M/s Tshering Construction Pvt. Ltd, Bumthang (RO, Lingmethang)

Table 2.14.19: Status of Equipment			
Equipment	Numbers Required	Equipment Committed	Remarks
Excavator	2	2	Available
Total Station	1	1	Available
Rock Breaker	1	1	Available
Asphalt Plant	1	1	Available
Paving Machine	1	1	<b>Not Available</b>
Vibrating Road Roller	1	1	Available
Tandem Roller	1	1	Available
Motor Grader	1	1	Available
Backhoe	1	1	Available
Static Road Roller	1	1	Available
Bitumen Sprayer	1	1	<b>Not Available</b>
Tripper Truck	6	6	Available
Concrete Mixer	1	1	Available
Water Tanker	1	1	Available
Plate Compactor	1	1	<b>Not Available</b>
Air Compressor	2	2	Available

The contractor had failed to deploy some critical equipment/plants namely Paving Machine, Bitumen Sprayer and Plate compactor at work site.

As per General Conditions of Contract (GCC) clauses 10 – Personal, 10.1 “ *the Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the SCC, to carry out the functions stated in the Schedule or other personnel approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the schedule. If the contractor fails to deploy the personnel as committed in the Bid documents, the employer shall stop the work if the quality of work is going to suffer or otherwise deduct the salaries of such personnel at a rate stipulated in the SCC per month per personnel for every month of absence of such personnel from the site. Such deductions shall continue till such time that the contractor deploys the key personnel acceptable to the employer. If the contractor fails to deploy such key personnel within one to four months, the deduction shall be discontinued and the contractor’s failure to deploy such personnel shall be treated as a fundamental breach of contract*”.

“This shall also apply to the commitment of employment to Vocational Training Institute Graduates (VTI)/skilled local labourers and commitment to provide internship to VTI graduates. However, in this case, Contract may not be terminated but wage rates as mentioned in the SCC shall be deducted for the duration of the contract”.

*“Similarly, if the committed equipment are not available at site, the hiring charges of such equipment shall be deducted at a rate stipulated in the SCC per month for every month of absence for a period of one to four months after which the deductions shall be discontinued and the contractor’s failure to produce such equipment at site shall be treated as a fundamental breach of contract”.*

As evident from above tables all the contractors had violated the aforementioned terms and condition of the contract. In this context, the audit had observed following lapses:-

- Machineries and equipment were not deployed as committed in the bid documents and were replaced without the approval of appropriate authority.
- The contractors had failed to deploy Machineries and equipment since the start of the contract works.
- Few of Machineries and equipment deployed at work sites were found Off Road and no actions were taken to either repair or replace as on the date of audit.
- The RO and the Site Engineer had allowed the contractors to deploy same machineries and equipment for two or three contract packages instead of ensuring deployment of separate equipment for each contract package.
- Different sets of machineries and equipment were found deployed at site as against committed as per contract documents.
- Few Contractors had failed to commit the machineries and equipment viz. Water Tanker, Plate Compactor and Crusher Plant, which were critical equipment, required for the smooth execution of road works. The Evaluation Committee and MLTC/DLTC had not taken decisions to address the non-commitment of the equipment despite the work was awarded to the firm. During the physical verification of the machinery /equipment, revealed that contractors had not deployed such equipment and the RO had failed to take action on the issue.
- The RO and the Site Engineers had failed to either ensure deployment of committed machineries and equipment by the contractors or take action to deduct the hiring cost as per the provisions of the contract agreements against the defaulting contractors.

Non-deployment of committed machineries and equipment were in total violations with reference to Clause SCC 10.1 of the GCC of the contract agreements and keeping in view that the firms had qualified the technical category by obtaining scores based on the proposed deployment of key equipment and machineries. Further, it was the responsibility of site engineer to report the matter to Regional Office for appropriate decisions and actions. The inaction on the part of the site engineer indicated laxity and complacency as well as extension of undue favour to the contractors.

The RO, should comment on the basis of accepting machineries and equipment other than those committed in the contracts including acceptance of same equipment for contractors executing two or three contract packages as different work plans and completion deadlines were set against each contract package. Besides, the RO must also comment on course of action taken against the contractors in term of the contract Clause SCC 10.1 of the GCC for deployment of different set of machineries and equipment in the event no approval were accorded for replacements.

The Regional Office besides recovering the penalties computed by the RAA should also work out the exact penalty amounts deductible taking into consideration the revised and actual completion dates, substitutions with lesser capacity of machineries and equipment and deposited in to Audit Recoveries Account.

The DOR and the Ministry should hold the RO and the Site Engineer accountable for the failure to ensure deployment of machineries and equipment as per bidding documents for appropriate decisions and action.

**Auditee's Response:**

*It is to inform RAA that M/s. Chogyal construction had deployed separate set of machineries and human resources for all three packages during the execution. RAA was provided with the set of resources deployed for two packages during the auditing time itself. However, RO could not able to produce documentation for one package due to its misplacement. We regret for not having produced the documents as required during the auditing. Finally, after hard work of searching every day, finally RO could able to find the documents for the third package. The copy of HR and equipment for package II & III attached for reference and record, please. Therefore, RAA is requested to kindly drop the memo. Further RO also assures RAA that such important documents shall be kept under safe custody for future works.*

*M/s Etho Metho Construction has deployed machineries as per the agreement. However, the Bitumen Sprayer was not brought to site yet the BT works was successfully executed by spraying the bitumen manually to the required specification. The RO thus accepted the work and penalty for not deploying the bitumen sprayer was not imposed. Therefore, RO requests RAA to consider and drop the memo, please.*

**RAA's Further Comments & Recommendations:**

*While taking note of the response, the fact remains that timely deployment of committed machinery and equipment is a critical factor for project success in terms of time, cost, and quality. The RO had failed to draw appropriate time schedule for the deployment of machinery and equipment in line with the work programs to enable the site engineer to monitor and direct the contractors for deployment of equipment as scheduled. It is apparent that abnormal delays of the contract works beyond the contract and revised completion periods were in the absence of predetermined schedules for deployment of equipment by the contractor for the works. The contract delays was also possible due for engagement of same equipment for the both contract packages II and VII.*

*Non-levy of penalty as envisaged in the contract document tantamount to extension of undue favour as the contractors not only benefit financially from not having to bring the equipment at site and incur associated cost but also on annulling the payment of penalty for non- deployment of equipment at site. It is to reiterate that the quoted rates of contractor for the related items of works is built up cost inclusive of cost of equipment and all risks factors.*

*The failure on the part of the RO and the Site Engineer to ensure deployment of all committed Plants and Equipment at work site indicated laxity and complacency as well as existence of systemic faults, deficiencies and poor contract management.*

*However, as asserted in the response on the deployment of all machinery and equipment at site on readying the bituminous works, the RO should submit the list equipment and machinery deployed along with documentary evidences for both the contract packages for records and verification in audit. In the event of failure to furnish the requisite records, the RO should recover the penalty as envisaged in the contract documents. In addition, it is to reiterate that non-deployment of one concrete mixture and one air compressor as noted during the physical verification were require throughout constructions not just for bituminous works.*

*However, as agreed during the exit meeting, DOR and RO, should work out the exact penalty amounts deductible for non-deployment of equipment as per contract document and amounts be recovered within three months from the date of issue of the report beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016.*

*Further DoR and the Ministry should study on the impact of poor plant and equipment management existing within the present system and practices on the progress and quality of works. Besides, the DOR and the Ministry should also conduct appropriate studies in terms of types of plant and equipment and efficiency requirements, numbers of plant and equipment requirements, adequate machinery and equipment deployment plan in relation to the quantum of works and cost of the project for effective equipment management by both the site engineer and the contractor. In addition, the Ministry should also review on the non-commitment of critical and requisite machineries and equipment by the winning bidders and appropriate measures and system put in place to address such flaws in the tender process as well as avoid complication in the contract management for similar project in future.*

*The studies conducted and actions and measures initiated to improve the equipment management system as well as to prevent such flaws and lapses intimated to RAA for records and follow-up in future audits.*

#### **Who is accountable?**

<b><i>Direct Accountability</i></b>	<b><i>: Refer Accountability Statement attached</i></b>
<b><i>Supervisory Accountability</i></b>	<b><i>:Refer Accountability Statement attached</i></b>

#### **2.15 Non-installation of laboratory at site as per BOQ (5.1.15)**

The Regional Office, Trongsa and Lingmethang, despite clear instruction in the technical specification that no separate measurements and payment to be made on the provisions and maintenance of Camps, Offices, Stores, Equipment Yards and Workshops, had prepared detailed estimates for *Installation of Labour camps, contractors' site office, accommodation with proper toilets and sanitation, stores signage, water supply, electricity, lab facilities including equipment etc.* and included as a separate “**item of work**” in the BOQ.

For this item of work, the contractors had quoted lump sum amounts and were paid for including establishment of laboratory at work sites as detailed below:

<b>RO, Trongsa-Table 2.15: details of estimated cost, quoted price and payments thereon</b>				
<b>Packages</b>	<b>Name of Contractor</b>	<b>Departmental estimate (Nu.)</b>	<b>Quoted Amount (Nu.)</b>	<b>Amount paid (Nu.)</b>
Package 1	M/s Rigsar Construction Pvt. Ltd	200,000.00	200,000.00	200,000.00
Package 2	M/s Gaseb Construction Pvt. Ltd	200,000.00	2,000,000.00	2,000,000.00
Package 3	M/s Rinson Construction Pvt. Ltd	200,000.00	1,000,000.00	1,000,000.00
Package 4	M/s Gyalcon Infrastructure Pvt. Ltd	200,000.00	1,200,000.00	1,200,000.00
Package 5	M/s Druk Lhayul Construction Pvt. Ltd	200,000.00	500,000.00	500,000.00
Package 6	M/s Raven Builders & Company Pvt. Ltd	200,000.00	400,000.00	400,000.00
Package 7	M/s Druk Lamsel Construction Pvt/ Ltd	300,000.00	600,000.00	600,000.00
Package 8	M/s. Dungkar Construction Pvt Ltd. Thimphu	200,000.00	150,000.00	150,000.00
Package 9	M/s Welfare Construction Pvt. Ltd	200,000.00	2,000,000.00	1,800,000.00
Package 10	M/s Rinson Construction Pvt/ Ltd	200,000.00	750,000.00	675,000.00
Package 11	M/s Dungkar Construction Pvt/ Ltd	200,000.00	150,000.00	150,000.00
Package 12	M/s Dungkar Construction Pvt Ltd	300,000.00	150,000.00	150,000.00
Package 13	M/s Rinson Construction Pvt/ Ltd	200,000.00	500,000.00	500,000.00
Package 14	M/s Lamnekha Construction Pvt Ltd	300,000.00	50,000.00	50,000.00
	<b>Total</b>	<b>3,100,000.00</b>	<b>9,650,000.00</b>	<b>9,325,000.00</b>

<b>RO, Lingmethang-Table 2.15(a): details of estimated cost, quoted price and payments thereon</b>				
<b>Packages</b>	<b>Name of Contractor</b>	<b>Departmental estimate (Nu.)</b>	<b>Quoted Amount (Nu.)</b>	<b>Amount paid (Nu.)</b>
Package 2	M/s Tshering Construction Pvt. Ltd	1,744,875.00	2,500,000.00	2,500,000.00
Package 3	M/s KD Builders Pvt. Ltd.)	1,794,875.00	4,800,000.00	4,800,000.00
Package 4	M/s Gongphel Construction Pvt. Ltd.	2,194,875.00	1,000,000.00	1,000,000.00
Package 5	M/s Norbu Construction Pvt. Ltd)	2,294,875.00	700,000.00	700,000.00
Package 6	M/s Rigsar Construction Pvt. Ltd.	2,294,875.00	250,000.00	200,000.00
Package 7	M/s Tshering Construction Pvt. Ltd	1,225,175.00	2,500,000.00	2,000,000.00
	<b>Total</b>	<b>11,549,550.00</b>	<b>11,750,000.00</b>	<b>11,200,000.00</b>

During site visit, the audit team in the presence of the Officials from Regional Offices and contractors, physically verified the establishment of proper camps, toilets, water supply and equipment etc. as defined in the estimates and contract document. The team observed that while the payments were made, some contractors had not installed laboratory and some had failed to procure necessary equipment for the laboratory as discussed below:

## RO, Trongsa

### 2.15.1 Nyelazam to Sakachawa (Package 2) executed by M/s Gaseb Construction Pvt. Ltd (RO, Trongsa)

M/s Gaseb Construction Pvt. Ltd had quoted Nu. 2,000,000.00 and was paid accordingly. However, during site verification by the audit team along with the site engineer and the contractor, observed that while most of the lab equipment were available, no separate laboratory facilities was found established. The following equipments were not made available for verification:

Procurement of lab equipment and other related items		No.	Remark
I	Bitumen thermometer – digital	1	No
II	CBR testing machine	1	No
III	Flakiness & elongation Index	1	No

### 2.15.2 Sakachawa to Tsangkha (Package 3) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)

M/s Rinson Construction Pvt. Ltd had quoted Nu. 1,000,000.00 and was paid accordingly. However, during the site visit made on 12.01.2017 by the audit team along with the site engineer and the contractor, observed that the laboratory was not installed at site as laboratory equipment as detailed in the table below were not available for verification:

<b>Installation of labor camps, contractor’s site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
Procurement of lab equipment and other related items		No	Remarks
I	Sand Replacement Equipment	1	No
II	Sieve - all sizes	1	No
III	Flakiness & elongation Index	1	No
IV	Moisture content (speedometer)	1	No
V	Slump Cone	1	No
VI	Cube moulds	1	No
VII	Bitumen thermometer – digital	1	No
VII	Marshall equipment/apparatus	1	No
IX	Bituminous Oven	1	No
X	Water bath	1	No
XI	Centrifuge extractor	1	No
XII	Digital balance	1	No

XIII	Jaw crusher (small)	1	No
XIV	Triple Beam balance 1 set	1	No
XV	Density wire basket	1	No
XVI	CBR testing machine	1	No

On enquiry, the project engineer stated that only one laboratory was installed for package 3 (III) and for Package 10 (X) although installation of camp and laboratory for individual packages were paid separately.

### 2.15.3 Tshangkha to View Point (Package 4) executed by M/s Gyalcon Infrastructure Pvt. Ltd (RO, Trongsa)

M/s Gyalcon Infrastructure Pvt. Ltd. had quoted Nu. 1,200,000.00 and was paid accordingly. However, during site verification by the audit team along with the site engineer and the contractor, observed that the contractor had not established laboratory since the start of the project.

### 2.15.4 View Point- BjeeZam (Package 5) executed by M/s Druk Lhayul Construction Pvt. Ltd (RO, Trongsa)

M/s Druk Lhayel Construction Pvt. Ltd had quoted Nu. 1,000,000.00 and was paid accordingly. However, during the site visit by the audit team along with the site engineer and the contractor, observed that the laboratory was not installed at site as laboratory equipment as detailed in the table below were not available for verification:

<b>Table 2.15.4: Lab Equipment not available at site</b>			
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>No.</b>	<b>Remark</b>
I	Sand Replacement Equipment	1	No
II	Sieve - all sizes	1	Only fine aggregates equipment present
III	Flakiness & elongation Index	1	No
IV	Moisture content (speedometer)	1	No
V	Slump Cone	1	Yes
VI	Cube moulds	1	Yes
VII	Bitumen thermometer – digital	1	Yes
VII	Marshall equipment/apparatus	1	No
IX	Bituminous Oven	1	No
X	Water bath	1	No
XI	Centrifuge extractor	1	No
XII	Digital balance	1	No



XIII	Jaw crusher (small)	1	No
XIV	Triple Beam balance 1 set	1	No
XV	Density wire basket	1	No
XVI	CBR testing machine	1	No

Sieve of all sizes, Slump Cone and Bitumen thermometer – digital only were made available for verification

#### **2.15.5 Bjeezam- Trongsa (Package 6) executed by M/s Raven Builders & Company Pvt. Ltd (RO, Trongsa)**

M/s. Raven Builders & Company (P) LTD had quoted Nu. 400,000.00 and was paid accordingly. However, during the site verification by the audit team along with the site engineer and the contractor, observed that no laboratory facilities was found established.

#### **2.15.6 Pinzhi-Tashipokto (PKG-8) executed by M/s. Dungkar Construction Pvt Ltd. Thimphu (RO, Trongsa)**

M/s Dungkar Construction Pvt. Ltd quoted only Nu. 150,000.00 and was paid accordingly. However, during site verification by the audit team along with the site engineer and the contractor, observed while most of the lab equipment were available, no separate laboratory facilities was found established.

#### **2.15.7 Tashipokto to Dorjigonpa (Package 9) executed by M/s Welfare Construction Pvt. Ltd (RO, Trongsa)**

M/s Welfare Construction Pvt. Ltd had quoted Nu. 2,000,000.00 and was paid accordingly. However, during site verification on 19.01.2017 by the audit team along with the site engineer and the contractor, the team was informed that the contractor had not established laboratory since the start of the project.

On pointing out, the RO, stated that Nu. 200,000.00 representing 10% of the quoted amount for non-installation of laboratory was deducted.

#### **2.15.8 Dorji Gonpa to Yotongla (Package 10) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)**

M/s Rinson Construction Pvt. Ltd had quoted Nu. 750,000.00 and was paid Nu. 675,000.00. However, during the site visit on 18.01.2017 by the audit team along with the site engineer and the contractor, observed that the laboratory was not installed at site as laboratory equipment as detailed in the table below were not available for verification:

<b>Table 2.15.8: Lab Equipment not available at site</b>		
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>		
<b>Procurement of lab equipment and other related items</b>	<b>No.</b>	<b>Remarks</b>

I	Sand Replacement Equipment	1	No
II	Sieve - all sizes	1	Yes
III	Flakiness & elongation Index	1	Yes
IV	Moisture content (speedometer)	1	No
V	Slump Cone	1	Yes
VI	Cube moulds	1	Yes
VII	Bitumen thermometer – digital	1	No
VII	Bitumen Penetration	1	No
IX	Marshall equipment/apparatus	1	No
X	Lab Oven	1	Yes
XI	Water bath	1	No
XII	Centrifuge extractor	1	No
XIII	Digital balance	1	Yes
XIV	Jaw crusher (small)	1	No
XV	Triple Beam balance 1 set	1	No
XVI	Density wire basket	1	Yes
XVII	CBR testing machine	1	Yes

On enquiry, the project engineer stated that only one laboratory was installed for package 3 (III) and for Package 10 (X) although installation of camp and laboratory for individual packages were paid separately.

On pointing out, the RO, stated that Nu. 75,000.00 representing 10% of the quoted amount was deducted for not fully establishing the laboratory.

#### **2.15.9 Yotongla to Bongzam (Package 11) executed by M/s Dungkar Construction Pvt. Ltd (RO, Trongsa)**

M/s Dungkar Construction Pvt. Ltd have quoted Nu. 150,000.00 and was paid accordingly. However, during the site verification by the audit team along with the site engineer and the contractor, observed that the no separate laboratory facilities was found established except for Package 8.

#### **2.15.10 Bongzam to Gyatsa Zam (Package 12) by M/s Dungkar Construction Pvt. Ltd (RO, Trongsa)**

M/s Dungkar Construction Pvt. Ltd have quoted Nu. 150,000.00 and was paid accordingly. However, during the site verification by the audit team along with the site engineer and the contractor, observed that the no separate laboratory facilities was found established except for Package 8.

#### **2.15.11 Gyatsazam to Ngangar (Package 13) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)**

M/s Rinson Construction Pvt. Ltd had quoted Nu. 500,000.00 and was paid accordingly. However, during the site verification on 21.12.2017 by the audit team along with the site engineer and the contractor, observed that the no separate laboratory facilities was found

established as laboratory equipment as detailed in the table below were not available for verification:

<b>Table 2.15.11: Lab Equipment not available at site</b>			
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>No.</b>	<b>Remarks</b>
I	Sand Replacement Equipment	1	No
II	Sieve - all sizes	1	No
III	Flakiness & elongation Index	1	No
IV	Moisture content (speedometer)	1	No
V	Slump Cone	1	No
VI	Cube moulds	1	No
VII	Bitumen thermometer – digital	1	No
VIII	Marshall equipment/apparatus	1	No
IX	Bituminous Oven	1	No
X	Water bath	1	No
XI	Centrifuge extractor	1	No
XII	Digital balance	1	No
XIII	Jaw crusher (small)	1	No
XIV	Triple Beam balance 1 set	1	No
XV	Density wire basket	1	No
XVI	CBR testing machine	1	No

On enquiry, the project engineer stated that only one laboratory was installed for package 10 (X) and for Package 13 (XIII) although installation of camp and laboratory for individual packages were paid separately.

## **RO, Lingmethang**

### **2.15.12 Korila-Pangser (Package-2) executed by M/s. Tshering Construction Pvt Ltd. Bumthang (RO, Lingmethang)**

M/s. Tshering Construction Pvt Ltd. had quoted Nu. 2,500,000.00 and was paid accordingly. However, during site visit, the audit team in the presence of the Officials from Regional Office and contractor physically verified the establishment of proper camps, toilets, water supply etc. as defined in the estimates and contract document. The team noted that while the payments were made, some necessary equipment were found not procured by the contractor as detailed below:

<b>Table 2.15.12: Lab Equipment not available at site</b>		
<b>Procurement of lab equipment and other related items</b>	<b>No.</b>	<b>Remark</b>
I	Marshall equipment/apparatus	No

II	Bituminous Oven	1	No
III	Water bath	1	No
IV	Centrifuge extractor	1	No
V	Sand equivalent test apparatus	1	No
VI	Jaw crusher (small)	1	No
VII	Triple Beam balance 1 set	1	No
VIII	Density wire basket	1	No
IX	CRB testing machine	1	No

### **2.15.13 Pangser-Kilikhar (Package-3) executed by M/s. K. D Builder Pvt Ltd (RO, Lingmethang)**

M/s. K. D Builder Pvt Ltd. had quoted Nu. 4,800,000.00 and was paid accordingly. However, during site visit, the audit team in the presence of the Officials from Regional Office and contractor physically verified the establishment of proper camps, toilets, water supply etc. as defined in the estimates and contract document. The team noted that while the payments were made, some necessary equipment were found not procured by the contractor as detailed below:

<b>Table 2.15.13: Lab Equipment not available at site</b>			
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>No.</b>	<b>Remark</b>
<b>I</b>	Marshall equipment/apparatus	1	No
<b>II</b>	Bituminous Oven	1	No
<b>III</b>	Centrifuge extractor	1	No
<b>IV</b>	Jaw crusher (small)	1	No
<b>V</b>	Triple Beam balance 1 set	1	No
<b>VI</b>	Density wire basket	1	No
<b>VII</b>	CBR testing machine	1	No
<b>VIII</b>	Safety goggles	1	No

On enquiry, the project engineer stated that only one laboratory was installed for package 3 (III) and for Package 10 (X) although installation of camp and laboratory for individual packages were paid separately.

### **2.15.14 Kilikhar to Mongar (Package 4) executed by M/s Gongphel Construction Pvt. Ltd (RO, Lingmethang)**

M/s Gongphel Construction Pvt. Ltd had quoted Nu. 1,000,000.00 and was paid accordingly. However, during site visit, the audit team in the presence of the Officials from Regional Office and contractor physically verified the establishment of proper camps, toilets, water supply etc. as defined in the estimates and contract document. The team noted that while the payments were made, some necessary equipment were found not procured by the contractor as detailed below:

<b>Table 2.15.14: Lab Equipment not available at site</b>			
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>No.</b>	<b>Remark</b>
I	Bituminous Oven	1	No
II	Centrifuge extractor	1	No
III	Water bath	1	No
IV	Density wire basket	1	No
V	CBR testing machine	1	No
VI	Safety goggles	1	No
VII	Safety Belts	1	No

### **2.15.15 Mongar-Gongola (Package-5) executed by M/s. Norbu Construction Company Pvt. Ltd, Gelephu (RO, Lingmethang)**

M/s. Norbu Construction Company Pvt. Ltd, Gelephu had quoted Nu. 700,000.00 and was paid accordingly. However, during site visit, the audit team in the presence of the Officials from Regional Office and contractor physically verified the establishment of proper camps, toilets, water supply etc. as defined in the estimates and contract document. The team noted that while the payments were made, no separate lab facilities was found established at site as laboratory equipment as detailed in the table below were not available for verification:

<b>Table 2.15.15: Lab Equipment not available at site</b>			
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>No.</b>	<b>Remark</b>
I	Flakiness & elongation Index	1	No
II	Moisture content (speedometer)	1	No
III	Bitumen thermometer – digital	1	No
IV	Marshall equipment/apparatus	1	No
V	Bituminous Oven	1	No
VI	Water bath	1	No
VII	Centrifuge extractor	1	No
VIII	Jaw crusher (small)	1	No
IX	Triple Beam balance 1 set	1	No
X	Density wire basket	1	No
XI	CBR testing machine	1	No

**2.15.16 Gangola-Kurizampa (Package 6) executed by M/s. Rigsar Construction Pvt Ltd. Trashigang (RO, Lingmethang)**

M/s. Rigsar Construction Pvt Ltd had quoted Nu. 250,000.00 and was paid Nu. 200,000.00. However, during the site verification by the audit team along with the site engineer and the contractor, observed that while most of the lab equipment were available, no separate lab facilities was found established at site as laboratory equipment as detailed in the table below were not available for verification:

<b>Table 2.15.16: Lab Equipment not available at site</b>			
<b>Installation of labour camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>Qty. in No.</b>	<b>Remarks</b>
I	Marshall equipment/apparatus	1	No
II	Bitumen Oven	1	No
III	Water bath	1	No
IV	Centrifuge extractor	1	No
V	Jaw crusher (small)	1	No
VI	Triple Beam balance 1 set	1	No
VII	Density wire basket	1	No
VIII	CBR testing machine	1	No
IX	Insurance		documents not available

**2.15.17 Kurizampa-Lingmethang Highway (Package-7) executed by M/s Tshering Construction Pvt. Ltd, Bumthang (RO, Lingmethang)**

M/s Tshering Construction Pvt. Ltd, Bumthang had quoted Nu. 2,500,000.00 and was paid Nu.2,000,000.00. However, during the site verification by the audit team along with the site engineer and the contractor, observed that the no separate laboratory facilities was found established as laboratory equipment as detailed in the table below were not available for verification:

<b>Table 2.15.17: Lab Equipment not available at site</b>			
<b>Installation of labor camps, contractor's site office, accommodation with proper toilets and sanitation, stores, signage, water supply, electricity, lab facilities including equipment etc. as per Technical Specification.</b>			
<b>Procurement of lab equipment and other related items</b>		<b>No.</b>	<b>Remarks</b>
I	Sand Replacement Equipment	1	No
II	Flakiness & elongation Index	1	No
III	Moisture content (speedometer)	1	No
IV	Slump Cone	1	No
V	Bitumen thermometer – digital	1	No
VI	Marshall equipment/apparatus	1	No
VII	Bituminous Oven	1	No
VIII	Water bath	1	No

IX	Centrifuge extractor	1	No
X	Sand equivalent test apparatus	1	No
XI	Digital balance	1	No
XII	Jaw crusher (small)	1	No
XIII	Triple Beam balance 1 set	1	No
XIV	Density wire basket	1	No
XV	CBR testing machine	1	No

The Regional Office should comment on the non-establishment of lab facilities which is a critical component of contract obligations for ensuring execution of contract works with quality materials and testing of executed works to validate that works met the required technical standards and specifications.

The Regional Office should comment as to how such technical requirements on the execution of works were achieved without laboratory facilities. Besides, the RO should recover the proportionate amount from the contractor for not installing laboratory at site or installation of combined laboratory, if any, and the amount recovered deposited into Audit Recoveries Account. Further, the Regional Office should also comment on non availability of lab equipments at site.

**Auditee's Response:**

*The Regional Office acknowledges the observations issued by Royal Audit Authority and we have great concerns and high regards for the observation made by Royal Audit Authority. We would like to furnish the following facts and evidences as comprehensive explanations for kind consideration by Royal Audit Authority.*

*From the list of equipment enclosed, RO acknowledges that though the firm has not brought all the requisite equipment at site, the minimal pre-requisite testing equipment are present at site. More over the firm carries out the required test at site as demanded by the nature of work from the neighboring contractor's laboratory.*

*For some equipment made not available at site during the course of testing, proportionate amount will be worked out and will be recovered and deposited to ARA*

*We would like to request the Royal Audit Authority to kindly review above detailed explanations and consider dropping the above Para.*

***Other Responses:***

*As long as many contractors getting their materials tested from APECs and nearby contractor with their own expenses, RO could not do anything despite several instructions.*

*With every bill submission, contractors are instructed to attach test reports/results and each & every contractor is complying with this requirement*

**RAA’s Further Comments & Recommendations:**

*The response of the RO that request test were conducted by the contractors from APECs and neighboring contractors’ laboratories is not tenable as the incorporation of such extra item of works in the estimates and BOQs was made in violation of the provisions of the technical specifications and also such decisions should have been taken prior to incorporation of the lab requirements in the estimates/BOQs, tendering and awarding the contract works. The incorporation of installation of laboratory facilities in the estimates/BOQs would have cost implications which bidders are expected to include in their rates.*

*It is apparent from the response that the RO had not adhered to the contract provisions by allowing the contractors to conduct the test in APECs and neighboring contractors’ laboratories instead of directing the contractors to establish own laboratory as per the contract agreement. It also indicated laxity and complacency on the part of the RO to enforce the provisions of the contract agreement.*

*Non-enforcement of contract clauses strictly and non-levy of penalty tantamount to extension of undue favour as the contractors benefits financially on not having to procure and install the lab facilities and incur associated cost. It is to reiterate that the quoted rates of contractors for the related items of works is built up cost inclusive of cost of lab equipment and all risks factors.*

*However, as agreed during the exit meeting, DOR and RO should work out the exact penalty amounts deductible for non-establishment of laboratories and non-furnishing of full laboratory facilities in terms of the total payments made to Contractors as the deduction of just 10% made by the RO from few contractors were not justified. The deductible amounts should be recovered within three months from the date of issue of the report beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016. Besides, the details of recoveries affected and accounted for in the books of accounts should be furnished to RAA for review and record.*

*Further, in the light of the failure not only to establish laboratory facilities by majority of the contractors but also on the part of the RO and Site Engineer to strictly enforced the provisions as per contract agreement, the DoR and the Ministry should revisit the estimates/BOQs and technical specifications for appropriate decisions and action on the requirement for inclusion of installation of separate laboratory facilities by contractors for similar future works. The outcome of the decisions should be intimated to RAA for records and follow-up in future audits.*

**Who is accountable?**

<b>Direct Accountability</b>	<b>: Refer Accountability Statement attached</b>
<b>Supervisory Accountability</b>	<b>: Refer Accountability Statement attached</b>



## 2.16 Flaws in the BOQ and technical Specification on the transportation of Spoil materials in designated dumping yards (4.4.69)

The Nomenclature provided in the BOQ for item work RW0024 for dumping of spoil materials were as under:

*“Transportation of loose spoil materials in designated locations including loading/unloading, Dressing of dump sites and plantation of vegetation after completion of dumping beyond 500 up to 1210 m.”*

While the bidder was required to bid in lump sum amount for FC works comprising item of works “RW0014 for exaction of all kinds of rocks”, RW0013 for “excavation of all kinds of soil” and RW0024 for “transportation of loose soil”, the nomenclature categorically provided under RW0024 transportation of loose spoil materials beyond 500m up to 1210m indicating that the designated dumping sites were beyond 500m distances.

Accordingly, the quotes though obtained as lump sum amount for formation works, had invariably built up rates for the transportation of loose soil beyond 500m up to 1210 m. It was apparent from the records and documents that the Regional Office had obtained NEC clearance for dumping yards for all contract packages prior to estimations and awards of contracts.

The designated dumping yards for the various contract packages were approved as detailed in table 2.16 below:

Table 2.16: Flaws in the BOQ and technical Specification			
Name of contractor	Contract Chainage	Designated Dump Yard Chainage	Remark
M/s Empire Construction (Package VIII) – Lobeysa	372km to 379km (7km) Pelela- Bumilo	379.10KM,378.70KM,377.90K M377.80KM,376.5KM,375.50K M,374.50Km374.3KM&372.6K M	Analysis based on the designated dumping yards indicated that from a less than a kilometer, transportation of loose materials were required beyond 500m. (M/s Empire Construction Pvt. Ltd. as evident from the NEC clearance letter No. NECS/ESD/DOR/3023/2014/1018 dated 18/12/2014).
M/s Gaseb Construction Pvt. Ltd - (Package 2) Trongsa	12.00km to 19.50km (7.5km) Nyelazam – Sakachawa	13960-14020, 14420-14490, 14700-14750, 15000-15040, 15520-15580, 15720-15790, 16220-16280	Analysis based on the designated dumping yards indicated that in between Chainage 12000 to 13460m and 16780 to 19500m , transportation of loose material beyond 500m were required only for about 1460m and 2720m respectively.
M/s Druk Gyalcon Construction Pvt. Ltd (Package 4) -Trongsa	27km to 32.00km (5km) Tsangkha to Trongsa View point	27274m, 27372m, 2772m, 28794m, 28956m, 29120m, 29256m, 29500m, 29709m, 31743m	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 1313m
M/s Druk Lhayul Construction Pvt. Ltd (Package 5) Trongsa	32.00km to 37.70km (5.7km) View Point- Bjee Zam	32160-32240m, 32380-32440m, 33610-33640m	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 3730m
M/s Raven Construction Pvt. Ltd (Package 6) Trongsa	37.7km-44.4km(6.7 km) Bjeezam-Trongsa	37,960m-38,000m, 39,540m-39,620m, 41,520m-41,600m, 43,260m-43,300m	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 2700m
M/s. Dungkar Construction Pvt Ltd. Thimphu (Package 8)	50.80km to 58.00km (7.2km) to Pinzhi-Tashipokto	53310m, 56569m	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 5200m

Trongsa			
M/s Welfare Lamsel Construction Pvt. Ltd (Package 9) Trongsa	58km to 65.98km (7.98km) Dorjigonpa to Tashipokto	58.76 - 58.82km, 60.66 - 60.80km, 61.29 - 61.39km, 63.22 - 63.36km, 63.85 - 63.91km	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 4.5km
M/s Rinson Construction Pvt. Ltd (Package 10) Trongsa	65.98km to 72km (6.02km) Dorjigonpa to Yotongla	71353-71763m, 70823-71001m, 68061-68106m	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 3298m
M/s. Dungkar Construction Pvt Ltd. Thimphu (Package 11) Trongsa	72km to 80km (8km) Yotongla to Bongzam	81.2-81.26km, 81.78-81.84km, 84.76- 84.81	Analysis based on the designated dumping yards indicated that transportation of loose materials beyond 500m were required only for 2.61km

Further, it was evident from the documents that the NEC clearance for dumping yards in respect of contract package VIII (Lobeysa) awarded to M/s Empire Construction was obtained seven months ahead of the award of the contract on 23/07/2015.

The audit in an attempt to validate the requirement for the transportation of loose materials beyond 500 up to 1210 m carried out an analysis based on the approved designated dumping yards and observed that transportation of loose materials beyond 500m lead were not required in most of chainages as the dumping yards were well within 500m lead. The extent of transportation of loose materials required beyond 500m were as depicted in the table 2.16 above in respect of each packages.

The specification in the BOQ requiring transportation beyond 500m up to 1210m of excavated loose spoil materials indicated flawed BOQs specification. The Regional Offices should have taken into consideration the approved dump yards and to the extent of loose materials actually required to be transported beyond 500m lead quantified and incorporated in the departmental estimates and specified in the BOQ of the tender documents. Thus, inclusion of a standard nomenclature in the BOQ on the transportation of spoil materials indicated requirement of transportation of all excavated materials beyond lead of 500m which adversely impacted the departmental estimates as well as bid prices.

The Regional Offices and the DOR besides commenting on the lapses should also hold the concerned officials accountable for preparation of flawed estimates, BOQs and technical specification relating to the transportation of loose spoil materials despite knowing that designated dumping yards were approved by NEC for each contract packages. The DoR and the Ministry should revisit the departmental estimates and ascertain the financial implications due to flawed estimation and nomenclature in the BOQs of the tender documents.

**Auditee's Response:**

*The lead for transportation of spoils were anticipated within the lead of 500.00M-1,210.00M in the estimates. The NEC visited the sites and identified the dumping yards which fell distance lesser than the above lead which were assumed during the time of estimates. In reality, the actual lead for transportation is more than 500M. Therefore, please drop the memo.*

### RAA's Further Comments & Recommendations:

*While taking note of the response, it is reiterated that the approvals for dumping yards were obtained prior to the awards of the contracts by ROs from respective authorities and known to the ROs. The analysis carried out in terms of approved dumping yards as detailed in the table of the report revealed that for 9 contract packages, the requirement of transportation of spoil materials beyond 500m lead ranged just from half a kilometer to 5.2 kms against allotted road stretches ranging from 5km to 8km. The transportation of spoil materials incorporated in the departmental estimated cost in respect of Lobeysa ranged from 40% to 65% in respect of contract packages and the departmentally executed formation cutting works showed as high as 98.74%.*

*Thus, in consideration to the above facts, there exist flaws in the departmental estimations and nomenclatures in the BOQs.*

*However, as discussed during the exit meeting, the DOR and Ministry should revisit all the departmental estimates prepared by the ROs and flaws and ambiguities, if any, remedial measures taken to prevent unrealistic preparation of estimates and inclusion of flawed nomenclatures in the BOQs for similar projects in future. The outcome of the review and remedial measures put in place intimated to RAA for records and follow-up in future audits.*

#### **2.17 Damages to Environment due to Dumping of muck in unidentified areas and push/freely rolling of mucks over the valley**

The dump yards were found identified and dully approved by Dzongkhags NEC, and the National Environment Commission Secretariat for each contract packages. The NEC clearances clearly stipulated the following terms and conditions amongst many others:

- a. The holders shall ensure that Environmentally Friendly Road Construction (EFRC) techniques are adopted for the widening of this road to minimize adverse environmental impacts;
- b. The holder shall ensure that excavated materials are never pushed downhill and are loaded, Hauled and dumped at the pre-identified/approved spoil dumpsites to avoid downstream environmental damages; and
- c. The holder shall ensure that dusts generated during widening of the road are adequately suppressed by spraying water.

However, during the joint physical verification of construction sites comprising officials from respective ROs, and audit team, spoil materials were found dumped at various locations by the contractors despite allocation of designated dumping yards within the contract Chainages. The excavated spoil materials found either dumped in places other than the designated dump sites or freely rolled/pushed over the hills causing downstream environmental damages in the chainages are as discussed below:

**RO, Lobeyisa**

**2.17.1 Pelela to Bumilo (Package VIII) executed by M/s Empire Construction Pvt. Ltd**

During the joint site verification of the construction site, spoil materials were also found dumped at locations viz. chainages 378.94km, 378.52 and 377.69KM by the contractor despite allocation of nine designated dumping yards within the contract scope of works of seven Kilometers (*Refer audit memo 15.6*) as depicted in the Photograph below:



*Fig: 2.17.1- Spoil materials rolled down the cliff in places other than designated*

**RO, Trongsa**

**2.17.2 Trongsa Nyelazam – Sakachawa executed by M/s Gaseb Construction Pvt. Ltd - (Package 2) Trongsa**

The dump yard identified by RO, Trongsa for the excavated soil are in between Chainages 14450 to 17005 meters and 17973 to 24058 meters for 7.5km FC works. However, the audit team noted that excavated soil were not transported to dump yard but rolled/pushed over the hills in the following chainages:

<b>Table 2.17.2: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>				
<b>Sl. No.</b>	<b>Identified dump yard (Chainage)</b>	<b>Chainages where muck are dumped/rolled over</b>	<b>Remarks</b>	<b>Chainages requiring transportation of spoil materials to dump yards</b>
1	13960-14020			12000-13960
2	14420-14490			14020-14420
3	14700-14750	12123-12369	Rolled over	14490-14700
4	15000-15040	12595-13683	Rolled over	14750-15000
5	15520-15580	13727-15496	Rolled over	15040-15520
6	15720-15790	13956-16072	Rolled over	15580-15720
7	16220-16280			15790-16220
				16280-19500

As would be transpired from the table above that against the 7 identified dump yards, loose materials were found directly rolled over/ pushed down the hills from additional 4 places without the approval causing downstream environmental damages as depicted in the photographs below:



*Fig: 2.17.2-Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the environment*

Thus, inclusion of a standard nomenclature in the BOQ on the transportation of spoil materials indicated requirement of transportation of all excavated materials beyond the lead of 500m which adversely impacted the bid price.

### **2.17.3 Tsangkha to View Point (Package 4) executed by M/s Druk Gyalcon Construction Pvt. Ltd (RO, Trongsa)**

During the joint physical verification of site along with officials from RO, Trongsa and contractor’s staff, it was observed that the excessive earth excavated from the formation cutting were not transported to dump yard but rolled/pushed over the hills in the following chainages:

<b>Table 2.17.3: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>			
<b>SL. No</b>	<b>Identified dump yard (Chain age)</b>	<b>Chainages where muck are dumped</b>	<b>Remarks</b>
1	27274	27372	Roll over
2	27372	27619	Roll over
3	27724	27737	Roll over
4	28794	28842	Dump yard
5	28956	29014	Dump yard
6	29120	29168	Roll over
7	29256	29486	Roll over

8	29500	29595	Dump yard
9	29709	29861	Dump yard
10	31743	31843	Roll over

It would be noted that against the 10 identified dump yards, additional 3 places were used as dump yards without the approval. The spoil materials directly rolled/push over the hills are as shown in the photographs below:



*Fig: 2.17.3- Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the environment*

#### **2.17.4 View Point- Bjee Zam (Package 5) executed by M/s Druk Lhayul Construction Pvt. Ltd (RO, Trongsa)**

During the joint physical verification of site along with officials from RO, Trongsa it was observed that dumping of muck were done in haphazard manner or freely rolled/pushed over the hills in unidentified areas causing downstream environmental damages in the following chainages:

<b>Table 2.17.4: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>			
<b>SL. No</b>	<b>Identified dump yard (Chain age)</b>	<b>Chainages where muck are dumped</b>	<b>Remarks</b>
1	32160-32240	32160-32247	Dump at identified place
2	32380-32440	32530-32685	Dump at identified place
3		32916-33068	Roll over
4		33080-33212	Dump yard though not identified
5		33220-33305	Roll over
6		33433-33448	Dump yard though not identified
7	33610-33640	33588-33702	Dump at identified place
8		34513-34600	Roll over
9		34677-34850	Dump yard though not identified
10		35097-35147	Dump yard though not identified
11		35297-35412	Dump yard though not identified
12		35503-35651	Roll over
13		35691-35916	Roll over

14		36117-36297	Roll over
15		36848-36927	Dump yard though not identified
16		36950-37110	Roll over
17		37138-37178	Roll over

It was also noted that against the 3 identified dump yards, additional 6 places were used as dump yards without the approval. The spoil materials directly rolled/push over the hills are as shown in the photographs below:



Fig: 2.17.4- Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the environment

### 2.17.5 Bjeezam-Trongsas (Package 6) executed by M/s Raven Construction Pvt. Ltd (Package 6) Trongsas

During the joint physical verification of sites comprising officials from RO, Trongsas and audit team on 14<sup>th</sup> December 2017, it was observed that despite assigning specific dump sites for stretch between Bjeezam -Trongsas, the excavated spoil materials were found either dumped in places other than the designated dump sites or freely rolled/pushed over the hills causing downstream environmental damages in the chainages detailed below:

SL. No	Ch. From (m)	Ch. To (m)	Length (m)	Remarks
1	40476	40535	59	Not identified as dumping areas by NEC
2	41318	41446	128	Not identified as dumping areas by NEC

3	41612	41665	53	Not identified as dumping areas by NEC
4	41864	41910	46	Not identified as dumping areas by NEC
5	42250	42275	25	Not identified as dumping areas by NEC

In addition, photographic evidences of spoil materials dumped and freely rolled/pushed over the hills are as depicted below:



**Fig: 2.17.5-Roll over of mucks over the valley**

**2.17.6 Pinzhi-Tashipokto (Package8) executed by M/s. Dungkar Construction Pvt Ltd. Thimphu (RO, Trongsa)**

During the joint physical verification of site along with officials from RO, Trongsa and contractor’s staff, it was observed that the dumping of excessive earth excavated from the formation cutting were either not done in the identified dumping yards/areas or freely rolled/pushed over the hills causing downstream environmental damages in following chainages:

<b>Table 2.17.6: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>		
<b>SL. No</b>	<b>Identified dump yard (Chain age)</b>	<b>Chainages where muck are dumped/rolled over</b>
1	53310	57798-57876
2	56569	57603-57674
3		57474-57509
4		57372-57427
5		55818-55975
6		55754-55791
7		55576-55632



8		55417-55494
9		54475-54565

As against 2 identified dump yards, additional 9 places were used at dump yards/rolled over without the approval. The spoil materials directly rolled/push over the hill are as depicted in the photographs below:



**Fig: 2.17.6-Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the**

**2.17.7 Dorjigonpa to Tashipokto (Package 8) executed by M/s Welfare Lamsel Construction Pvt. Ltd (RO, Trongsa)**

The dump yard identified by RO, Trongsa for the disposal of excavated soil are in between Chainages 58.76 km to 63.91km as indicated below:

<b>Table 2.17.7: Identified dumping yards</b>	
<b>Identified dump yard (Chain age)</b>	<b>Chainages where muck are dumped/rolled over</b>
58.76 - 58.82	- dumping yard
60.66 - 60.80	- dumping yard
61.29 - 61.39	- dumping yard
63.22 - 63.36	- dumping yard
63.85 - 63.91	- dumping yard

However, the audit team during site visit along with the officials of Regional Office, noted that all the excavated soil from chainages 65581 to 65096 were not transported to the designated dump yards instead rolled/pushed over the hills in the following chainages:

Sl. No.	Chainage		Total length	Remarks
	From	To		
1	65980			
2	65581	65513	68	399-467 Rolling over
3	65270			
4	65167	65096	71	813 – 884 – Roll over

Further, out of five designated dumping yards, the contractor had dumped at various locations as shown below:

Sl. No.	Chainage	Remarks
1	65980	
2	65581	399-467 Rolling over
3	65270	
4	65167	813 – 884 – Roll over
	63850 – 63910	Dumping yard designated
5	63631	Box cutting
6	63460	Camp
	63220 - 63360	Dumping yard designated
7	62840	
8	61498	
	61290 – 61390	Dumping yard designated
9	60961	Filling
10	60871	
11	60782	Dumping Yard
	60660 - 60800	Dumping yard designated
12	60128	
13	60000	
14	59167	
15	58908	
	58760 – 58820	Dumping yard designated
16	58661	
17	58055	

**2.17.8 Dorjigonpa to Yotongla (Package 10) executed by M/s Rinson Construction Pvt. Ltd (RO, Trongsa)**

The dump yards identified by RO, Trongsa for the disposal of excavated soil are in between Chainages 53310 meters and 56569 meters for 6.02km FC works. However, the audit team noted that all excavated soil are not transported to dump yards and instead rolled/pushed over the hills in the following chainages:

<b>Table 2.17.8: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>			
<b>SL. No</b>	<b>Identified dump yard (Chain age)</b>	<b>Chainages where muck are dumped/rolled over</b>	<b>Remarks</b>
1		71726-7200	Roll over/muck dump
2	71353-71763	71353-71763	<b>Identified dump yard</b>
3	70823-71001	70823-71001	<b>Identified dump yard</b>
4		70506-70705	Roll over/muck dump
5		70272-70514	Roll over/muck dump
6		70062-70198	Roll over/muck dump
7		69877-69942	Roll over/muck dump
8		69739-69810	Roll over/muck dump
9		69503-69739	Roll over/muck dump
10		69291-69478	Roll over/muck dump
11		69111-69169	Roll over/muck dump
12		68149-68852	Roll over/muck dump
13	68061-68106	68061-68106	<b>Identified dump yard</b>
14		67554-67680	Roll over/muck dump
15		66925-67189	Roll over/muck dump
16		66668-66831	Roll over/muck dump
17		66494-66504	Roll over/muck dump

As against 3 identified dump yards, additional 14 places were used at dump yards/rolled over without the approval. The spoil materials are directly rolled over the hill as shown in the photographs depicted below:



**Fig: 2.17.8- Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the environment**

**2.17.9 Yotongla to Bongzam (Package 11) executed by M/s. Dungkar Construction Pvt Ltd. Thimphu (RO, Trongsa)**

The joint physical verification of site along with officials from RO, Trongsa revealed that dumping of muck are either not done in identified areas or freely rolled/pushed over the hills causing downstream environment damages in the following chainages:

<b>Table 2.17.9: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>		
<b>SL. No</b>	<b>Approximate chainages (in meter)</b>	<b>Remarks</b>
1	1110-1166	Rolled over
2	1303-1358	Muck dumped
3	1483-1551	Rolled over
4	6505-6611	Rolled over
5	7007-7249	Rolled over
6	7249-8000	Muck dumped

As against 6 identified dump yards, additional place was used as dump yard without the approval. The spoil materials are directly rolled over the hill as shown in the photographs below:



*Fig: 2.17.9-Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the environment*

**RO, Lingmethang**

**2.17.10 Korila-Pangser (Package-2) executed by M/s. Tshering Construction Pvt Ltd. Bumthang (RO, Lingmethang)**

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in at Chainage 36.4km, 36.6km, and 36.9km.

During the joint physical verification of sites comprising of officials from RO, Lingmethang on 17<sup>th</sup> November 2017, it was observed that despite assigning specific dump sites for stretch between Korila to Pangsar, the excavated spoil materials were found either dumped other than the designated dump sites or freely rolled/pushed over the hills causing downstream environment damages as detailed below:-

<b>Table 2.17.10: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>		
<b>SL. No</b>	<b>Approximate chainages (in meter)</b>	<b>Remarks</b>
1	37324	Rolled over
2	37372	Muck dumped
3	37647	Rolled over
4	37883	Rolled over
5	38090	Rolled over
6	39374	Muck dumped
7	40687	Muck dumped
8	41228	Rolled over
9	41295	Muck dumped
10	41518	Muck dumped

The spoil materials directly rolled/push over the hill are as depicted in the photographs below:



*Fig: 2.17.10-Spoil materials dumped and freely rolled/pushed over the hill causing damaged to the environment*

**2.17.11 Pangser-Kilikhar (Package-3) executed by M/s. K. D Builder Pvt Ltd (RO, Lingmethang)**

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in at Chainage Identification of dumpsite at Chainage 29.5 km, and 32.8km.

During the joint physical verification of sites comprising of officials from RO, Lingmethang on 13<sup>th</sup> November 2017, observed that despite assigning specific dump sites for stretch between Korila to Pangsar, the excavated spoil materials were found either dumped other than the

designated dump sites or freely rolled/pushed over the hills causing downstream environment damages as detailed in the table below:

<b>Table 2.17.11: Soil rolled/pushed over the hills and not dump in designated dumping yards</b>			
<b>SL. No.</b>	<b>Approx. chainages (in meter)</b>		<b>Approx. length (in meter)</b>
	<b>From</b>	<b>To</b>	
1	29376	29595	219
2	29607	30035	428
3	30099	30200	101
4	30219	30359	140
5	31188	31213	25
6	31378	31401	23
7	32648	32707	59
8	33496	33814	318
9	34715	34797	82

Photograph evidences of spoil materials dumped and freely rolled/pushed over the hills are as depicted below:



**Fig: 2.17.11- Spoils materials dumped and freely rolled/pushed over the hill**

### **2.17.12 Kilikhar-Mongar (Package-4) executed by M/s. Gongphel Construction Pvt. Ltd. (RO, Lingmethang)**

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in at Chainage 27.3 km, and 28km.

However, during the joint physical verification of site along with officials from DoR, Lingmethang on 8<sup>th</sup> November 2017, it was observed that between Chainages 25.735km to 25.818km, all the excavated spoil materials were freely rolled/pushed over the hills causing downstream environment damages. Photograph evidences of spoil materials dumped and freely rolled/pushed over the hills are as depicted below:



Fig: 2.17.12- Freely rolled/pushed down of excavated materials over the hill

### 2.17.13 Mongar-Gongola (Package-5) executed by M/s. Norbu Construction Company Pvt. Ltd, Gelephu (RO, Lingmethang)

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in at Chainage 13.7km, 21 km, and 22.6km.

During the joint physical verification of sites comprising of officials from RO, Lingmethang on 4<sup>th</sup> November 2017, observed that despite assigning specific dump sites for stretch between Korila to Pangsar, the excavated spoil materials were found either dumped other than the designated dump sites or freely rolled/pushed over the hills causing downstream environment damages pertaining to Chainages detailed in the table below:-

Table 2.17.13: Soil rolled/pushed over the hills and not dump in designated dumping yards	
SL. No.	Chainages (approximately in meter)
1	1185m
2	2605m
3	5100m
4	5130m

### 2.17.14 Kurizam to Gongola ((Package 6)) executed by M/s. Rigsar Construction Pvt Ltd. Trashigang (RO, Lingmethang)

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in at Chainages 2.3km, 3 km, 9.3km, 10.3km, and 12.3km.

However, during the joint physical verification of site along with officials from RO, Lingmethang on 30<sup>th</sup> October 2017, it was observed that excavated muck materials were found dumped in unidentified areas along the stretches/chainages as detailed below:

Table 2.17.14: Soil rolled/pushed over the hills and not dump in designated dumping yards	
SL. No.	Chainages (approximately in meter)
1	4480m
2	5000m
3	5100m
4	5130m

5	8880m
6	8960m
7	9780m
8	10440m
9	10640m
10	11900m

Similarly, in some chainages viz. 1,425m, 1,443m, 1,570m-1,705m and 10,000m (approx.) excavated materials were freely rolled/pushed over the hill causing downstream environment damages as shown in the photographs below:



**Fig.: 2.17.14- Freely rolled/pushed down of excavated materials over the hill**

**2.17.15 Kurizampa-Lingmethang (Package-7) executed by M/s Tshering Construction Pvt. Ltd, Bumthang (RO, Lingmethang)**

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in at Chainages 2.3km, 3 km, 9.3km, 10.3km, and 12.3km.

During the joint physical verification of sites comprising of officials from RO, Lingmethang on 25<sup>th</sup> October 2017 observed that despite assigning specific dump sites for stretch between Kurizampa-Lingmethang, the excavated spoil materials were found dumped other than the designated dump sites in Chainages detailed in the table below:



SL. No.	Chainage	Remarks
1	115.25 Km	Not identified as dumping area by NEC
2	115.90 Km	Not identified as dumping area by NEC
3	116.45 Km	Not identified as dumping area by NEC
4	116.95 Km	Not identified as dumping area by NEC

Similarly, in Chainages 114.95Km, 115.85Km, 116.4Km and 116.75Km, the excavated materials were freely rolled/push over the hill causing downstream environment damages as evident from the Photographs depicted below:



**Fig: 2.17.15-Roll over of mucks over the valley**

### **2.17.16 Kurizampa-Yadi executed departmentally (RO, Lingmethang)**

The dump yard identified by RO, Lingmethang for the disposal of excavated soil are in Chainages 43.8km, 50km, 51.7km, 55.7km, 56.1km and 64km in between Yadi-Korila.

During the joint physical verification of sites comprising of officials from RO, Lingmethang on 18<sup>th</sup> November 2017, observed that despite assigning specific dump sites for stretch between Yadi-Korila, the excavated spoil materials were dumped in unidentified areas along the stretches/chainages as detailed below:

SL. No.	Soil dump in various Chainages (approximately in Km)	Dump Yard Identified at Chainages as per Environment Management Plan
1	43.4km	43.8km
2	44.6km	
3	46.1km	
4	48.1km	
5	48.5km	
6	48.9km	
8	54.9km	50km, 51.7km, 55.7km
10	58.49km	56.1km
11	59.1km	
12	59.7km	

13	63.5km	64km
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In addition, the excavated materials were freely rolled/push over the hill in chainages 47.4km, 47.5km,51.1km,55.2km,55.5km,57.5km,59.1km,59.8km, and 63.8km (approx.) causing downstream environment damages as depicted in the photographs below:



**Fig: 2.17.16-Freely rolled/pushed down of excavated materials over the hill**

The extent of volume of mucks dumped in unidentified areas and rolled over the hills could not be ascertained in audit. Further, during the site visit, it was also observed that dusts generated from the widening of the road were not adequately suppressed by spraying water. As such, all of the above have breached the terms and conditions laid down in the renewed Environmental Clearance issued by the Dzongkhag Environment Committee/NEC which needs to be justified. Therefore, the ROs, Lobeysa and Trongsa should justify for failing to comply with the provisions contained in the Environment Clearance.

It is to reiterate that since the lump sum contract included transportation of spoil materials at designated places, the disposal of spoil materials in places other than the designated places were not only in violation of the environment regulations but also benefited the contractors by way of not having to transport spoil materials to the dump yards. Further, designated dumping sites were also not found dressed and planted with vegetation as per the technical specification of the BOQs wherein it categorically stipulated *as “Dressing of dump sites and plantation of vegetation after completion of dumping”*.

The Regional Office should comment for non adherence to environmental regulations. Besides, the Regional Office should ascertain the volume of spoil materials dumped/roll down the cliff in the aforementioned chainages and cost recovered including the environment penalty liable as per environment norms and deposit into ARA.

In addition, the Regional Office, should fix the site engineers accountable for allowing the contractor to dump/roll over the cliff the spoil materials and dumping in unidentified places. In the event the site engineer had taken any measures/action against the contractor the same should be furnished to audit for verification and record.

#### **Auditee's Response:**

*The Contractor as far as possible followed the directives of National Environment Commission and action taken in consultation with the NEC officials. But at times due to unavoidable circumstances especially working at night and continuous flow of rain water, some of the spillage over the valley side could not be controlled. In-fact, NEC has imposed fines and penalty to the contractors for failing to adhere to the rules and regulations of NEC. Therefore, please drop the memo.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response, the fact remains that though the lump sum contract price for formation cutting included transportation of spoil materials at designated dump yards, the contractors were allowed to not only dump spoil materials indiscriminately in unidentified areas but also freely roll/push spoil materials down the hills causing damaged to the environment as evident from the Physical verification of sites. The disposal of spoil materials in areas other than the designated areas and rolling over the hills had benefited the contractors at the cost of the Government and damage to pristine environment.*

*Further, designated dumping sites were also not found dressed and planted with vegetation as per the technical specification of the BOQs wherein it categorically stipulated as **"Dressing of dump sites and plantation of vegetation after completion of dump"**.*

*However, as discussed during the exit meeting, the DOR and Ministry should depute a technical team or direct the ROs to quantify the extent of spoil materials dumped in areas other than the designated dump yards as well as rolled/pushed over hills in the aforementioned chainages and cost recovered and deposited into ARA. Besides, the Ministry in consultant with the NEC should thoroughly investigate all constructions sites to ascertain the extent of environmental damages by the contractors to timely address and measures put in place to avoid future complications. The outcome of the review and remedial measures put in place intimated to RAA for record and follow-up in future audits.*

#### **2.18 Flaws in the allowable wastage of 5% on the bitumen consumption with resultant financial loss to the Government exchequer of Nu. 13,956,639.07**

On review of the documents and records relating to the *Theoretical consumption of bitumen worked out based on the Job Mix Formula and test results by the ROs*, it was noted that for

comparison of the Theoretical consumption with that of actual consumption, the ROs have allowed bitumen wastages of 5% on the total theoretical consumptions. Cases where *Theoretical consumption of bitumen were worked out based on the Job Mix Formula and test results by allowing 5% bitumen wastages* by the ROs including huge financial loss to the Government Exchequer are detailed below:

Name of Contractor	Total issue as per register (MT)	Total No. of barrels	Theoretical consumption (MT)	5% Wastage on Theoretical consumption (MT)	Rate per MT	Amount (Nu.)	Remarks
M/s Chogyal Construction Pvt. Ltd (Packages I,II,III) (RO, Lobeyasa)	3680.664	22866	3447.20	172.36	42,401.87	7,308,386.31	
M/s Raven Builder & Co. Pvt. Ltd, RO, Thimphu	1265.248		1,106.0393	55.3019	35,951.17	1,988,168.01	
M/s Yangkhil Construction Pvt. Ltd(Package 2)RO, Thimphu	1284.2066		1,199.4285	59.9714		2,156,041.99	
M/s SL Construction Pvt. Ltd (M/s Raven) RO, Thimphu	370.4617		352.996	17.6498	35,951.17	634,530.96	
Package X) by M/s Rigsar Construction Pvt. Ltd., RO, Lobeyasa	632.891			27.7206	35,951.17	996,558.93	Actual wastage 4.38%
M/s KD Builder Pvt. Ltd.	809.36			24.2808		872,923.17	Actual wastage 3%
						<b>13,956,639.07</b>	

It was reported that 5% bitumen wastages were allowed for the following contract packages. It would be apparent that in terms of bitumen issued to the contractors, the total wastages amounts to Nu. 13,956,639.07 for six contracts alone in consideration to the present mechanized method of execution of bitumen works.

The RAA in an attempt to confirm the admissibility of the 5% wastage for bitumen, had referred the Financial Manual 1988 where Allowance variations percentage were given on the following selected items as detailed below:

Sl.No	Item	Variation	Allowance variation
1	Cement	+/-	3%

2	Steel	+/-	10%
3	Bitumen	+/-	5%
4	M.S Sheet/G.I Pipe	+/-	10%

Thus, it was apparent that the RO had applied the same allowance variations percentage for bitumen stipulated in the 1988 Financial Manual.

The RAA is of the opinion that taking into cognizance the present scenario where execution of bituminous works are carried out through mechanized processes with the deployment of advance plants, machineries and equipment with minimum wastages as compared to the manual processes where wastages were high, the application of same wastage percentage on bituminous works was not rationale and justified.

It was evident from the analysis carried out by the RO, on the theoretical consumption and bitumen issued as per stock ledger in respect of the following contractors that the wastages of bitumen varied from minus 6.70% to just plus 0.962% except M/s Rigsar Construction Pvt. Ltd. with plus 4.38% and M/s Tshering construction Pvt .Ltd. with plus 3% as tabulated below.

Name of Contractors	Issue in barrel as per stock register/MT	Return in barrel	Total consumption in barrel/MT	Theoretical consumption computed based on JMF and quantity of works done(Barrel.MT)	Total variation in barrel/MT	% of wastage
<b>RO, Lobeysa</b>						
M/s Singye Construction Pvt. Ltd.	8224	223	8001	7924.31	76.69	0.962%
<b>RO, Trongsa</b>						
(Package V) by M/s TT Construction Pvt. Ltd.	777.702					-2.24%
(Package VI) by M/s Etho Metho Construction Pvt. Ltd.	1436.788					0.51%
(Package VII) by M/s Loden Construction Pvt. Ltd.	811.027					-1.78%
(Package IX) by M/s Welfare Construction Pvt. Ltd.	741.904					-6.70%
Package X) by M/s Rigsar Construction Pvt. Ltd.	632.891					4.38%
(Package XI) by M/s Hi-Tech Company Pvt. Ltd.	1201.409					0%
(Package XII) executed by M/s Taksing Chungdruk Construction Pvt. Ltd.	671.47					0.75%
(Package XIV & XV) executed by M/s Empire Construction Pvt. Ltd.	557.976					0%
<b>RO, Lingmethang</b>						
M/s KD Builder Pvt. Ltd.	809.36					3%
M/s Rigsar Construction Pvt. Ltd.	1446.18					0%

M/s Tshering Construction Pvt.. Ltd.	377.17					0%
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Thus, in the light of bitumen wastages of minus % to less than 1% as tabulated above, it is obvious that the application of 5% wastage based on old allowable percentage was not rationale and tantamount to extension of undue financial benefit of Nu. 13,956,639.07 to six contractors.

The RO should comment on the application of 5% wastages on the bituminous works as no proper analysis had been carried out by the RO prior to entertainment of such wastages. It is also reiterated that consideration of 5% wastages despite having adopted mechanized methods, will have huge cost implication to the Project and Governments besides benefiting the contractors.

The RO in consultation with the Ministry should relook on the admissibility of the 5% wastages on the bituminous works in consideration to the vast difference in the execution of bituminous works through mechanized method as compared to the conventional methods.

### **Auditee's Response:**

*The RO, Lobeyasa agrees that mechanized bituminous works would lessen the wastages in comparison to manual way of bituminous works. However, the wastage of bitumen at site occurred due to the following reasons.*

- *Transportation: The transportation of bitumen has to transit/load & unload multiple times from the factory till work site (example losses in the transportation of bitumen from Mumbai to Falakata, unloading and reloading at Falakata yard, unloading and loading at the central store, unloading and loading at the regional store).*
- *There are leakages in the stock yard despite efforts to safeguard the barrels.*
- *The extreme heat due to global warming have major impact on viscosity.*
- *The wastages after the mix rejected at site due to unforeseen machinery breakdown.*

*Above all, the RO had sought the consensus of HQ and was accordingly approved by DCC vide letter No.DOR/CD/7/2016-2017/3909 dated 4<sup>th</sup> May 2017. RO Lobeyasa also would like to inform that, we have not sought approval for uniform application of plus 5% wastages. The wastages could be plus or minus 5% which is practically unavoidable during the execution of bituminous works at site and furthermore we have not issued excess bitumen more than actual requirement at site. The wastages reflected in the consumption statement is due to site conditions. Therefore, RAA is requested to kindly drop the said memo.*

### **RAA's Further Comments & Recommendations:**

*Considering the fact that the allowable wastage of 5% were fixed for the execution of bituminous works manually, the application of same wastage percentage for mechanized bituminous works was not justified and decisions of the HQ and DCC has caused adverse financial implication to the Government Exchequer.*

*It is noted that the approval accorded for application of 5% wastage by the HQ & DCC was not supported by detailed analysis on the application of same wastage percentage for both manual and mechanized method. The variation percentage was also not specifically covered by the existing contract provisions. Thus, the Ministry did not pursue a prudent and sound financial management practice in allowing 5% wastage for the bitumen issued by the Government free of cost.*

*Considering the above fact and events, the Ministry should revisit its decision of allowing 5% bitumen wastage keeping in view the actual wastage of just 1% worked out in respect of M/s Singye Construction Pvt. Ltd. and determine the allowable wastage for the mechanized bituminous works.*

*It is also to reiterate that allowing 5% bitumen wastages without proper analysis just for six contract packages alone have adversely impacted Project funds to the extent of Nu. 13.957 million.*

*The huge financial loss to the extent of Nu. 13.957 million to the government Exchequer is brought to the notice of the Government for appropriate decisions and actions.*

## **2.19 Excessive engagement and payment of hired charges of machineries not complying with coefficient specified in LMC for departmentally executed formation cutting works of Nu. 89.061million**

The earthwork quantity for the formation cutting for the departmentally executed works was derived based on the survey report. The ROs had prepared estimates detailing excavation of all kind of soil and rocks including quantum of spoil materials to be dumped beyond 500m up to 1210m amounting to Nu. 131.352 million as submitted below:

<b>Code</b>	<b>Particular of item</b>	<b>Estimated Qty (Cu.m)</b>	<b>Amount (Nu)</b>
	<b>RO, Lobeysa, (a total of 7Kms), RO, Trongsa (a total of 6.1Kms and 5km) RO, Thimphu (a total 19.5 km) and RO, Lingmethang (a total of 21.19 km)</b>		
RW0014	Excavation of road formation cutting/trace/box cutting, with excavator including separate deposition of soil, rock and stone within 50m for reuse-all kind of rocks	321,632.89	69,074,709.70
RW0013	Excavation of road formation cutting/trace/box cutting, with excavator including separate deposition of soil, rock and stone within 50m for reuse-all kind of soil	446,549.57	21,389,857.93
EW0096	Banking with granular material for road, flood banks, guide banks, back filling for walls & depressions, in layers <200mm depth, including watering, rolling & dressing up within 50m lead & 1.5m lift - All kind of soil	37,235.69	3,076,629.26
	<b>Sub total</b>	<b>825,418.15</b>	<b>93,541,196.89</b>
RW0021	Transport of loose spoil materials in designated locations including loading, unloading. Dressing of dump sites and plantation of vegetation after completing of dumping-beyond 500 up to 1210m	443,036.80	37,811,295.33
	<b>Total</b>	<b>1,268,454.95</b>	<b>131,352,492.22</b>

The actual expenditure for formation cutting as compared to the estimated amount had substantially exceeded as detailed below:

<b>Table 2.19.1: Excess of/under expenditure over estimated cost under Departmental Execution</b>					
<b>Particular of item</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>
	<b>RO, Lobeysa</b>	<b>RO, Trongsa</b>	<b>RO, Trongsa</b>	<b>RO Lingmethang</b>	<b>RO, Thimphu</b>
<b>Particular of item</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>	<b>Amount (Nu)</b>
Estimated Amount	17,432,935.40	21,161,521.78	8,718,671.79	54,345,523.29	29,693,839.95
Total Expenditure	22,631,933.00	54,344,376.50	15,700,590.00	53,412,867.00	<b>8,190,441.50*</b>
Excess expenditure over the Estimated cost (Nu.)	<b>5,198,997.60</b>	<b>33,182,854.72</b>	<b>6,981,918.21</b>	<b>(932,656.29)</b>	
Increase in terms of %	<b>29.82 %</b>	<b>156.81%</b>	<b>80%</b>	<b>(1.72%)</b>	

\*Note: Expenditure pertained to financial year 2016-2017 and not comparable

Based on the Labour and Material Co-efficient (LMC), the actual machinery hours required to be hired and deployed were worked out and cross checked with the total hours of equipment and machinery engaged in terms of hiring charges paid. The comparison indicated excessive engagement of machine hours amounting to Nu. 89,061,496.31 as detailed below:

<b>Table 2.19.2: Excessive deployment of equipment/machineries in terms of LMC requirements</b>		
<b>Particulars</b>	<b>Amount (Nu.)</b>	<b>Excess expenditure in terms of LMC Amount (Nu.)</b>
<b>RO, Lobeysa, (Chainages 44.7km to 50.8km, a total of 6.1Kms)-Trongsa to Punzhi</b>		
Actual expenditures incurred as per bills and MB	17,841,512.16	
Less: Expenditure to be incurred based on the LMC Co-efficient	<u>9,275,174.16</u>	<b>8,566,338.00</b>
<b>RO, Trongsa, (Chainages 44.7km to 50.8km, a total of 6.1Kms)-Trongsa to Punzhi</b>		
Actual expenditures incurred as per bills and MB	54,344,376.50	
Less: Expenditure to be incurred based on the LMC Co-efficient	<u>13,785,775.07</u>	<b>40,558,601.43</b>
<b>RO, Trongsa (Chainages 80 to 85km, a total of 5km) Bongzam-Gaytszam</b>		
Actual expenditures incurred as per bills and MB	15,700,590.00	
Less: Expenditure to be incurred based on the LMC Co-efficient	<u>4,624,568.04</u>	<b>11,076,021.96</b>
<b>RO, Lingmethang, (Chainages 52km to 73.19km, a total of 21.19 km)- Yadi-Korila</b>		
Actual expenditures incurred as per bills and MB	53,412,867.00	
Less: Expenditure to be incurred based on the LMC Co-efficient	<u>29,358,343.36</u>	<b>24,054,523.64</b>
<b>RO, Thimphu: 19.5 km road from Simtokha-Dochula,</b>		
Actual expenditures incurred as per bills and MB	8,190,441.50	
Less: Expenditure to be incurred based on the LMC Co-efficient	<u>3,384,430.17</u>	<b>4,806,011.33</b>
<b>Total cost impact</b>		<b>89,061,496.31</b>

The payments of hiring charges also included payments of Nu. 5,416,382.00 for machineries which were not defined in the LMC 2015 for the execution of formation works as presented below:



<b>Table 2.19.3: deployment of equipment and machineries not in LMC</b>					
<b>Types of machine engaged</b>	<b>Work done volume (m3)</b>	<b>Nos. of days</b>	<b>Nos. of hrs. engaged</b>	<b>Rate (Nu)</b>	<b>Amount (Nu)</b>
<b>RO, Lobeysa</b>					
Backhoe loader	119,630.84	216	1,723.00	670.64*	1,152,822.00
Pay loader	119,630.84	210	1,674.00	2,000.00	3,348,000.00
Tailor	119,630.84	4	24.00	1,732.67*	40,840.00
<b>Total</b>					<b>4,541,662.00</b>
<b>RO, Thimphu</b>					
Deployment of machineries and materials not in LMC with resultant inadmissible payment					<b>874,720.00</b>
<b>Grand Total</b>					<b>5,416,382.00</b>

Note: \* Average rates of hiring charges

The deployment of machineries that were not in the LMC and huge difference between the required hours of deployment of machineries in terms of estimated volume of works and actual hours deployed and paid, indicated either flaws in deployment of machineries or inefficient deployment of machineries due to poor monitoring and supervision.

### ***Auditee's Response:***

*Basically, the departmentally executed works are based on LMC. However, due to the following unavoidable circumstances, the actual expenditures have deviated as compared to the LMC.*

- 1. In our country we do not have diversion road where vehicle movement can be diverted in one direction and work site would be in free of vehicle movement disturbance. In such cases we are not able to achieve work done by machine as per LMC but machine will be in start while passing vehicles.*
- 2. Due to difficult terrain of road cutting.*
- 3. Movement of VVIP and AMBULANCES.*
- 4. Working with difference types of Machineries of Horse power.*
- 5. The backhoe and pay loader were engaged to push the dumped materials and clear the road during the emergency hours which is not captured in the initial estimates.*
- 6. Trailer was engaged to transport the machineries from one location to another mainly to save time and allow smooth flow of traffic congestion which is not incorporated in the LMC.*
- 7. FC works were executed during night hours to expedite the progress of the works whereby the efficiency of the work done is comparatively low due to risk involved and poor visibility at night.*
- 8. The soil strata are unstable in nature and the slips were occurred at various locations at all times. These lead to marching of machineries for clearance which ultimately lead to loss of resources.*
- 9. Frequent usage of machineries to clear the slips which was not envisaged during the initial estimation.*

10. The usage of explosives was prohibited due to settlement below the road and earthen irrigation channel above whereby the more numbers of days for machinery had to be engaged. Therefore, please drop the memo.

During the detailed survey detail geotechnical studies are not carried out and the identification of soil type cannot be studied accurately whereby It was based upon visual judgment of the surface. During execution of the FC work, more rock was discovered thereby increasing the quantity of rock cutting volume.

Moreover, in some stretches due to cutting height being too high the quantity of rock excavation was increased. It was also noticed that during the cutting from design fixed batter peg, the total width of 10.5m was not achieved so in order to achieve the width of the FC, the batter peg were moved 1-1.5m outward. Due to which the volume of cutting had been increased.

At times FC work being involved for two monsoon seasons and the cutting being fresh, several slide occurred which also increased the volume of excavation. Thus the difference in estimated quantity and executed quantity was noticed as per the site condition.

In view of the above justifications, RAA is requested to drop the memo.

#### **RAA's Further Comments & Recommendations:**

The quantum of formation works exceeded allowable variations of +/- 20% from estimated quantities and excess payment of hiring charges to the extent of Nu. 89.061 million indicated either flaws in the deployment of machineries or inefficient deployment of machineries due to poor monitoring and supervision. The violations and deviations from the procurement norms, financial rules and regulations and BSR are due to absence of standard guidelines and procedures for departmentally executed works including monitoring controls over execution of works from appropriate authorities.

As discussed in the exit meeting, the DoR and the Ministry are advised to review and investigate excessive deployment of machineries and deployment of machineries not in LMC to the extent of Nu. 94.477 million (Nu.89.061+5.416) computed in audit and work out the quantum of works executed by the RO to regulate the expenditures accordingly.

The Ministry is also advised to review the present practices and procedures adopted by ROs in conducting survey, preparation of drawings, estimates, BOQs and executions including hiring and deployment of machineries and equipment and execution of permanent works and develop standard guidelines and procedures to prevent such irregularities and lapses in future.

## **2.20 Bitumen issued to contractors not covered by insurance - Nu. 2,237.655 million**

The Contract Document stipulates following conditions to be complied by contractor and/or employer on insurance of contract works:

- Clause 14.1 under Section V: General Conditions of Contract stipulated that the Contractor shall provide, in the joint names of the Employer and Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the SCC for the following events which are due to the Contractor's risks:
  - (a) Loss of or damages to the Works, Plant, and Materials to be built into the works.
- As per Clause 14.2, Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.
- Clause 14.3 provides that if the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due from the Contractor to the Employer.
- Clause 14.4 stipulates that alterations to the terms of insurance shall not be made without the approval of the Project Manager.
- As per Clause 14.5, both the parties shall comply with any conditions of the insurance policies.
- Further, the requirement of insurance was reiterated under Section VI: Special Conditions of contract (Clause GCC 14.1).
- Section 103 of the Technical Specification, it also stipulates as under:
  - "The Contractor shall provide and maintain the insurance cover in accordance with Clause 14 of the General Conditions of Contract from an approved insurance company from the start date to the end of the Defects Liability Period."
  - "No separate payment shall be made for insurance. All costs involved in connection with the work insurance herein shall be considered included with other related items of the work in the Bill of Quantities".

Contrary to the above clauses in the contract document, both the contractor and the employer had failed to maintain insurance coverage for the bitumen issued to the various contractors. An abstract of bitumen issued to various contractors by ROs are tabulated below:

Regional Office:	Qty. of Bitumen Issued (in Metric tonne)	Estimated cost of bitumen (Nu.) in million
RO, Thimphu	2,549.75	108.237
Ro, Lobeyasa	10,714.70	977.037
RO, Trongsa	2,881.91	740.326
RO, Lingmethang	5199.08	412.055
<b>Grand Total</b>	<b>16,146.36</b>	<b>2,237.655</b>

Accordingly, it was noted that the contractor had insured Works, Plant and Material for the minimum contract amount only as evident from the insurance coverage of **M/s Chogyal Construction for Package I, II & III**. Thus, insurance did not cover the cost of bitumen that were issued by the Regional Office as the insurance claims and compensation payments received by the contractor were solely used by the contractor as the RO had not deducted the cost of bitumen although the claims and compensation pertained to bituminous works. Further, it was evident from the records that the RO had issued the bitumen for redoing the damaged works.

The RO should comment on the circumstances leading to non-insurance of the cost of bitumen by the contractor as bituminous works are executed by the contractor and damages and loss to works are contractor's risks. Besides, the RO should comment on the measures put in place to safeguard against such loss.

**Auditee's Response:**

*The bitumen was procured departmentally and was issued to the contractor free of cost as per the Job Mix Formula/consumption thereon. However, insurance for bitumen was not covered since the contract amount in the BOQ is exclusive of bitumen. The insurance company while insuring the work takes into account the contract amount/work order amount only, which is determined from the signed contract agreement.*

*The bitumen is transported from the Regional Store and adjustment is made with the central store, Pl'ing. Till now there is no system of insuring the bitumen during the transportation.*

*The additional clause in the SCC also states that the cost of the bitumen should be 'zero', which means that the employer is asking the bidder to quote for the execution of work only excluding the cost of bitumen. Since the cost of bitumen is not included in the contract price, and the premium (determined from the contract amount) paid to the insurance company by the contractor, the RO did not find a base to recover the cost of bitumen for redoing the damaged work.*

*The issuance of bitumen free of cost has increased the workload of the site engineers and often the site engineers complain that they had to literally take care and monitor the bitumen issued to the contractor till the BT work is completed. In view of this, RO is proposing to discuss this issue with DoR HQ during the upcoming DoR Quarterly Meeting. Hence, RAA is requested to kindly drop the memo.*

**RAA's Further Comments & Recommendations:**

*It is apparent from the response that the ROs and DOR failed to enforce the provisions stipulated under SBD on the requirement of insurance coverage for loss of or damage to the Works, Plant and Materials to be built into the works from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the SCC.*

*The non-insurance of cost of bitumen either by the Contractors or ROs also clearly indicated flaws in the tender documents and contract agreements. The failure to insure the bitumen cost with the cost of bituminous works had resulted in avoidable reissuance of bitumen valuing Nu. 7,085,432.30 for redoing the damaged bituminous works for two packages (I & II) executed by M/s Chogyel Construction Company Private Ltd. under RO, Lobeyasa.*

*The DOR and the Ministry should investigate the circumstances leading to failure of insuring cost of bitumen with the bituminous works by the contractors as well as non-incorporation of such requirements in the tender and contract documents which had cost the Government Nu. 7.085 million for reissuing the bitumen for redoing the damaged pavement works.*

*The DOR in consultation with the Ministry should immediately direct all the contractor to insure the cost of bitumen for all completed pavements works to safeguard the interest of the Government and avoid complications in future. Besides, the Ministry should come up with clear policy and procedures for insuring the cost of bitumen by the contractors even if the bitumen is issued free of cost by the Government as otherwise the Ministry should consider the desirability of allowing the contractors to include the cost of bitumen in the contract price but recovery is to be made at the prescribed departmental rates to enable the contractors insuring the cost of bituminous works with bitumen cost and avoid complications.*

*The decisions and measures taken on the issue should be furnished to RAA for record and follow-up in future audits. The non-insurance of substantial cost of bitumen by the contractors and ROs resulting in loss of Nu. 7.085 million to the Project for reissuance of Bitumen for redoing the damaged bituminous works for three packages is brought to the notice of the Government for appropriate decisions and actions.*

## **2.21 Non-stacking/recording of excavated rock materials with resultant loss of Nu. 674,501,379.27**

The works of Northern East-West Highway include Formation Cutting, Permanent works and Pavement works. One of the major works is the formation cutting work, for which the department had quantified the volume of earthwork excavations on the basis of survey reports.

In line with the survey report, the departmental estimates projected excavation of rock of 2,489,385.58 m<sup>3</sup> involving Nu. 674,501,379.27 as detailed in table 2.21 below:

<b>Table 2.21: Substantial cost for rock excavation and Non-stacking of Boulder</b>				
<b>Name RO</b>	<b>No. of Contracts</b>	<b>Qty(m<sup>3</sup>)</b>	<b>Amount (Nu.)</b>	<b>Remarks</b>
<b>Execution through Contracts</b>				
Regional Office Lobeyasa	Six Contractors	256,342.71	46,659,927.29	No stock accountal were made on records
Regional Office Trongsa	Twelve Contractors	1,412,406.578	440,596,648.44	
Regional Office Lingmethang	Six Contractors	320,725.21	68,945,647.21	

<b>Departmental Executions</b>				
Regional Office Lobeyasa		68,360.48	12,252,248.83	
Regional Office Trongsa		184,655.44	57,662,354.25	
Regional Office Lingmethang		118,836.84	25,497,632.39	
Regional Office Thimphu		107,289.84	19,848,620.40	
	<b>Total</b>	<b>2,489,385.58</b>	<b>674,501,379.27</b>	

During the physical verification of the work sites, it was noted that the rocks excavated from the roadside excavation works were found used by the contractors responsible for formation cutting works for construction of permanent structures without accounting the excavated boulder and recovering the cost of used boulders. In addition, the excavated materials were found not properly stacked along the road causing inconvenience to the commuters.

As per the GCC A20.2 of the contract document “*All materials obtained during excavation from the site and that have not been accounted for in the bid shall be the property of the Employer and the contractor shall take care of useful materials obtained during the execution of the Works and stack at place designated by the Employer*”.

Further, the technical specifications Clause 605-Execution in Cutting states as “*All suitable excavated materials shall be used in construction of the roadway to the extent as required*”.

Thus the use of usable excavated materials without accounting in the books of account and also without recovering the equivalent cost was in violation of the contract terms.

Further, in terms of the Specification for Building and Road Works, Clause 21.3.2 Excavations, “*The contractor shall take all precautions necessary to preserve the materials or existing structures below and beyond any line of excavations in the soundest possible conditions*”. It also states as “*the contractors controlled blasting and other operations in excavation shall be such that they will yield as much materials as possible suitable for use in the work*”.

Proper retrieval of stone boulder from the rock excavation would not only have saved the cost on the permanent structures but also benefited the RO through cost recovery of recovered boulders through disposals in the best interest of the Project.

The contractors are paid for excavation and transportation of spoil materials besides payments for execution of permanent structures. Thus, allowing the contractors to use the useful materials free of cost tantamount to extending double benefits to contractors.

The ROs and DOR should comment on the circumstances leading to non-accountal of excavated useful materials and investigate whereabouts of excavated materials and ascertain the extent of materials used by the contractors on permanent works. The DOR and ROs should recover the cost of the material to the extent of quantum of materials used by contractor for permanent works. Besides, the DOR should also investigate whereabouts of excavated materials for the departmentally executed formation works.

### Auditee's Response:

DoR, RO Trongsa would like to thank the RAA for the observation and would like to submit the following justifications. The total quantity of earthwork by the twelve contractors is 1,412,406.58 cum valued at Nu. 440,596,648.44 and for departmental works it was 186,655.44 cum valued at Nu. 57,662,354.25. In view of the above justifications, RAA is requested to drop the memo.

### RAA's Further Comments & Recommendations:

The ROs and DOR have not appropriately provided the response on the observation. The RAA would invite reference to provisions of the General Conditions of Contract (GCC) under "Discoveries Clause" which categorically states as under:

***"Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Employer's instructions for dealing with them. All materials obtained during excavation from the site and that have not been accounted for in the bid shall be the property of the Employer and the contractor shall take care of useful materials obtained during the execution of the Works and stack at place designated by the Employer. An arrangement shall be made between the Contractors".***

Thus, in view of the specific provisions under Technical specifications as well as GCC as highlighted above, non-accountal of materials(Boulder) obtained from the formation cutting works (Projected rock excavation of proximately Nu.674.501million executed either by contractors or departmentally, was in violation of the provisions of the contract. This has also deprived the Government of the benefit to the extent of boulders retrieved and used in the permanent and pavement works by the contractors and department.

The DOR and the Ministry should investigate and ascertain the quantum of boulder retrieved and used by the contractors and ROs, and recover the cost as per the existing provisions of the technical specifications and SBD and the amount recovered deposited into ARA. Besides, the Ministry should also take appropriate action on the officials responsible for non-accountal of boulders despite huge amount of of Nu.674.501 million projected towards cost for excavation of rocks.

The Ministry should not only strengthen the Design Divisions for accurate designing of road structures but also institute a technical team to review project plans, designs, and specifications to ensure that the same are accurate and complete including verification of the accuracy of surveys for future projects to prevent changes in designs as well as time and cost overruns.

The huge financial loss to the extent of excavated boulders not accounted against the projected rock excavation of **Nu. 674.501 million** to the government Exchequer is brought to the notice of the Government for appropriate decisions and actions.

## **2.22 Irregular release of additional advances of Nu.254.110 million**

Huge amounts of inadmissible additional advances were paid and payment for POL and release of retention money were made to contractors despite availing all financial benefits entitled as per the contractual agreement.

The ROs, DOR and the MLTC had failed to ensure utilization of available Credit line to the extent committed as per the bidding documents. Non-utilization of Credit line extended by the financial institutions by the contractors raises doubts on the genuineness and validity of Credit Lines. Besides, extension of such financial support to the extent of Nu. 254,110,000.00 were in violation to the provisions of the contract agreements and Financial Rules and Regulations.

<b>Table 2.51: Detailing huge releases of irregular advances to the contractors</b>				
<b>Sl.No.</b>	<b>Name of contractor</b>	<b>Contract Package</b>	<b>Date of Payment</b>	<b>Amount (Nu.)</b>
<b>Thimphu &amp; Trongsa</b>				
1	M/s Raven Builder & Company (P) Ltd	Package 1	21.9.2016	4,000,000.00
2	M/s Raven Builder & Company (P) Ltd	Package VI	various dates during fiscal years 2016,2017 and 2018	9,410,000.00
<b>Total</b>				<b>13,410,000.00</b>
<b>Trongsa</b>				
1	M/s welfare Construction Pvt. Ltd.	Package IX	12.4.2017	20,000,000.00
2	M/s Dungkar Construction Pvt. Ltd.	Package VIII, XI & XII	9.12.2017	20,000,000.00
3	M/s Gyalcon Construction Pvt. Ltd.	Package IV	28.6.2017& 26.10.2017	15,000,000.00
4	M/s Druk Lhayul Construction Pvt. Ltd.	Package V	19.5.2017 & 14.6.2017	20,000,000.00
5	M/s Rinson Construction Company Pvt. Ltd.	Package III,X & XII		30,000,000.00
<b>Total</b>				<b>105,000,000.00</b>
<b>RO, Lobeysa</b>				
1	M/s Chogyal Construction Pvt. Ltd	(Packages I, II and III)	2015/2016	46,000,000.00
2	M/s Singye Construction Pvt. Ltd (CDB No. 2148)	Package IV	12/2015	39,700,000.00



3	M/s welfare Construction Pvt. Ltd.	Package IX	12.11.2017	10,000,000.00
4	M/s Rigsar Construction Pvt. Ltd	Package X	6.6.2017 & 22.12.2017	4,500,000.00
5	M/s TT construction Pvt. Ltd	Package VI	7.2.2017 & 20.12.2017	19,000,000.00
<b>Total</b>				<b>119,200,000.00</b>
<b>RO, Lingmethang</b>				
1	M/s Gongphel Construction Pvt. Ltd.	Package IV	9.4.2017 & 22.12.2017	10,000,000.00
2	M/s Rigsar Construction Pvt. Ltd	Package VI	8.2.2017 & 9.5.2017	6,500,000.00
<b>Total</b>				<b>16,500,000.00</b>
<b>Grand Total</b>				<b>254,110,000.00</b>

#### **Auditee's Response:**

*The ROs responded that advances not within the provisions of the contracts were released based on verbal instruction and approval accorded by Minister and Secretary, MoWHS to extend necessary support to the contractor in the interest of works. The RO also mentioned that the financial support rendered is purely to expedite the progress of works.*

#### **RAA's Further Comments & Recommendations:**

*The Granting of advances beyond the provisions of the contract is in violation of the contract agreements and Financial Rules and Regulations and clear indication of undue financial support extended to the contractors. The failure on the part of the ROs, DOR and Ministry to direct the contractors to avail the credit facilities indicated existence of poor contract management system.*

*As discussed during the exit meeting, the DOR and the Ministry are advised to recover all the irregular and ineligible advances from the contractors with penal interest.*

*The Ministry besides directing officials in positions to strictly abide by the Financial Rules and Regulations and provisions of the contract documents is also advised to institute appropriate control mechanism over the sanctioning of construction advances to prevent payments of advances in violations of rules and contract agreements.*

*The huge financial payments of **Nu. 254.110 million** from project funds in violation to the provisions of the contract documents and financial Rules and Regulations by the authority in position is brought to the notice of the Government for appropriate decisions and actions.*

### 2.23 Irregular Change of pavement thickness with resultant inconsistency in the execution of pavement works

Northern East-West Highway being the Primary National Highway, both the initial and revised drawings has specified a total pavement thickness of 600mm as shown in the diagram and in the

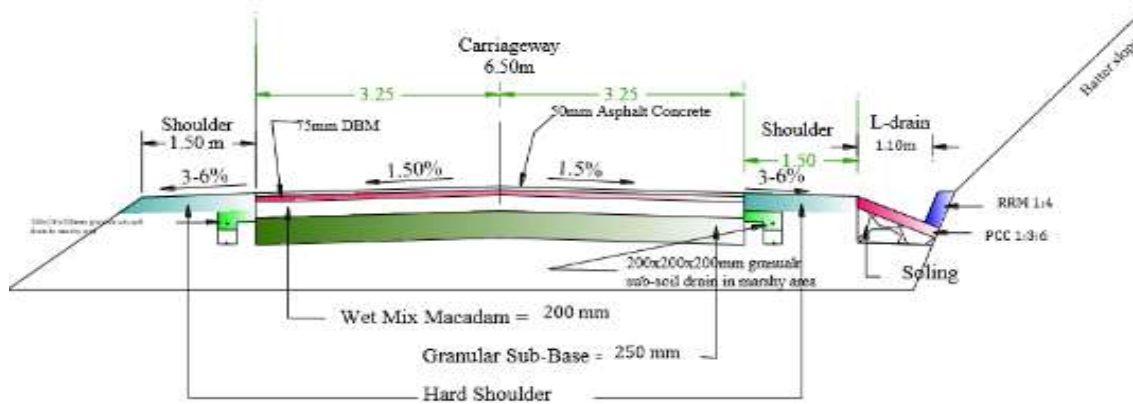


Fig: 2.22- Initial approved design and drawing

table below:

Table 2.22: Pavement thickness	
The pavement thickness of various layers is as follows:	
Item works	Thickness
GSB	250mm
WMM	225mm
DBM	75mm
AC	50mm
<b>Total:</b>	<b>600mm</b>

In all contract packages the above design parameters were required to be followed. However, on 7<sup>th</sup> DoR Quarterly Meeting held on 27-29 July, 2015, the meeting discussed and decided to reduce the thickness of DBM from 75mm to 60mm and AC from 50mm to 40mm thereby reducing the overall pavement thickness to 575mm against initial pavement thickness of 600mm for the NEWH work.

Accordingly, under RO Lobeysa, out of 15 contract packages, four (4) packages were awarded with the new pavement design thickness as detailed in table 2.22.1 below:

Table 2.22.1: Application of different Pavement thickness			
Package No	Location	Chainage	Contractor
12	Wangdue-Langkena	436-429 (7 Kms)	M/s Tagsing Chungdruk Construction Pvt. Ltd, Thimphu
13	Razhau-Nobding	403-395 (8 Kms)	M/s U.P Construction, Thimphu
14	Nobding-Dungdungnyelsa	392.25-389 (3.25 Kms)	M/s Empire Construction Pvt. Ltd, Punakha

15	Nobding-Dungdungnyelsa	395-392.25 (2.75 Kms)	M/s Empire Construction Pvt. Ltd, Punakha
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Under RO, Lingmethang, out of 6 packages only one (1) was awarded with the new pavement design thickness as detailed below:

<b>Table 2.22.2: Application of different Pavement thickness</b>			
<b>Package No</b>	<b>Location</b>	<b>Chainage</b>	<b>Contractor</b>
7	Between Kurizampa & Lingmethang	114.45-118.45 = 4 Km	M/s. Tshering Construction Pvt Ltd, Bumthang

However, although the revised pavement design thickness was approved during the 7<sup>th</sup> DoR Quarterly Meeting held on 27-29 July, 2015, the RO Trongsa had failed to comply with the resolution as the work for up gradation of pavement of 2.18Km from Chainage 87.62-89.8 (Sonam Kuenphen to Hurjee (bypass)) was found awarded to M/s Lamnekha Construction Pvt. Ltd during April 2016 with the initial pavement design thickness of 600mm instead of revised thickness of 575mm.

The reason stated in changing of pavement thickness was low volume of traffic between Wangdue and Trashigang. Thus, the decision of DOR and the Ministry to change pavement design thickness to 575 mm just for five packages with Chainage coverage of just 25 km was found impetuous and in violation to the *Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 as the traffic volume of Primary National Highway is standardized as >200vpd (Vehicle per day)*.

The Ministry should comment on the change of pavement design thickness just for Five (5) contract packages despite the fact that the decisions were taken in July 2015 just after the awards of contracts when all contractors were carrying out only the formation cutting and permanent works. The DOR and Ministry should have issued changed order on the pavement thickness of all contract packages if the changes were made on the basis of low volume of traffic between Wangdue and Trashigang. Besides, the Ministry should also comment on the fact that if the revised pavement thickness were to suffice the low volume traffic, why the decisions and approval for the initial thickness were taken which had substantially impacted the construction cost.

The Ministry should also comment on the failure of the RO, Trongsa to abide by the revised design thickness of pavement works awarded after the decision of the Meeting.

#### **Auditee's Response:**

*Initially, the pavement width was to be 6.5 mtr wide with total 600 mm thickness of various layers. However, as per policy decision taken at a later stage, the pavement width was increased from the original 6.5 mtr to 7.5 mtr in the larger interest of the Government. Similarly, as discussed & decided during the 7<sup>th</sup> DoR Quarterly meeting held on 27-29<sup>th</sup> July 2015, the thickness of DBM & AC was reduced from the original 75 mm to 60 mm and for AC from 50 mm to 40 mm respectively.*

*The reason for reducing the pavement thickness from 600 mm to 575 mm was due to the consideration of lesser traffic volume plying from Wangdue Bridge towards Trongsa & further. In view of the above justifications, RAA is requested to drop the memo.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response on the reduction of pavement thickness due to low traffic volume between Wangdue and Trashigang, the fact remains that the reduced pavement thickness from 600mm to 575mm (reduction of DBM thickness from 75mm to 60mm and AC thickness from 50mm to 40mm) was just for a stretch of 25km. For all remaining road stretches, the initial DBM thickness of 75mm and AC thickness of 50mm was maintained.*

*It is also to reiterate that the changes in DBM and AC thickness were approved during the meeting held on 27-29<sup>th</sup> July 2015 when formation cutting and permanent works were being carried out and it would have been possible to issue change orders for the revised DBM and AC thickness. The changes of DBM and AC thickness on the ground of low volume of traffic within the same stretches of roads indicated flaws and deficiencies in the decisions as the decisions were not supported by adequate study carried out, if any, on the technical merit of such changes only in stretches covered in the five contract packages. Such decisions and actions indicated adhoc changes of designs, lacked coordination amongst ROs and DOR and monitoring controls by the DOR.*

*The varying pavement thickness approved by the DOR and Ministry within the same stretches of roads as well as deviations from the Guidelines on Road Classification System and Delineation of Construction and Maintenance Responsibilities 2009 is brought to the notice of the Government.*

#### **2.24 Non-deduction of cost for reduced 1.5 m Hard Shoulders between Paved carriageway and L-Drain and 0.50m at valley side**

The initial and revised design/drawings for pavement works provided the following specifications:

##### **Initial Drawing**

- ✓ Formation cutting width 10.5m
- ✓ Carriage width 6.5m
- ✓ L-Drain hillside 1m
- ✓ Shoulder between L-Drain and Carriage Way 1.5m
- ✓ Shoulder at valley side 1.5m

The execution of required 1.50m Hard Shoulders between the L-Drain and Paved Carriageway and 0.5m at valley side was done away due to change in the design and drawing of the double lanning works.

However, in terms of the initial designs, the contractors were required to execute the Hard Shoulder. As no separate item of works were provided in the BOQs for Hard Shoulder, the cost was required to be built up in the item rates quoted for the execution of pavement items of

works. Thus, doing away the execution of Hard Shoulders and paying for execution of increased carriage way of 1m width separately tantamount to payments made without execution at site.

The Ministry should comment on the circumstances leading to non-deduction/non-adjustment of cost for Hard Shoulders from payment for increased scope of 1m pavement works. Besides, the Ministry must thoroughly review the execution of hard shoulder at valley sides and cost to the extent of hard shoulders not maintained and executed at valley sides including cost of 1.5m hard shoulders not executed between L-Drain and Paved Carriageway should be worked out and deposited into ARA.

#### **Auditee's Response:**

*The item for hard shoulder was not incorporated in the BOQ and the specification was not mentioned in the document. The contractors were paid as per the actual measurement for the rest of the items whereby the double payment by RO has not been made. Since the other items in the BOQ are in cubic meter, the payments were done for actual work done only. Hence deduction of cost for not constructing hard shoulder was not applicable. Hence the memo may be dropped.*

#### **RAA's Further Comments & Recommendations:**

*In view of the requirement to execute Hard Shoulders in terms of the initial drawings, even though the item was not incorporated in the BOQ, the contractors were required to either built up the rates with the relevant item of works or the contingencies such as overhead cost was to cover up variety of possible risks or events that are not specifically identified or quantified in the BOQs. Thus, non-deduction or adjustment of cost for Hard shoulders from the payments on the increased pavement width of 1m tantamount to financial benefit to the contractors.*

*However, the Ministry should institute a technical team to review the cost implication in terms of the initial design/ drawings where the contractors were required to execute and maintain Hard Shoulders between the L-Drain and Carriageways and at valley site in terms of the contractual documents and appropriate decisions and action taken on the issue intimated to the RAA.*

### **2.25 Non-maintenance of 1.5m/1m width shoulder at Valley side**

The initial and revised design/drawings for pavement works provided the following specifications:

#### **Initial Drawing**

- ✓ Formation cutting width 10.5m
- ✓ Carriage width 6.5m
- ✓ L-Drain hillside 1m
- ✓ Shoulder between L-Drain and Carriage Way 1.5m

- ✓ Shoulder at valley side 1.5m

### **Revised Drawing**

- ✓ Formation cutting width 10.5m
- ✓ Carriage width 7.5m
- ✓ Shoulder hillside 0.5m
- ✓ L-Drain between shoulder hillside and Carriageway 1m
- ✓ Shoulder at valley side 1.5m/1m

In terms of the technical specifications, the contractors responsible for Formation Works were required to achieve formation width of 10.5m and contractor for Pavement works were to execute and maintain Hard Shoulder at valley side of 1.5m/1m respectively as per the revised drawings.

The quantum of work was required to be executed as per initial and revised drawings and cost thereof either built up with “Providing and Laying GSB” or other pavement related works.

During the physical verification of sites with the ROs site engineers and officials, the RAA observed that the Hard Shoulders of 1.5 m/1m width at valley side were found not maintained homogeneously throughout the stretches of the road. The RAA noted that DBM and AC works were found executed at the edge of the roads at the valley side to achieve the 7.5m carriageway.

Thus, the failure to maintain the hard should of 1.5m/1m at valley side by the contractors responsible for Pavement works indicated the failure on the part of the contractors and ROs to achieve the overall formation width of 10.5m.

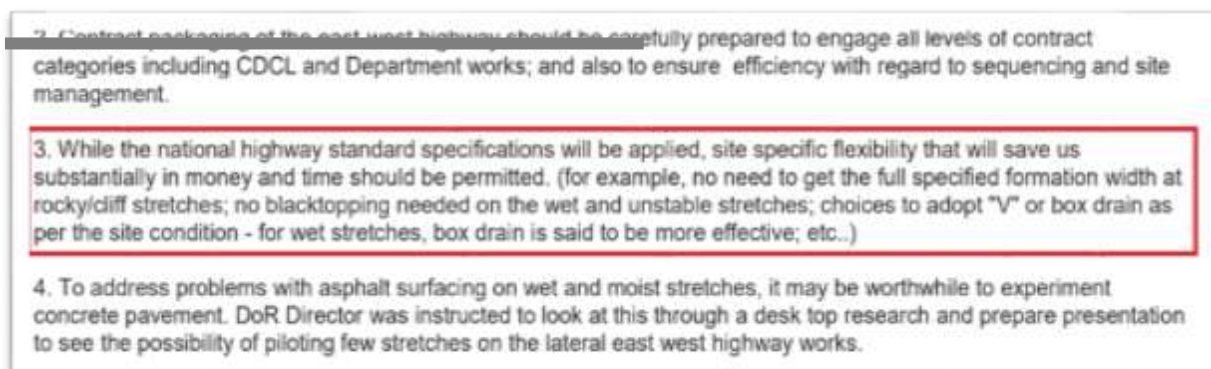
In addition, non-provisioning of the 1.5m/1m width Hard Shoulder at the valley side again had financially benefited the contractor as no adjustment of the amount was found made for area where Hard shoulders width were not maintained.

The Ministry should comment on the revisions of the designs/drawings and non-adjustment of cost thereof for works not required to be executed and works not actually executed. Besides, the Ministry should institute a technical team to carry out measurements of the formation width and pavement works to regulate payments to the extent of actual works done as per designs/drawings and technical specification as well as adjust cost for the hard shoulders not executed at site.

### **Auditee's Response:**

*The shoulder width of 1.5 m has been maintained where ever possible. However, in some of the stretches where there was requirement of huge rock cutting and some stretches highly vulnerable to major slide have been left out to save future maintenance cost. Further RO was also instructed verbally by the then Hon'ble Lyonpo, MoWHS that formation width can be reduced in rocky stretches as long as required pavement width is achieved to speed up the completion of the project.*

Copy of the mail is attached below. Therefore, the memo may be kindly dropped.



**RAA’s Further Comments & Recommendations:**

Notwithstanding the instructions issued through e-mail as well as verbal instruction of the then Hon’ble Lyonpo, MoWHS, it was the responsibility of the ROs and the Site Engineers to regulate and adjust the cost for the formation width not achieved since the quoted rates for formation works were running meters with overall formation width of 10.5m.

Thus, non-deduction or adjustment of cost to the extent of formation width not achieved from the payments tantamount to payments to the contractors for works not executed. In addition, the achievement of formation width had led to non- maintenance of Hard Shoulders at valley side by the Contractors responsible for Pavement works. This has also resulted in payments for Hard Shoulders not executed at site.

However, the Ministry as agreed during the exit meeting should institute a technical team to review the cost implication in terms of non-achievement of formation width and non-maintaining of Hard Shoulders at valley site in terms of the contractual documents and appropriate decisions and action taken on the issue intimated to the RAA.

**2.26 Procurement and irregular issue of extension kits to the non-field officials - Nu. 311,900.00 (5.9.3)**

An amount of Nu. 311,900.00 was paid to M/s Kinley & Sonam Manufacturing, Thimphu for the supply of extension kits to the Technical Monitoring Team. Since the NEWH activities are spread over 4 Regional Offices, expenditures are allocated amongst four ROs at equal amount of Nu. 77,975.00 each. Further review of the related documents revealed the following irregularities:

As per the approved note dated 02.02.2016, the following extension kits were approved for the procurement by the Secretary:

Sl/No	Description	Qty
1	Sleeping bags	9 Nos
2	Expedition mats	9 Nos
3	Safety boots	9 Nos
4	Torch lights	4 Nos

5	Tent (A or E type)	3 Nos
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The audit team noted another note sheet dated 2.2.2016 approving the procurement of following extension kits by the Secretary:

Sl/No	Description	Qty
1	Sleeping bags	12 Nos
2	Expedition mats	12 Nos
3	Safety boots	12 Nos (not approved)
5	Tent (A or E type)	12 Nos

It is also noted that no dispatch numbers for both the Note sheets were available and the two note sheets were approved on the same day. Therefore, the audit team could not ascertain as to whether both the above two note sheets were approved for procurement.

Further, the procurement was made during the FY 2016-2017, though the procurement was approved for procurement during the FY 2015-2016 indicating flaws in the approval and procurements of extension kits. On review of the records made available, the RAA noted procurement of the following extension kits:

Sl/No.	Items	Qty	Total Qty.	Rate (Nu.)	Amount (Nu.)
1	Sleeping bag A	2		10,990.00	21,980.00
2	Sleeping bag 2	8		9,990.00	79,920.00
3	Sleeping bag 3	7	17	5,990.00	41,930.00
4	Safety boots A	9		3,890.00	35,010.00
5	Safety boots B	7	16	1,990.00	13,930.00
6	Rain Gear A	8		3,690.00	29,520.00
7	Rain Rear B	6	14	1,450.00	8,700.00
8	Tent D/type	9	9	8,990.00	80,910.00
	<b>Total</b>				<b>311,900.00</b>

On further review on the issue of extension kits, it was noted that extension kits were also issued to officials other than the TMT Officials as shown below:

Sl/No	Name	sleeping bag	Safety boot steel	Rain Gear	Tent D/type	Total cost Nu
1	Karma Ugyen, DCAO	1	1	1	1	26,560.00
2	Kinzang Norbu, Budget officer	1	1	1	1	26,560.00
3	Ugyen Thinley, AFD	1	1	1	1	26,560.00
4	Thinley Dorji, MTO	1	1	1	1	24,660.00
5	Sonam Dorji, Store	1	1	1	1	26,560.00
6	Pema Eden	1	1	1	0	17,570.00
7	TMT officials	11	10	8	4	163,430.00
						<b>311,900.00</b>



Further, following irregularities were also observed:

- The extension kits were excessively procured as noted from the stock balances as on the date of audit.
- Procurement of 8 Nos Rain Gears valuing Nu. 38,220.00 were not in the list of extension kits listed in both the approved Note sheets.
- In terms of approved Note Sheets, Tent A or E type was to be procured but tent D types were found procured. Thus the procurement was in violation of the approved note sheets
- As per available records, the **Technical Monitoring Team (TMT)** comprise the following team members:
  - ✓ Tshering Wangdi A (TMT Leader)
  - ✓ C.K. Pradhan, PE, Const. Division, DoR
  - ✓ Karma Tenzin, EE, Design Division
  - ✓ Tempa Thinley, Geotech Unit, Design Division, DoR

Thus, the reasons for issuing extension kits to other than TMT officials was not understood in audit.

- The issue of tents to individual was not rational and correct as the tents could be used by other field officials as and when required.
- The charging of expenditure to the Project was not justified as such expenditure could have been booked under normal LC accounts.
- The necessity of the extension kits to the above officials including TMT officials are found not genuine since the TMT official visits are not regular. Further, all ROs have established transit camps well equipped with all necessary items.

Taking into the consideration of the above facts, the DOR and Ministry should recover the amount from the above officials besides the Ministry should also hold the approving authority accountable for approving such procurements from project funds.

#### **Auditee's Response:**

*We would like to furnish our reply as detailed below:*

- 1. In order to monitor the work progress and quality of the NEWH Project, a Technical Monitoring Team (TMT) comprising Chief Engineers, Principle Engineers and other senior engineers from HQ have been formed during the 8<sup>th</sup> DoR Quarterly Meeting held in 28<sup>th</sup> – 30<sup>th</sup>, 2015. A copy of minutes attached for reference. As per ToR, TMT is mandated to check the quality of work and carry out the field tests.*
- 2. Although the core TMT members were from the Department, at times there was a requirement of finance and procurement officials to visit the project sites to evaluate the financial and procurement processes and constraints faced by the bidders. Since there was*

no separate fund for purchase of extension kits, the stuffs were procured and booked under the project head only.

3. An amount of Nu. 311,900.00 were paid to M/s Kinley and Sonam Manufacturing, Thimphu for the supply of extension kits to the Technical Monitoring Team.
4. Since the NEWH activities are spread over four Regional Offices, expenditures are divided among the ROs and each RO has incurred an amount of Nu. 77,975.00.

The above amount of Nu. 77,975.00 was paid based on the directive of ministry and DOR, HQ vide note sheet approval no. DOR/TMT/2016-2017/3522 on February 2017.

We would like to submit the Royal Audit Authority to kindly review above details explanations and requested to consider the above Para.

**RAA’s Further Comments & Recommendations:**

The RAA has taken note of the response. It is to reiterate that in terms of budgetary norms, separate budget allocation are approved for procurement of extension kits for the field staff under the normal budgetary system (LC). The procurement of extension kits from the project fund in addition to budgetary fund is in violation of the budgetary norms. Besides, the issuance of extension kit to non-field staff is unjustified.

However, as discussed during the exit meeting, the ROs and DOR should get back the tents and account for in stock ledger and intimated to RAA for verifications and record. Besides, the Ministry should direct the DOR and ROs to refrain from such decisions and action in future.

**Who is Accountable?**

<b>Direct Accountability</b>	<b>: Refer Accountability Statement</b>
<b>Supervisory Accountability</b>	<b>: Refer Accountability Statement</b>

**2.27 Non-aligning of pavement thickness with the item of works provided in the Bhutan Schedule of Rates (BSR) with resultant cost implication by way of applying built up rates through rate analysis**

In terms of BSR, the item of work “Providing and Laying Dense Bituminous Macadam (DBM) to required degree of compaction based on mixture design (Job mix formula) approved by the supervising engineer including preparation of surface with road broom, application of prime coat @0.75 kg/sq. m by mechanized method using asphalt plant, paver, steel roller, tyre roller etc. complete”– outlines built-up rates for the execution of pavement works only for the varying thickness as shown below:

<b>Item Code</b>	<b>DBM thickness</b>
RW0132	50mm
RW0133	60mm
RW0134	70mm
RW0135	80mm

Similarly, for the item of works “Providing and Laying Asphalt/Bituminous Concrete to required degree of compaction based on the job mixture design approved by the supervising engineer using asphalt plant, paver, steel roller, tyre roller etc. as per material gradation and aggregate quality specified” also outlines built-up rates for the execution of pavement works only for the varying thickness as shown below:

Item Code	AC thickness
RW0136	25mm
RW0137	30mm
RW0138	35mm
RW0139	40mm

However, for the double lanning of Northern East-West National Highway, the Ministry has prepared the designs/drawings with a total pavement thickness of 600mm as shown below:

**The pavement thickness of various layers is as follows:**

GSB = 250mm  
WMM = 225mm  
DBM = 75mm  
AC = 50mm  
**Total: 600mm**

It was apparent that DBM and AC thickness were not aligned to the thickness provided in the BSR but maintained as design thickness for DBM as 75mm in-between the defined thickness of 70mm and 80mm and 50mm for AC against maximum thickness of 40mm provided in the BSR.

Thus, specifying different DBM and AC thickness had resulted in requirement of carrying out rate analysis both by the ROs in the preparation of estimates and contractors while submitting the rates for the two item works. On review of contractor’s rate analysis attached with the tender documents, lapses and discrepancies in the application of co-efficient for the item of work 75mm DBM & 50mm AC were noted as the LMC provided only for 70mm and 80mm DBM work and 40mm AC work. Thus, the co-efficient used for 75mm DBM was considered for 80mm thick and co-efficient for 50mm thick AC works was randomly worked out by contractors.

However, the varying rates used by the RO through rate analysis in the preparation of estimates including rates applied for departmentally executed works and BSR rates are detailed in table 2.26.2 below:

Packages	BSR Code reference	DMB rate without bitumen	AC rate without bitumen	Departmental		BSR Rates	
				DMB rate with bitumen for 75 mm	AC rate with Bitumen for 50mm	DBM with bitumen 80mm (BSR 2015-Thimphu Base)	AC with bitumen 40 mm (BSR 2015-Thimphu Base)
VI, VII, VIII, IX, X	AR	213.14	159.14	839.65	648.22	891.92	521.27
XI	AR	252.43	153.15				
I, II, III, IV, V	AR	205.85	140.87				

XII, XIII, XIV, XV	RW0133	247.47	148.2				
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Further, it was noted from the Minutes of the 7<sup>th</sup> DoR Quarterly Meeting held on 27-29 July, 2015, the meeting discussed and decided to reduce the thickness of DBM from 75mm to 60mm and AC from 50mm to 40mm aligning to the thickness provided in the BSRs. However, the execution of pavement thickness was found maintained in line with the initial approved design thickness in majority of the contract packages.

The Ministry in particular the Design Division should comment on designing of bitumen thickness not provided in the BSR for the preparation of estimates and subsequently reducing the bitumen thickness in line with the thickness provided in the BSR.

#### **Auditee's Response:**

*The Regional Office acknowledges the observations issued by Royal Audit Authority. While BSR is prepared as a tool to assist in the estimation of project costs, it is to inform you that it does not cover every items in detail. For instance, laying of WMM is done with the use of motar grader while it is not reflected in the labour coefficient.*

*The required items are incorporated based on site specific as and when required and found necessary. Likewise, varying thickness for DBM & AC for NEWH is based on design traffic volume and site requirement. There is no added cost on the application of present DBM & AC thickness adopted for the above work.*

*In view of the above justification, RAA is kindly requested to drop the memo.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response that the pavement design thickness is guided by the traffic volume, the fact remains that the change in design thickness of DBM from 75mm to 60mm and AC from 50mm to 40mm were made only for 25km stretch of road between Wangdi and Trongsa and Yadi to Lingmethang despite having same traffic volume. Thus, adhoc change of design thickness of DBM to 60mm and AC to 40mm on the basis of traffic volume, indicated that the Design Division, DOR could have designed the DBM and AC thickness within thickness provided in the BSR and LMC. The providing of design thickness of 75mm for DBM and 50mm for AC not provided in the BSR and LMC had resulted in application of varying rates by the ROs in the preparation of estimates and wrong application of material co-efficient in the analysis of rates for items of works by the contractors inflating the quoted rates with overall financial implication to the extent of Nu.60.236 million as reported under Para 2.4 of the report.*

*However, as discussed in the exit meeting the DOR in consultation with the Ministry should take measures to maintain the design thickness of DBM and AC and other item of works as per the thickness provided and available in the BSR and LMC or incorporate in the BSR and LMC varying design thickness requirements in terms of traffic volume and site specific conditions to minimize wrong application of labour and Material Co-efficient in carrying out rate analysis in future.*

*The decisions and measures taken by the Ministry to address the issue intimated to the RAA for record and follow-up in future audits.*

### **2.28 Irregularities in supply of lab equipment for NEWH (5.6.8)**

As noted from Kuensel issue of 7/10/15, the NIT for procurement of laboratory Testing Equipment for road works was found invited with completion period of supply of 3 months. Details of laboratory testing equipment required were as shown below:

- |  |        |
|--|--------|
| i. Proctor Compaction Test Apparatus                                 | 4 sets |
| ii. California Bearing Ratio (CBR) Test Apparatus                    | 4 sets |
| iii. Field Density (Sand Cone Method) Test Apparatus                 | 4 sets |
| iv. Binder Determination(Centrifuge Extractor Method) Test apparatus | 4 sets |
| v. Compaction of Bituminous Marshall Test Apparatus                  | 4 sets |
| vi. Core Cutting Machine (Portable& diesel/petro engine operated)    | 4 sets |

As per evaluation reports, M/s GS Traders were the lowest evaluated bidder with bid amount of Nu. 2,462,660.00. The contract agreement was found drawn accordingly between the Director, DoR and M/s GS Traders, Olakha, Thimphu.

During the review of the documents, the following lapses were observed:

#### **2.28.1 Non-supply of testing equipment in full quantity**

The supply order was issued vide order No. DoR/CE(CD)/2015-2016/W-47/1994 dated 5/1/16 for supply and delivery of Lab Testing Equipment for Road Works valuing Nu.2,462,660.00. The supply order amongst others categorically stipulated that *“inferior quality or re-conditioned product must be avoided. The joint inspection of supply delivery shall be carried by the procuring agency”*.

As per the Handing taking letter No. DoR/CE(CD)15-16/W-7/ dated 23/8/16, the demonstration of core cutting machine was conducted on 22/8/16 in the presence of the following officials:

- i. Tshering Wangdi A (TMT Leader)
- ii. Karma Wangdi, CE Construction Division
- iii. Sonam Jamtsho, Engineer, Construction Division
- iv. Pema Tshewang, Lab Tech, RO, Lingmithang
- v. Tshejaimo, Lab Tech, RO, Trongsa
- vi. Gagan Lama, CEO, M/s GS Traders &
- vii. Binod Ghalley, Manager, M/s GS Traders 17629259

After demonstration, it was decided not to accept the core cutting machine since it was not as per specification. The supplier agreed to supply the whole set of core cutting machine within 1<sup>st</sup> week of September 2016. However, as of date of audit i.e.17/5/2018 even after a time lapse of almost two years the supplier had failed to replace core cutting machine. In addition, the DOR had also failed to take any action against the supplier. Further, some equipment items were also found not supplied by the supplier as shown in **Appendix “A”**.

#### **2.28.2 Irregular payment of advance Nu. 560,000.00**

Minutes of DLTC meeting held on 30/8/16 after deliberations had endorsed following decisions:

- The supplier is eligible for the payment only after supplying all the equipment as per the contract agreement. However, since his bills are pending the committee decided to make advance payment of Nu. 560,000.00.
- Payment of the quoted amount for 4 sets of core cutting machine and Nu. 246,266.00 being the 10% mobilization advance payment as per contract agreement on furnishing BG from the reputed bank. This is to facilitate the supplier to replace the core cutting machine at the earliest.
- The supplier shall supply the core cutting machine within 2 weeks after making the above payment by the department.

In accordance with the decisions of the DLTC, payment of Nu. 560,000.00 was found released to the supplier as advance payment since the bills are kept pending as the supply was not fully completed. The advance payments were made from four ROs as shown below:

Sl/No	Name of ROs	Amount Nu.
1	RO, Thimphu	140,000.00
2	RO, Lobeyasa	140,000.00
3	RO, Trongsa	140,000.00
4	RO, Lingmithang	140,000.00
	<b>Total</b>	<b>560,000.00</b>

The decision of DLTC for payment of advance amounting to Nu. 560,000.00 was not justified as the supplier failed to supply the equipment even on the date of the audit.

### **2.28.3 Supply of testing equipment not as per specification and acceptance thereof - Nu. 1,902,660.00**

M/s GS Traders, Thimphu had supplied lab testing equipment amounting to Nu. 1,902,660.00 except the Core Cutting Machines. Accordingly, RO, Thimphu had paid an amount of Nu. 475,665.00 vide dv No.6.134 dated 20/6/17 for cost of 5 Nos. (1 set testing equipment) as the balance amounts were to be met by ROs Lobeyasa, Trongsa and Lingmithang as detailed below:

Sl/No	Name of ROs	Amount paid Nu.	Vr. No & date	Remarks
1	RO, Thimphu	475,665.00	6.134 of 20/6/17	After adjustment

RO, Thimphu informed that equipment received were tested as required and payment released based on the stock entry and verification of bills by head sub division. However, the audit team noted that balance amounts were found not released by the three ROs.

On enquiry with the Lab In- charge of RO, Lobeyasa, Trongsa & Lingmithang, it was stated that though they have received the equipment, payments were not released as the equipment did not meet the specification requirements. This indicated that the payment by RO, Thimphu had been released without inspecting the equipment by the joint team.

It was also apparent that the ROs had not initiated actions either to return the equipment or to obtain replacement as on the date of audit. The Ministry should investigate the circumstances

leading to acceptance of the equipment without prior inspection and certification of the same and retaining as of the date of audit. Such retention of equipment may complicate the issue further.

The Ministry should immediately direct the ROs to return the equipment and direct the supplier to replace the equipment along with the core testing machines. Further, any Bank Guarantee available should be renewed.

The inaction on the part of the Ministry and ROs also indicates procurement of testing equipment on the bases of to make use of funds and not based on actual requirements.

### **Auditee's Response:**

*M/s GS Traders, Thimphu has supplied lab testing equipment amounting to Nu. 1,902,660.00 except the Core Cutting Machines. According However, the audit team noted that balance amounts were found not released by the three RO offices equipment's are tastes as required and payment released based on the stock entry and verification of bills by head sub division.*

- *M/S GS Traders, Thimphu supplier was placed with the supply order No. DOR/CE(CD)/2015-2016/W-47/1994 on Date 5/1/16 for supply and delivery of Lab Testing Equipment for Road Works*
- *M/S GS Traders, Thimphu has failed to supply the above lab testing equipment and Core Cutting Machines as per the specification as per terms and conditions of contract within the duration of three months date line issued by DOR, HQ, accordingly LD has been imposed based on terms and condition of contract agreement, imposed full amount LD 10% vide DV.06.134 on Dated 20/6/17 amounting to Nu. 47,567.00.*
- *We would like to put way forward to further substantiate that M/S GS Traders, Thimphu has supply the above lab testing equipment and Core Cutting Machines, while supplying to other ROS*
- *It is to submit here because of time lost while making twice procurement of lab testing equipment and Core Cutting Machines from third country by M/S GS Traders, Thimphu, the supplier could not supplied on time and therefore, the supplier was imposed penalty i.e., LD 10% of the contract value.*

*Further, we would like to furnish our reply as detail below:*

- i. It is to submit here all the tendering process has been undertaken at DOR, HQ, as per the directive of DOR, HQ, we have received the lab testing equipment 4nos and Core Cutting Machines 1 no was received from M/S GS Traders, Thimphu.*
- ii. It is to further substantiate the quality of lab testing equipment 4nos and Core Cutting Machines 1 no was found satisfactory while performing its output at our various field.*
- iii. The quality of lab testing equipment 4nos and Core Cutting Machines 1 no was verified accordingly to specification in contract document jointly by our Executive Engineer and Sub-Store In-charge based on the instruction of Chief Engineer Bridge Division DOR, HQ, instructed on the body of letter.*

- iv. *The note sheet put up by Finance and Administration Division under RO-T, clear remarks has been noted payment of bill has been process after verification with other ROS, involved on NEWH.*
- v. *Accordingly the payment had been released amounting to Nu. 475,665.00 vide DV.06.134 on Dated 20/6/17 for cost of lab testing equipment 4nos and Core Cutting Machines 1 no.*
- vi. *M/S GS Traders, Thimphu has failed to supply the above lab testing equipment and Core Cutting Machines as per the supply order date line issued by DOR, HQ, accordingly LD has been imposed based on terms and condition of contract agreement, imposed LD 10% vide DV.06.134 on Dated 20/6/17 amounting to Nu. 47,567.00.*
- vii. *It is to further substantiate that M/S GS Traders, Thimphu has supply the above lab testing equipment and Core Cutting Machines, while supplying to other ROs, however our Executive Engineer SD No. I, and Sub-Store In charge has rejected and returned back the equipment to M/S GS Traders, Thimphu.*
- viii. *It is to submit here because of time lost while making twice procurement of lab testing equipment and Core Cutting Machines by M/S GS Traders, Thimphu, the supplier was imposed LD 10% vide DV.06.134 on Dated based on terms and condition of contract agreement.*

*We would like to submit the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*It is apparent that the ROs, and DOR had failed to take action against the supplier either to get all the equipment replaced as per technical specification or recover the payments including the Liquidated damages as per the terms and conditions of the supply contract even after a time lapse of almost two years as on the date of audit.*

*The DOR should immediately return the equipment retained by the ROs/DOR to the supplier and obtain replacement of the same. Besides, the DOR should also investigate the circumstances leading to non-return of the rejected equipment for almost two years and those responsible should be made accountable in event of any complications arising in future. The DOR must also test the equipment accepted by the RO, Thimphu by the joint inspection team.*

*The decisions and actions initiated by the DOR and the Ministry on the issues and outcome thereof intimated to RAA for records and follow-up in future audits.*

#### **Who is Accountable?**

<b><i>Direct Accountability</i></b>	<b><i>: Refer Accountability Statement</i></b>
<b><i>Supervisory Accountability</i></b>	<b><i>: Refer Accountability Statement</i></b>

### **2.29 Unsafe Storage of explosives materials**

*In the light of the explosive materials being hazardous in nature and government controlled items, the audit team during site visits had also visited explosive storage facilities installed by the contractor at site offices. During the physical verification of site, the team noted that in most*



cases, explosive materials were found stored in open space, temporary sheds and in office instead of storing the materials in the designated explosive Magazines or designated stores constructed for the purposes. The status of explosives received, issued and balances of explosives in respect of RO, Lingmethang are shown in **Appendix “B”**.

The storing of explosive in open space and temporary shed compromises safety and security requirements as materials were exposed to possible risk to theft, pilferage and deterioration and health hazard to employees, labourers and general public and in particular commuters. While no major accidents related to explosives were reported as of date, considering the hazardous nature of explosive materials it is imperative for RO, Lingmethang to ensure proper storage arrangement and physical safe guards of materials.

### ***Auditee’s Response***

*RAAs observations on storage of explosives at various contractors of NEWH is well noted by the RO and the project officials. Despite several reminders through monthly coordination meetings and field visits has briefed about the risk of explosives and the rules and regulations and possible impacts for keeping in exposed condition and safety aspects. But many contractors in due process have improved a lot while still some fails to do so. In this regards, strict monitoring will be done by the RO and defaulters will be penalized accordingly in future. Therefore, the RAAs advice will be strictly noted for future guidance and strict implementation.*

### ***RAA’s Further Comments & Recommendations:***

*While taking note of the response the fact remains that explosives are hazardous in nature and government controlled items, and exposed to possible risk to theft, pilferage and deterioration and health hazard to employees, labourers and general public and in particular commuters and were found not stored in designated explosive Magazines or designated stores constructed for the purposes.*

*However, as agreed during the Audit Exit Meeting, the DoR and the Ministry should immediately direct all the ROs and contractors for proper storage of the hazardous explosives. The DOR and Ministry should also direct the ROs to take stock of the explosives in terms of approval accorded by the Ministry, accountal of receipts, usages for the works and stock balances to prevent mishandling, misuses and ensure proper disposal of balance stocks. Besides, the DOR an the Ministry should institute proper procedures in the accountal, usages and disposal of unutilized explosives as well as monitoring mechanism to ensure enforcement of related explosives rules and regulations to prevent untoward complications in future.*

## **PART B: PACKAGE SPECIFIC OBSERVATIONS WITH ACCOUNTABILITY**

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### **3. Huge cost implication after re-awarding portion of work to M/s SL Construction Pvt. Ltd on failure to complete the work by M/s Raven Builders & Company (P) Ltd. and pending recovery of cost differences as per agreement including misuse of bitumen and other lapses**

The pavement works of Double Lanning of NEWH from Simtokha-Dochula PNH (Ch: 530-538 & 527-527.70) covering a distance of 8.7 Kilometers, Package I was awarded to M/s Raven Builders & Company (P) Ltd. Pelrithang, Gelephu holding trade license No.3007580, CDB No.2356 being the lowest evaluated bidder vide work order No. DoR/RO-T/2014-2015/W-7/1796 dated 6<sup>th</sup> June 2015 with following contract details:

<i>✘ Estimated Amount</i>	<i>:Nu.115,642,860.00</i>
<i>✘ Contract Amount</i>	<i>:Nu.81,088,430.15(29.88% below the estimated Amount)</i>
<i>✘ Contract Duration</i>	<i>:15 months</i>
<i>✘ Start Date</i>	<i>:15<sup>th</sup> June, 2015</i>
<i>✘ End date</i>	<i>:15<sup>th</sup> September, 2016</i>
<i>✘ Actual Completion date</i>	<i>:Pavement work completed except L-drain &amp; road marking paint.</i>
<i>✘ Actual cost of construction</i>	<i>:Nu.86,792,357.83</i>
<i>✘ Name of Site Engineer</i>	<i>:Jigme Jamtsho, AE IV</i>

- ✓ The Regional Office accepted contractor's quoted amount and recommended to realize the differential amount as evident from the decision passed for award of work.*
- ✓ The MLTC/Awarding Committee, however, recommended for realization of differential amount to the extent of 9.88% in addition to 10% performance security as evident from the acceptance letter issued to the winning bidder vide letter No.RO-T/Do/2014-2015/W-7/1726 dated 25<sup>th</sup> May 2015.*
- ✓ M/s Raven Builders & Company (P) Ltd. had failed to complete the contract works on the stipulated contract deadline of **15<sup>th</sup> September, 2016** and within the subsequently revised completion deadline of **19<sup>th</sup> November 2016** and again as of **6<sup>th</sup> February 2017**. The contractor had failed despite repetitive instruction to expedite work progress and concern expressed over shortage of manpower, breakdown of machinery/plant and problem in manpower and efficiency.*
- ✓ Regional Office targeted to complete the work to meet the deadline of inaugural ceremony of NEWH from Simtokha to Wangdue scheduled on **28<sup>th</sup> June 2017**. As a proactive action and rigorous follow up, the series of meetings were held and correspondences were also sent to notify the proprietor that work progress was far behind the schedule.*
- ✓ Following the approval of Note Sheet RO-T/DR/2016-2017/W-1/1836 dated **24<sup>th</sup> May, 2017** by Zhabtog Lyenpo, the Regional Office vide letter work order No. DR/CD/26/2016-17/4003 dated 26<sup>th</sup> May 2017 had awarded the portion of pavement works of M/s Raven*

*Builders & Company (P) Ltd to M/s SL Construction Pvt. Ltd in the interest of time and also to avoid damages to the completed pavement works during the monsoon at negotiated cost of Nu. 15,858,310.00.*

- ✓ *The negotiated cost of M/s SL Construction Pvt. Ltd was much higher and cost differences to that effect was accepted by M/s Raven Builders & Company (P) Ltd as per the resolution of meeting held on **10<sup>th</sup> May 2017 (Minutes attached as Appendix A1)**. The recovery of cost difference was also stipulated in the letter No. DoR/CD/2016-17/24/3988 dated **24<sup>th</sup> May 2017** addressed to the Proprietor, M/s Raven Builder Company Pvt. Ltd.*
- ✓ *As per the sub ledger, total payments released were as follows:*

<b>Name of Contractor</b>	<b>Running Account Bill</b>	<b>RA Bill Amount (Nu.)</b>	<b>Remarks</b>
M/s Raven Builders & Company (P) Ltd	<i>Up to 10<sup>th</sup> Running Account Bill</i>	70,440,261.83	The payments had already exceeded the contract cost of Nu. 81,088,430.15 by 7.03%
M/s SL Construction Pvt. Ltd.	<i>Up to 3<sup>rd</sup> Running Account Bill</i>	16,352,096.00	
<b>Total</b>		<b>86,792,357.83</b>	

- ✓ *The balance of works yet to be executed by the contractors were as indicated below:*

<b>Type of work/activity</b>	<b>Quoted Amount (Nu.)</b>
<i>Road Marking worth</i>	598,126.60
<i>L-Drain</i>	6,090,000.00
<i>Box drain</i>	40,000.00
<b>Total</b>	<b>6,728,126.60</b>

On verification of drawings, estimates, bill of quantities, contractor's bill and minutes of meetings, Note sheets and contract documents awarded to M/s SL Construction Pvt. Ltd, following irregularities and lapses were observed:

### **3.1 Non-realization of cost differences from M/s Raven Builders & Company (P) Ltd. as per decisions of the meeting held on 10th May 2017 - Nu.9,552,612.27 (5.7.5)**

The Regional Office, Thimphu targeted to complete the road pavement work to meet the deadline for inaugural ceremony of NEWH from Simtokha to Wangdue scheduled on **28<sup>th</sup> June 2017**. With a view to expedite the work progress, rigorous follow up were initiated by conducting series of meetings with the contractor and notifying in writing to the proprietor on the slow progress of work as the progress was found far behind the work schedules/program.

Subsequently, following the approval of the Note Sheet by Zhabtog Lyenpo, dated **24<sup>th</sup> May 2017**, the Regional Office had awarded the portion of pavement works to M/s SL Construction Pvt. Ltd in the interest of time and also to avoid damages to the completed pavement works during the monsoon at negotiated rates. However, the negotiated rates of M/s SL Construction Pvt. Ltd was found much higher and M/s Raven Builders & Company (P) Ltd to that effect accepted to bear cost differences during the meeting held on **10<sup>th</sup> May 2017**.

On review of the Minutes of Meeting, it was noted that amongst others following were agreed upon during the meet between the DOR and the Proprietor, M/s Raven Builders & Company (P) Ltd.

- Contractor will submit revised weekly work plan on 11/5/2017;
- The work is to be completed on 7<sup>th</sup> June 2017 positively;
- Contractor will also submit alternate plan in case of machinery breakdown/unforeseen consequences;
- Team from HQ will inspect site on 15<sup>th</sup> May 2017 and monitor work progress from 11<sup>th</sup> to 14<sup>th</sup> May 2017. In the event, the progress is seen not done as per revised work plan then additional resources like allotting a part of works to other reliable firm will be initiated and the extra cost will have to be borne by M/s Raven Builders & Company (P) Ltd. Both the parties in the interest of work and for the benefit of public had accepted this arrangement.
- The meeting ended with assurance by the contractor to complete the work without compromising the quality.

In line with the decisions, the RO, Thimphu and officials from DoR Headquarter monitored the work progress as per work plans submitted and observed delays in the progress of works as under:

Type Of Activity	Progress as per Work Plan	Qty.	Qty. completed	Remark
AC	(End of 2 <sup>nd</sup> week) i.e 14.5.2017	9000 Sqm	8060 Sqm	Contractor was directed to put extra effort and manage the balance quantity during 3 <sup>rd</sup> week review
AC	(End of 3 <sup>rd</sup> week) i.e 21.5.2017	3450 Sqm + 940 Sqm = <b>4390 Sqm</b>		Poor work progress and site was Completely lying idle for a week. The poor work progress and decisions to deploy additional resources and giving to a reliable contractor in completing the work by Mid-June 2017 was communicated to the contractor vide Letter No. . DoR/CD/2016-17/24/3988 Dated 24/05/2017 by the Offtg. Director, DoR
DBM	(End of 3 <sup>rd</sup> week) i.e 21.5.2017	5215.50 Sqm		

Accordingly, the Officiating Director issued work order to M/s SL Construction Pvt. Ltd on the construction of “Dense Bitumen Macadam (DBM) 75mm and Asphalt Concrete 50mm (AC) on Semtokha-Dochula National Highway for contract duration of 24 days commencing from 28<sup>th</sup>

May 2017 to 20<sup>th</sup> June 2017. The details of quantity to be executed and rates agreed between DOR and M/s SL Construction Pvt. Ltd as well as cost differences were as tabulated below:

<b>Table 3.1.(1)- Detailing quantity of work and differential amount</b>					
<b>Particular of item</b>	<b>(A) Qty. executed by SL Const.</b>	<b>(B) SL's rate (Nu)</b>	<b>(C) Raven's rate (Nu)</b>	<b>D (B-C) Diff. in rate (Nu)</b>	<b>E (A*D) Amount (Nu)</b>
DBM	5,374.26	460.92	222.50	238.42	1,281,331.07
AC	45,446.60	305.42	123.42	182.00	8,271,281.20
	<b>Total</b>				<b>9,552,612.27</b>

On review of disbursement of RA bills of M/s SL Construction Pvt. Ltd. it was noted that cost differences as agreed were not borne by M/s Raven Builders & Company (P). Ltd., and instead the amount was paid by the Regional Office as indicated below:

<b>Table 3.1(2)- RA bills of M/s SL Construction Pvt. Ltd paid by the RO. Thimphu</b>		
<b>SL. No.</b>	<b>Particular</b>	<b>Amount (Nu)</b>
1	Initial Contract Value	81,088,430.15
2	Value of Work done and settled with M/s Raven Builder Company Pvt. Ltd	70,440,261.83
3	Value of Work done and settled with M/s SL Construction Pvt. Ltd	16,357,404.49
4	<b>Total (2)+(3)</b>	<b>86,797,666.32</b>
5	<b>Value of balance work to be undertaken by M/s Raven Builder</b>	<b>6,728,126.60</b>

Further review of the related documents indicated that the cost difference of Nu.9,552,612.27 as accepted by the firm was neither realized at the time of the award of the portion of pavement works to M/s SL Construction Pvt. Ltd nor deducted from the RA bills of the firm as well as at the time of settlement of RA bills of M/s SL Construction Pvt. Ltd.

The cost difference of Nu. 9,552,612.27 was found unrealized by the Regional Office, Thimphu as of the date of audit (i.e. 12<sup>th</sup> December 2018). Thus, payment of the cost difference from the Government fund and non-deductions from the RA Bills of the contractor despite agreement for recovery indicated extension of undue favor to the contractor and possible existence of unhealthy practices.

The Ministry should direct the RO, for immediate recovery of the amount and deposit into the Audit Recoveries Account.

#### **Auditee's Response:**

*RO, DOR, Thimphu would like to submit here every action were taken based on the directive and approved by the DOR, HQ and Ministry vide note sheet No. RO-T/DOR/2016-2017/W-1/1836 on Dt. May 24, 2017.*

*We would like to substantiate with following line as noted below to realization of cost differences from M/s Raven Builder Company Pvt. Ltd. as per decisions of the meeting held on 10<sup>th</sup> May 2017 - Nu. 9,552,612.27 assured by field project Engineer, ROT and DOR, HQ.*

*It is to submit here cost difference of Nu. 9,552,612.27 could not be realized by the Regional Office, Thimphu as on the date. Thus, payment of the cost difference from the Government fund and non-deductions from the RA Bills of the contractor despite existence of clear decisions as assured by Project Engineers, Ofstg, Chief Engineer RO and Ofstg, Director for recovery, shall recover and remit in part by part to RAA because of huge difference of amount to be appreciated.*

*The RO, Thimphu shall make every effort to discuss with contractor and put up the issues to DOR, HQ and further to Ministry for immediate recovery of said amount as assured by Project Engineers, Ofstg, Chief Engineer RO and Ofstg, Director DOR for recovering the amount from others works under DOR from the firm and deposit in the Audit Recoveries Accounts*

*We would like to submit the Royal Audit Authority to kindly review above detailed explanations and would like to request to reconsider the above Para.*

**RAA’s Further Comments & Recommendations:**

*The agreed cost difference should have been recovered from M/s Raven Builders & Company (P) Ltd., immediately on awarding the portion of the pavement works or at the time of settlement of RA bills of M/s SL Construction Pvt. Ltd*

*As agreed during the exit meeting, the RO and the DOR should immediately realize the cost difference of Nu.9,552,612.27 and deposit into ARA along with penal interest @ 24% per annum from the date of the settlement of RA bills of M/s SL Construction Pvt. Ltd. till the date of realization in line with Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016.*

*In addition, the Ministry should investigate the circumstances leading to non-realization of the differential amount even after the lapse of almost 18 months besides taking appropriate action on the officials responsible for complacency and laxity.*

*The Ministry should also institute appropriate measures and procedures over the enforcement of contractual provisions to prevent such lapses in future and the same intimated to RAA for record and follow-up during future audits.*

**Who is Accountable?**

<b>Direct Accountability</b>	<p><i>: 1. Lungten Jamtsho, Ofstg. Director (EID No. 2101064 )</i>  <i>2. Ugyen Dorji, EE, HQ(EID No. 9107094)</i>  <i>3 Pelden Wangchuk Principle Engineer, (EID No. 9207035)</i>  <i>4. Phuntsho Wangdi, Former Secretary, EID No. 8403049</i>  <i>5. Dasho Dorji Choden, Former Minister, MoWHS, (CID No.11504002130)</i>  <i>6. M/s Raven Builders &amp; Company (P) Ltd, (CDB No.</i></p>
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	2356)
<b>Supervisory Accountability</b>	: 1. Lungten Jamtsho, Offtg. Director (EID No. 2101064 ) 2. Ugyen Dorji, EE, HQ (EID No. 9107094) 3. Pelden Wangchuk Principle Engineer, (EID No. 9207035) 4. Phuntsho Wangdi, Former Secretary, EID No. 8403049 5. Dasho Dorji Choden, Former Minister, MoWHS, (CID No.11504002130)

### 3.2 Overpayment for AC works to M/s Raven Builders & Company (P) Ltd. due to overlapping of measurements - Nu. 2,084,993.79 (5.1.18)

Based on the approval accorded by the Zhabtog Lyenpo under Note Sheet No. *RO-T/DR/2016-2017/W-1/1836 dated 24<sup>th</sup> May, 2017* the Officiating Director had awarded the remaining portion of “Dense Bitumen Macadam (DBM) 75mm and Asphalt Concrete 50mm (AC) works of Semtokha-Dochula National Highway of M/s Raven Builders & Company (P) Ltd. to M/s SL Construction Pvt. Ltd. under work order No. DoR/CD/26/2016-17/4603 dated 26<sup>th</sup> May 2017 for a contract duration of 24 days commencing from 28<sup>th</sup> May 2017 to 20<sup>th</sup> June 2017.

The details of quantity to be executed and cost agreed between DoR and M/s SL Construction Pvt. Ltd were as indicated below:

Particular of item	(A) Qty. executed by SL Const.	(B) SL's rate (Nu)	E (A*D) Amount (Nu)
DBM	5,250.00	460.92	2,419,830.00
AC	44,000.00	305.42	13,438,480.00
	<b>Total</b>		<b>15,858,310.00</b>

As against the agreed contract amount of Nu.15,858,310.00, RA bills, aggregating to Nu. 16,357,404.49 were paid to M/s SL Construction Pvt. Ltd as shown below:

Particular of item	(A) Qty. executed by SL Const.	(B) SL's rate (Nu)	E (A*D) Amount (Nu)
DBM	5,374.26	460.92	2,477,103.92
AC	45,446.60	305.42	13,880,300.57
	<b>Total</b>		<b>16,357,404.49</b>

On reconciliation of quantities for DBM & AC works executed by both M/s Raven Builders & Company (P) Ltd. and M/s SL Construction Pvt. Ltd. it was observed that the quantum of AC works paid for was 74,858.04 Sqm as against actual execution of DBM quantities of just 52,635.66 Sqm. The execution and payment of AC quantities of 22,222.38 Sqm over the DBM quantities (**representing 42% above DBM quantities**) indicated flaws in the measurements of work done and overpayments for AC work.

On verification of MB and physical verification of works executed at site and taking in to consideration the quantities of AC works awarded to M/s SL Construction Pvt. Ltd., it was noted that overpayment of Nu. 2,564,141.83 was made to M/s Raven Builders & Company (P) Ltd. and Nu. 441,832.79 to M/s SL Construction Pvt. Ltd. as detailed below:

Sl. No	Description of item	Qty. Executed by M/s Raven Builders (Sqm)	Qty. Executed by M/s SL Construction Pvt. Ltd (Sqm)	Ref. of RA Bill	Total Qty. Executed for 6.9 Km road stretch (Sqm)	Remarks
1	DBM	47,261.40	5,374.26	3 <sup>rd</sup> & Final	52,635.66	Mismatch of surface area of BDM and AC indicating overlapping of measurements of AC works and overpayments thereon.
2	AC	29,411.40	15,938.25	1 <sup>st</sup> RA Bill		
			22,945.17	2 <sup>nd</sup> RA Bill		
			6,563.22	3 <sup>rd</sup> & Final RA Bill		
Total AC		<b>29,411.40</b>	<b>45,446.64</b>		<b>74,858.04</b>	
Excess quantity executed					22,222.38	
Overpayment to M/s SL construction		Qty. awarded	44,000.00		1,446.64	<u>1446.64 @ 305.42=Nu. 441,832.79</u>
Overpayment to M/s Raven construction Pvt. Ltd.		Difference			20,775.74	20,775.74 @ Nu.123.42= <b>Nu. 2,564,141.83</b>

The Regional Office, DoR, Thimphu should recover the overpayments from the contractors and deposit into Audit Recoveries Account (ARA). Besides, the Ministry should review the circumstances leading to overpayments of substantial amounts and appropriate action taken on the officials responsible for such lapses.

#### Auditee's Response:

*Initial 8.70km stretch of contract on NEWH was awarded to M/s Raven Builders for 15 months as completion period by the Ministry/Department. However, the contractor could not complete the project on time despite of having given time extension twice & other efforts from the RO, such as deposition of cheques directly to the aggregate supplier for procurement of aggregate & BOD to purchase HSD to run the asphalt mix plant at Huntsho. With slow progress of the work, project management served several remainder letters to contractor asking them to expedite the work from earlier part of the project till the later stage.*

*Following the above, there has been directive from the Government stating that the inauguration of NEWH from Simtokha to Wangdue to be within the month of March 2017 & the contractor was ensured to complete the remaining part of BT works. It has been also observed that the contractor was not in a position to progress the work as expected and with no other alternatives; the work came to a halt even after postponement of inauguration date to 14<sup>th</sup> April 2017.*



Further, at this point of the situation, we were in a critical stage with one side the work progress came to stand still & on other side the time for inauguration was drawing near which has been scheduled on 28<sup>th</sup> June 2017 after second time of postponement. With final intervention & initiative from MOWHS/DOR Headquarter, and with no other options the remaining part of BT work was awarded to M/s SL Construction Pvt. Ltd for a contract period of 24 days as completion date on 20<sup>th</sup> June 2017 and subsequently, the BT works have been completed by M/s SL construction.

In view of the above justification, the overlapping of measurement has occurred on the road stretch in between Yusipang & Huntsho, as M/s SL Construction Pvt. Ltd had carried out the AC work in the area left out by M/s Raven Builders which were in bits and pieces and not in a continuous form. Secondly, due to nearing of inauguration date and the site engineers were fully engaged for overall supervision of DBM & AC works that was executed by M/s SL Construction Pvt. Ltd and there have been some lapses in reconciliation of measurement of RA bills being paid to M/s Builders earlier and the over lapping of measurement has occurred. However, the over lapping payment would have been solved by project management in the final bill of M/s Raven Builders but by then RAA has already verified in the measurements. The RAAs observation on over payment of AC work to M/s Raven Builders, the project management has already calculated on the overlapping measurement as tabulated below:

Sl. No.	Total quantity of AC executed by both M/S Raven Builders & M/s SL Construction Pvt. Ltd including over lapping measurement.	Quantity of AC executed by M/s SL Construction Pvt. Ltd only	Quantity of AC paid to M/S Raven Builders as RA bills	Actual Quantity executed by M/s Raven Builders
1	(52,642.15+5,374.26)=58,016.41 sqm	45,446.64 sqm	29,411.40 sqm	(58,016.41-45,446.64) =12,569.77 sqm

As tabulated above, M/s Raven Builders & Company (P) Ltd. had carried out AC work of 12,569.77 sqm only instead of 29,411.40 sqm as claimed by the contractor. Therefore, excess payment made to M/s Raven Builders & Company (P) Ltd.is (29,411.40sqm - 12,569.77sqm) = 16,841.63 sqm @ 123.80/sqm Nu. 2,084,993.79 will be adjusted from the final bill.

In view of the above justification, RO would like to request RAA to reconsider the above para and would like to request that the same to drop.

#### RAA's Further Comments & Recommendations:

The response stating that the overpayment will be adjusted from the final bill is noted. However, till date the contractor is benefitted with excess payment of Nu. 2,084,993.79 free of interest. It also indicated undue favor extended to the contractor which could have been avoided had the engineer exercised proper monitoring of work and due care while verifying and certifying the contractor's claims.

As agreed during the exit meeting, the RO should adjust the amounts overpaid from the subsequent bills of contractor within three months from the date of issue of the report beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016.

Further, the Project management should institute appropriate control mechanism including supervision and monitoring controls to prevent wrong certification of works and RA Bills for all future works.

The measures and procedures proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the recoveries made and accounted for in the books of accounts should be furnished to RAA for review and record.

The DOR should review the circumstances leading to excessive measurements of work executed and resultant excess payments and rule out existence of any unhealthy practices.

#### **Who is Accountable?**

<b>Direct Accountability</b>	: Jigme Jamtsho, AE, (EID No. 20120100022) M/s Raven Builders & Company (P) Ltd. (CDB No. 2356)
<b>Supervisory Accountability</b>	: Pelden Wangchuk Principle Engineer, (EID No. 9207035)

### **3.3 Overpayment in construction of L-drain to M/s Raven Builders & Company (P) Ltd. of Nu. 374,185.00 (5.1.8)**

The contractor had claimed and was paid Nu. 2,100,000.00 for construction of 3,000m of L-drain. However, the joint physical verification of the construction sites conducted on 09/05/2018 revealed that only 2,717m L-drain was constructed. Further, out of 2,717m executed, 559m L-drain was found without plumb concrete as evident from the photographs below:



**Fig: 3.3- L-Drain executed without plumb concreted**

Since the payment for L-drain was in running meter, the audit calculated the cost of plumb concrete by percentage cost break down as detailed below:

Table 3.3: cost of plumb concrete		
Item work	Volume	Rate (Nu.)
Plum concrete	0.135	700
PCC pad	0.165	700
Total volume	0.3	
Percentage Cost breakdown		
Plum concrete	45.00%	315
PCC pad	55.00%	385

The audit based on the percentage cost breakdown, calculated the actual cost of work done and noted overpayment of Nu. 374,185.00 as detailed below:

Table 3.3.1: Computation details for overpayments								
Description	As per MB			As per RAA			Difference (Nu.)	Remarks
	L (m)	Rate (Nu.)	Amount (Nu.)	L (m)	Rate (Nu.)	Amount (Nu.)		
Construct L-shaped road side drain clear width 800mm with 150mm thick PCC 1:3:6, 300mm thick plum concrete (60% PCC 1:3:6 and 40% 75mm down boulder) hillside complete as per drawing	3000	700	2,100,000.00	2158	700	1,510,600.00		PCC pad with plumb concrete
				559	385	215,215.00		Plumb concrete not constructed
<b>Total</b>			<b>2,100,000.00</b>			<b>1,725,815.00</b>	<b>374,185.00</b>	

The RO besides justifying the payment for works not completed should recover Nu. 374,185.00 and deposit into ARA. Besides, the Ministry may thoroughly review the circumstances leading to overpayment of substantial amount and appropriate action taken on the officials responsible for such lapses.

#### ***Auditee's Response:***

*As pointed out by RAA, it was a lapse from the project management's side for not having crosscheck the 6<sup>th</sup> RA bill expecting that actual measurement will be done in the final bill. However the over payment of Nu. 374,185.00 have been deducted & recovered from the final bill of M/s Raven Builders.*

Based on the said lapses, the project management would like to assure RAA that such mistake will not be repeated in future. With the above justification, we would like to request RAA reconsider the above para as dropped.

**RAA’s Further Comments & Recommendations:**

While taking note of the response ensuring adjustments from the final bill, the fact remains that due to laxity on the part of the Site Engineer to properly scrutinize the RA bills with reference to the actual work done at site had resulted in overpayments to the contractor. Any ineligible or overpayments tantamount to extension of undue financial benefit to the contractor. Further, non-recovery of amounts of Nu.374,185.00 immediately on pointing out the overpayment by the audit team and even till date of exit meeting held on 12.12.2018 indicated laxity on the part of the RO. The overpayments also indicated existence of weak internal controls over the measurement, certifying and regulating the claims as per the works executed at site.

However, as agreed during the exit meeting, the RO should recover the overpayments from the contractor and deposit into ARAwithin three months from the date of issue of the report, beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the FRR 2016. Besides, the Ministry should take appropriate action on the officials responsible for such overpayments.

Further, the DOR and the Ministry should institute appropriate control mechanism including supervision and monitoring controls to prevent wrong measurements of work done at site and certification of works and RA Bills in future.

**Who is Accountable?**

<b>Direct Accountability</b>	: Jigme Jamtsho AE, (EID No. 20120100022) Raven Builder Company Pvt. Ltd. (CDB No. 2356)
<b>Supervisory Accountability</b>	: D.P. Subba, EE, (EID No. 9207039)

**3.4 Non-return of excessive issue of bitumen VG-10 on completion of Bituminous works with resultant misuse of Bitumen by the contractor M/s Raven Builder Company Pvt. Ltd. of Nu. 14,965,719.78 (5.9.13)**

As per MAS account maintained by Regional Store, Thimphu, a total of **1,265.2487** metric ton Bitumen VG-10 had been issued to M/s Raven Builder Company Pvt. Ltd. in line with contract agreement drawn for execution of 8.7 Km pavement works. The quantity was found duly acknowledged by the contractor in the MAS Account.

However, due to abnormal delays in the execution of works by the contractor, the RO with the approval from the Ministry had awarded the remaining portion of bituminous works (DBM and AC) to M/s SL Construction Pvt. Ltd. to ensure completion of pavement work on the deadline of **28<sup>th</sup> June 2017** set for inaugural ceremony of NEWH from Simtokha to Wangdue. The quantum of works executed by both the Contractors were as shown in table 3.4 below:

<b>Table 3.4: Quantum of works executed</b>			
<b>Particular of item</b>	<b>A) Qty. executed by M/s Raven Builder Company Pvt. Ltd. in Sqm</b>	<b>(A) Qty. executed by SL Const. Pvt. Ltd. in Sqm</b>	<b>Total Qty. Executed in Sqm</b>
DBM	52,495.40	5,374.26	57,869.66
AC	12,569.77	45,446.60	58,016.37

On review of Stock ledger maintained by the RO, it was noted that bitumen stock of 342.1467MT was found directly issued to M/s S.L Construction Pvt Ltd. for carrying out the portion of the pavement works awarded although included in the overall bitumen stock of 1265.2487MT shown issued and recorded in the MAS Account maintained for M/s Raven Builder Company Pvt. Ltd.

Computation of theoretical consumption of bitumen based on the quantum of bituminous works executed by M/s Raven Builder Company Pvt. Ltd. Indicated excess issue of bitumen of **369.403MT** as against reported quantity of 295.7704 metric ton by the Regional Office, Thimphu. The theoretical consumption of bitumen in terms of quantum of works done and balance bitumen valuing **Nu. 14,965,719.78** remaining with the contractor is as computed in table 3.4.1 below:

<b>Table 3.4.1: Theoretical consumption of bitumen</b>				
<b>Sl. No.</b>	<b>Particular of work</b>	<b>Unit</b>	<b>BoQ Qty.</b>	<b>Qty. of work done</b>
1	DBM	Sqm	62,205	52,495.40
2	Asphalt	Sqm	62,205	12,569.77
3	Bulk Density as per as per design for DBM as per Job Mix Formula	2340 Kg/cu.m		
4	Bulk Density as per design for AC as per Job Mix Formula	2231 Kg/cu.m		
5	% of bitumen content weight by total mix as per Job Mix formula for DBM	4.80%		
6	% of bitumen content weight by total mix as per Job Mix formula for AC	6.07%		
<b>Theoretical Consumption</b>				
<b>(A) DBM</b>				
1	Volume (Area*thickness)	3,937.155		
2	Bulk Density as per as per design	2340 Kg/cu.m		
3	Total weight of bulk materials (V*Density)	9,212,942.70 kgs		
4	Bitumen require as per design of total mix (4.8%)	442,221.25 kgs		
<b>Qty. consumed in MT</b>		<b>442.221 MT</b>		
<b>(B) AC</b>				
1	Volume (Area*thickness)	628.49		
2	Bulk Density as per as per design	2231 Kg/cu.m		
3	Total weight of bulk materials (V*Density)	1,402,161.19 kgs		
4	Bitumen require as per design of total mix (6.07%)	85,111.18 kgs		

	<b>Qty consumed</b>	<b>85.111 MT</b>		
	<b>Total Qty work out (A+B)</b>	<b>527.332 MT</b>		
	<b>Considering 5% wastages</b>	<b>26.367 MT</b>		
	<b>Total bitumen consumption</b>	<b>553.699 MT</b>		
	<b>Issued as recorded in Register MAS</b>	<b>923.102 MT</b>		
	<b>Diff in quantities</b>	<b>369.403MT</b>		
	<b>Average Rate per MT as per MAS A/c</b>	<b>40,513.26</b>		
	<b>Misused Value of Bitumen</b>	<b>14,965,719.78</b>		

*Note: Actual issue of bitumen 1265.2487MT less Issue as per MAS A/c.342.1467MT initially as stated.*

In addition, it was noted that while the Regional Office had taken series of follow up actions through Sub Division II and DLT Committee, the unutilized bitumen remained to be recovered from the contractor M/s Raven Builder Company Pvt. Ltd. as on the dates of audit.

The Ministry must investigate the circumstances leading to excessive issue of bitumen as well as non-taking over of the unutilized bitumen or recovery of cost of the misused bitumen immediately after reporting on the excessive issue or misuse of bitumen of 295.7704 Mt.

The DOR and RO should immediately recover the cost of bitumen of **Nu. 14,965,719.78** as computed by RAA and deposited into Audit Recoveries Account. The Ministry must also take appropriate action on the responsible Officials and the contractor for misuse of government properties.

#### **Auditee's Response:**

*The observations issued by Royal Audit Authority have been acknowledged, we have a great concern and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*As observed by the RAA we accept that only seven samples of core cutting were taken out from the whole stretch of 6.915km of work done. From the seven samples collected we got an average thickness of 142mm against the (DBM+AC) thickness of 125mm as specified in the contract document. We do accept RAA's comments on this issue of average thickness (142 mm) as it does not meet the sufficiency of test in terms of total road stretch & for not having proper record of test whether it was done from left, right or center to qualify as base for calculation of bitumen consumption.*

*However, we would like to request RAA to consider the average bitumen content for calculation of bitumen consumption both for DBM & AC which is as per the test result of 5.86% & 7.79% respectively from the test conducted by BSB officials in presence of DOR site engineers (Test results & photographs attached as Annex III for reference)*

***Theoretical bitumen consumption is being worked out based on the test result as detailed below:***

**Table (A) from BSB, Thimphu.**

<i>Sl No.</i>	<i>Particular of work</i>	<i>Unit</i>	<i>As per RAA</i>	<i>As per work done (Apex)</i>	<i>As per work done &amp; based on the test result of BSB after completion of work</i>
1	DBM	Sqm			57,869.66
2	AC	Sqm			58,016.41
3	Bulk density as per design for DBM as per job mix formula	Kg/Cu m			2317.00kg/cum
4	Bulk density as per design for AC as per job mix formula	Kg/cu m			2317.00kg/cum
5	% of bitumen content weight by total mix as per job mix formula for DBM				5.86%(BSB)
6	% of bitumen content weight by total mix as per job mix formula for AC				7.69%(BSB)
<b>Theoretical consumption</b>					
	(A)DBM				
1	Volume(Area*thickness)				0.075cum
2	Bulk density as per design				2317kg/cum
3	Total wt. of bulk material(V*density)				173.775kg
4	Bitumen require as per design of total mix				10.18kg/sqm
<b>Quantity consumed (MT)</b>					<b>589.1131MT</b>
	(B)AC				
1	Volume(Area*thickness)				0.05cum
2	Bulk density as per design				2317kg/cum
3	Total wt. of bulk material(V*density)				115.85kg
4	Bitumen require as per design of total mix				8.91kg/sqm
<b>Qty. Consumed (MT)</b>					<b>516.9262MT</b>
<b>Quantity (A+B)</b>					<b>1,106.0393MT</b>
<b>Considering 5% wastage</b>					<b>55.3019MT</b>
<b>A</b>	<b>Total qty after considering 5% wastage</b>				<b>1,161.3412MT</b>

$$(1,265.2487Mt - 1,161.3412Mt) = (103.9057Mt @ Nu. 35,951.17/Mt) = Nu.3, 375,596.20$$

<i>Sl No</i>	<i>Particular of work</i>	<i>As per RAA</i>	<i>As per RO</i>	<i>BOQ Qty</i>	<i>Quantity of work noted done by RAA</i>	<i>Qty as per the 12<sup>th</sup> and final measurement</i>

1	DBM			62,205.00 sqm	47,261.40 sqm	52,495.40 sqm
2	AC			62,205.00 sqm	7,189.06 sqm	12,569.77sqm
3	Bulk density as per design for DBM as per job mix formula	2340 kg/cum	2340 kg/cum			
4	Bulk density as per design for AC as per job mix formula	2231 kg/cum	2231 kg/cum			
5	% of bitumen content wt. by total mix as per job mix formula for DBM	4.80%	4.80%			
6	% of bitumen content wt. by total mix as per job mix formula for AC	6.07%	6.07%			
<i>Theoretical consumption</i>						
	(A) DBM					
1	Volume(Area*thickness)	3,544.61	0.075 cum			
2	Bulk density as per design	2340 kg/cum	2340 kg/cum			
3	Total wt of bulk materials(V*Density)	8,294,375.70 kg	175.50kg			
4	Bitumen require as per design of total mix (4.80%)	398,130.03kg	8.424kg/sqm			
Qty consumed in MT		398.130 MT	442.2212			
	(B) AC					
1	Volume(Area*thickness)	359.45	0.05 cum			
2	Bulk density as per design	2231 kg/cum	2231 kg/cum			
3	Total wt of bulk materials(V*Density)	801,932.95kg	111.55kg			
4	Bitumen require as per design of total mix (6.07%)	48,677.33kg	6.771kg/sqm			
Qty. Consumed in MT		48.68 MT	85.1099 Mt			
Total qty(A+B)		446.81 MT	527.3311 Mt			
Considering 5% wastage		---	26.3665 MT			
Total qty after considering 5% wastage		---	553.6975 Mt			
Issued as per recorded in MAS A/C register		1265.2487Mt	894.7870 Mt			
Diff in quantities		818.4387 Mt	341.0895mt			
Rate as per MT as per MAS a/c		41,739.93	35,951.17/mt			
<b>B</b>	Misused value of	34,161,574.00	<b>12,262,566.60</b>			



bitumen					
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**Table (B) from Apex, Thimphu**

**Note: - From the above tables (A + B) average consumption has been calculated.**

$$= (1,161.3415 + 924.1592)/2$$

$$= 1,042.7504\text{Mt.}$$

**Explanation/Justification: -**

(A) Total Quantity of VG-10 received by to Raven and SL Const = 1265.2487Mt.

(B) From above Qty, (A) issued to SL Const, = (342.1467 + 28.3150)  
= 370.4617 Mt.

(C) Quantity remained with Raven = (A - B) = 894.7870 Mt.

(D) Balance Quantity after issued at site = (C – Actual issued at site)  
= (894.7870 – 672.2887) Mt.  
= (222.4983 Mt. @ Nu. 35,951.17/Mt)

**(E) Total recovery amount from Raven Builder NEWH Nu. 7,999,074.21**

**(F) Total Quantity and amount transfer SNH Haa to Samtse Nu. 7,999,074.21**

**(G) Balance Quantity of bitumen VG-10 with contractor on PNH Nu. 0.00**

We appreciate the Royal Audit Authority for the support rendered to us in resolving the issue on misuse of bitumen by M/s Raven Builders from the Huntsho stock yard. At the time of auditing also we have also submitted to RAA concerning misused of bitumen by the contractor narrating the whole episode as how it had happened and the kind of action taken by the project management, such as, issuance of noticed to the contractor & also meeting with the Proprietor in person. (All references are attached for ready reference, Ref. No.DOR/SD-II/2016-2017/F-05/264 dated 15.5.2017, Ref. No.DOR/SD-II/2016-2017/F-05/281 dated 7.6.17,RO-T/DOR/2016-2017/W-19/1953 dated June 12, 2017, DOR/SD-II/2017-2018/F-05/60 dated 23.10.17, Minutes of meeting convened on 17.11.2017& DOR/SD-II/2017-2018/F-05/94 dated 15.12.2017).

Despite having taken above actions contractor failed to return the misused bitumen to respective site with substantial excuses stating that they have their own internal problem to be resolved first and after that only they would be in a position to solve the books of accounts with site engineer which did not materialized. However, the site Engineer has all documents with regard to the receipt of the bitumen by the contractor which is seal & sign from April 23<sup>rd</sup> 2017 to April 28<sup>th</sup> 2017 (Attached acknowledged challen of 2028 drums of bitumen from Phuntsholing Central Store). **ANNEXURE V TO BE ATTACHED.**

The details of calculations submitted by our Project Engineers was worked out based on the average consumption of (BSB + Apex test house)/2 = (1,161.3415+924.1592)/2 =1,042.7504Mt was the total consumption of bitumen VG-10 by Raven builder and SL Construction (1265.2487-1042.7504) Mt = 222.4983 Mt. @ Nu. 35,951.17/Mt amounting to Nu. 7,999,074.21 which was

*the misused quantity of bitumen by M/S: - Raven builder not as observed by Royal Audit Authority which is 818.4387MT @41,739.93/Mt amounting to Nu.34, 161,574.00*

*In view of the above explanation/Justification the Regional office would like to request the Royal Audit Authority to revisit and consider the above calculated quantity of bitumen and amount submitted by our Project Management amounting to=222.4983 Mt. @ Nu. 35,951.17/Mt amounting to Nu. 7,999,074.21.*

*The Regional office would like to further submit to Royal Audit Authority as verified by our field Engineers stationed at Haa SD, they have found and physically verified the balance quantity of bitumen inside bitumen boiler at Khamena that was brought from NEWH, approximate quantity of (100barrels @ 0.162Mt/Barrel) = 16.200Mt @ Nu. 35,951.17/Mt = Nu. 582,408.95 (B).*

*As submitted on above statement after deduction of bitumen quantity received and verified at Haa, net to be recovering from M/S: - Raven builder (7,999,074.21 – 582,408.95) Nu. 7,416,665.26.*

*We like to submit our request to Royal Audit Authority. M/S: - Raven builder is also executing the ongoing SNH Construction and black topping works from Khamena- Rangtse and GCR from Sangbaykhag Dungkhag – Gakidling Gewog Centre, approximately amounting Nu. 70.000million.*

*The above actual misused of bitumen quantity by the firm has calculated amounting to Nu. 7,416,665.26 We sincerely assured to issue less in quantity as reflected above from Haa SD. Accordingly clear details books of account shall be submitted to RAA as an action taken report from by Regional office.*

*We would to submit and further request to consider based on our above calculations whatever the quantity and amount that has been Dr. to NEWH, we assured to Cr. to NEWH from ongoing SNH Haa to Samtse roads undertaken by M/S: - Raven Builders by issuing less quantity of bitumen by SD No. IV Haa. The contractor has been already instructed very strongly to purchase equivalent quantity of bitumen VG-10 by his firm.*

*The Project Management would like to submit with due diligent and further request the Royal Audit Authority to kindly review and revisit above details explanations and would like to submit our request to consider as proposed as noted on the above statement.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response on the misused bitumen by M/s Raven Builders &Company (P) Ltd. as Nu. 7,416,665.26, the RAA would like to reiterate that based on the following facts and events, the value of misused bitumen stands at **Nu. 14,965,719.78.***

*The MAS Account maintained separately for M/s SL Construction Pvt. Ltd. for the issuance of materials for the execution of bituminous works and produced to the RAA clearly showed issuance of bitumen of just 2185 drums equivalent to 349.91MT as given in the table below:*

**Table 3.4.2:Details of bitumen issued**

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Stock Receipts date as per MAS A/c	No. of drum	Kg per drums	Total in kg	Total in MT	Total drum issued to other works	Issue in term of MT	Net bitumen in terms of MT
3.6.2017	228	161.80	243,023.6	243.0236	48 drums to M/s Yangkhil construction Pvt Ltd	7.7664	235.2572
6.6.2017 to 8.6.2017	728						
12.6.2017	147						
12.6.2017	399						
10.7.2017 to 11.7.2017	683	156.50	106,889.5	106.8895	215 drums receipt for CDCL Plant at Mimelakha site	25.1965	81.693
<b>Total</b>	<b>2185</b>			<b>349.9131</b>		<b>32.9629</b>	<b>316.9502</b>

Thus, the DOR and Ministry should revisit the workings of the RO for appropriate decisions and action as RAA's computation of the issue of stock to M/s SL Construction Pvt. Ltd. from M/s Raven Builders & Company (P) Ltd. including issues to M/s Yangkhil Construction Pvt. Ltd. and CDCL plant site amounts to just 349.91MT as against 370.4617 Mt worked out by the RO and Site Engineer.

- In terms of MAS Account of M/s SL Construction Pvt. Ltd., 215 drums received from RO, Store under challans 3446 & 3448 dated 12.6.2017, and 3556 & 3557 dated 11.7.2017 were recorded as received for the CDCL Plants at Mimelakha site not for M/s SL Construction Pvt. Ltd plant site at Gidakom. Thus, only 1970 drums were actually received for SL plant site at Gidakom. The actual bitumen drums used for bituminous works by M/s SL Construction Pvt. Ltd was just 1922 drums as 48 drums were shown as reissued to M/s Yangkhil construction Pvt Ltd. Thus, M/s SL Construction Pvt. Ltd had used for the work only 308.499MT in total. The DOR and the Ministry should thoroughly review the flaws and irregularities in the stock recording, issues and utilization of the bitumen.
- In terms of MAS Account maintained for M/s Raven Builders & Company (P) Ltd., four different costs for the bitumen were recorded as detailed under:

MAS A/c page	Date	Cost per MT (Nu.)	Average Cost per MT (Nu.)
056	10.3.2017	41,739.93	
064	23.11.2015	50,479.23	
100	21.7.2017	35,034.86	
100	28.7.2017	34,799.02	<b>40,513.26</b>

Thus, the cost of bitumen used by RO as Nu. 35,951.17/mt for recovery of the misused bitumen was not correct. In terms of Standard norms, it is rational to recover the cost of goods either at issue cost or market cost whichever is higher to safeguard the financial interest of the Government.

- *The RO had worked out the theoretical consumption of bitumen as 1,042.7504Mt for both the contracts by taking average bitumen content from BSB test report and Job Mix Formula (JMF). It is to reiterate that the end result of a successful mix design is a recommended mixture of aggregate and asphalt binder. This recommended mixture, which also includes Selection of aggregates and aggregate gradation and proportioning of aggregates to meet the required gradation, density –void analysis, measurement of stability and flow and determination of optimum bitumen content for maintaining quality work.*

*Thus execution of bituminous work not in line with the approved JMF tantamount to execution of substandard work and deviations from the technical specification. The test report showing use of different percentage of bitumen content is a clear indication of failure on the part of the contractor to strictly adhere to the JMF as well as absence of supervision and monitoring controls over the execution of works.*

*The DOR and Ministry should thoroughly investigate the bituminous works in terms of all requisite tests required to fulfil the technical specification and technical soundness of the structures and certificate to that effect furnished to RAA for record and follow-up in future audits. However, the theoretical consumption of bitumen should be regulated as per the JMF and any excessive use of bitumen by the contractor should be at his own cost.*

- *Adjustment of bitumen used in other work is not tenable in the light of bitumen being issued free of cost to all contract works. Moreover, allowing adjustment by the RO on the misused bitumen would tantamount to extension of undue financial benefits to the contractor.*

*The Ministry while taking appropriate steps to investigate and review the irregularities and lapses pointed out in audit should direct the RO to immediately make good the misused bitumen amounting to Nu. 14,965,719.78 as computed by RAA to safeguard the interest of the Government till such time the Ministry completes through investigation. Besides, the recovered amount needs to be deposited into ARA.*

*In addition, the Ministry should review the circumstances leading to misuse of government property and appropriate administrative action taken against the official (s) concerned and the contractor under intimation to the RAA.*

*Further, the outcome of investigation and review on the matter as well as decisions and action taken including control measures put in place to prevent misuse of government properties by the contractors in future intimated to RAA.*

### **Who is Accountable?**

<b>Direct Accountability</b>	: Jigme Jamtsho, AE, (EID No. 20120100022) Raven Builder Company Pvt. Ltd. (CDB No. 2356)
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<b>Supervisory Accountability</b>	: Pelden Wangchuk Principle Engineer, (EID No. 9207035)
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**4. Irregularities noted in the Double lanning of NEWH from Hongtsho to Semtokha (Package 2) executed by M/s Yangkhil Construction Pvt. Ltd.**

The road pavement works Double Lanning of NEWH from Hongtsho-Simtokha (Ch: 538-544.5) covering a distance of 6.5 Kilometers and Semtokha-Olokha 2km, Package II was awarded to M/s Yangkhil Construction Pvt. Ltd., holding trade license No. 1006797, CDB No. 2182 being the lowest evaluated bidder vide work order No. RO-T/DoR/2014-15/W-7/1838 dated 10/06/2015 with following contract details:

✂ Estimated Amount	:Nu.108,362,690.31
✂ Contract Amount	:Nu.84,347,137.15 (22.16% below the estimated Amount)
✂ Contract Duration	:15 months
✂ Start Date	:21 June 2015
✂ End date	:21 September 2016
✂ Actual Completion date	:2 April 2017
✂ Actual cost of construction	:Nu.82,401,956.70
✂ Name of Site Engineer	:Tshering Lhaden, AE II

Review of records of contract and verification of site revealed the following lapses:

**4.1 Non-return of excessive issue of bitumen VG-10 on completion of Bituminous works with resultant misuse of Bitumen by the contractor M/s Yangkhil Construction Pvt. Ltd. of Nu.738,400.23 (5.9.13)**

MAS account maintained by the Regional Store, Thimphu reflected issue of 1,284.2066 MT Bitumen VG-10 to M/s Yangkhil Construction Pvt. Ltd. in line with contract agreement drawn for execution of 8.5 Km pavement works. The quantity was found dully acknowledged by the contractor in the MAS Account.

Computation of theoretical consumption of bitumen based on the quantum of bituminous works executed by M/s Yangkhil Construction Pvt. Ltd. revealed excess issue of bitumen of 17.6905 MT. The theoretical consumption of bitumen in terms of quantum of works executed and balance bitumen retained by the contractor computed by the RAA and the RO is shown in table 4.3 below:

Sl. No.	Particular of work	As per RAA	As per RO, Thimphu
1	DBM	76,284.92 Sqm	76,284.92 sqm
2	Asphalt	76,599.62 Sqm	76,599.62 sqm
3	Bulk Density as per as per design for DBM as per Job Mix Formula	2313 Kg/cu.m	2313 Kg/cu.m
4	Bulk Density as per design for AC as per Job Mix Formula	2227 Kg/cu.m	2227 Kg/cu.m
5	% of bitumen content weight by total mix as per Job Mix formula for DBM	5.00%	5.00%

6	% of bitumen content weight by total mix as per Job Mix formula for AC	6.30%	6.30%
<b>Theoretical Consumption</b>			
	<b>(A) DBM</b>		
1	Volume (Area*thickness)	0.075cum	0.075cum
2	Bulk Density as per as per design	2313 Kg/cu.m	2313 Kg/cu.m
3	Total weight of bulk materials (V*Density)	173.48 kg	173.48 kg
4	Bitumen require as per design of total mix (5%)	8.674 kg/m2	8.674 kg/m2
	<b>(B) AC</b>		
1	Volume (Area*thickness)	0.05cum	0.05cum
2	Bulk Density as per as per design	2227 Kg/cu.m	2227 Kg/cu.m
3	Total weight of bulk materials (V*Density)	111.35 kg	111.35 kg
4	Bitumen require as per design of total mix (6.3%)	7.02 kg/m2	7.24 kg/m2
	Total Bitumen Consumption (A+B)	15.69 kg/m2	15.91 kg/m2
	Considering 5% wastage	0.7845 kg/m2	0.7955 kg/m2
	Total Bitumen Consumption	<b>16.4745 kg/m2</b>	<b>16.7055 kg/m2</b>
	<b>Qty consumed</b>	<b>1259.40 MT</b>	<b>1277.09 MT</b>
	<b>Issued as recorded in Register MAS</b>	1284.2066 MT	1284.2066 MT
	<b>Diff in quantities</b>	<b>24.8066 MT</b>	<b>7.1161 MT</b>
	<b>Difference calculated between RAA and RO</b>	<b>17.6905 MT</b>	

The bitumen consumption per kg was calculated as 16.7055 kg/m<sup>2</sup> by RO, Thimphu whereas the actual consumption works out to 16.4745 kg/m<sup>2</sup> due to the fact that the RO had mistakenly taken the Bitumen requirement as per design of total mix as 7.24 kg/m<sup>2</sup> instead 7.02 kg/m<sup>2</sup> as computed in audit (*Refer Sl.No.4 of the table for AC*).

Comparing the theoretical Bitumen consumption taking into consideration 5% wastages with the total Bitumen issued to the contractor, there was excess issue of bitumen to the extent of 24.8066 MT. However, in taking into account the recovery of 7.1161 MT of Bitumen by the RO, the balance recoverable cost of bitumen for 17.6905 MT amounts to Nu. 738,400.23 (17.6905@ Nu. 41,739.93).

The DOR and RO should immediately recover the bitumen cost of **Nu.738,400.23** as computed in audit and deposited into Audit Recoveries Account. The DOR and the Ministry must also take appropriate action on the responsible Officials and the contractor for wrong computation of theoretical consumption of bitumen which had led to short recovery of bitumen to the extent of 17.6905MT.

#### *Auditee's Response:*

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.

As submitted to RAA team by our project Engineers during the auditing period, we do recognize on the lapses made on the calculations of the Asphalt concrete (AC) part only. The consumption of bitumen VG-10 on AC should had been 7.02 kg/sq.m but it was overlooked and while typewriting it was unfortunately written as 7.24kg/sq.m instead of 7.02 kg/sq.m, thereby there was difference in the consumption of 0.22 kg/sq.m. As we clarified during the auditing, the difference in consumption is very negligible, only 0.22 kg/sq.m, however the quantity of AC was huge, the amount worked out to Nu. 738,400.23. Moreover, from the test report, the actual bitumen VG-10 consumption on AC is 8.24% which is more than the mix design of 6.30%. This is evident that the bitumen was used at the site only. Test report attached for your reference.

We Assure that the same will be fully cooperate with RAA and respect if any further directive of Royal Audit Authority with regard to above cited subject.

We would like to request the Royal Audit Authority for review of above details explanations and requested to reconsider for the above Para.

#### RAA's Further Comments & Recommendations:

It is apparent from the response that the RO had made arithmetic error while computing bitumen consumption which resulted in excess issue of bitumen valuing Nu. 738,400.23.

As agreed in the exit meeting, RO should recover bitumen valuing Nu. 738,400.23 within three months from the date of issue of the report beyond which 24% penalty per annum shall be levied as per FRR 2016, Chapter IV, Section 4.5.1.4 of Finance and Accounting Manual. Further, the DOR and the Ministry should institute appropriate control mechanism including supervision and monitoring controls to prevent such lapses in future. The measures and procedures proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the recoveries effected and accounted for in the books of accounts should also be furnished to RAA for review and records.

#### Who is Accountable?

<b>Direct Accountability</b>	: Tshering Lhaden, AE, (EID No. 9807059) M/s Yangkhel Construction Company Ltd, (CDB No. 2182)
<b>Supervisory Accountability</b>	: Drakpa Wangdi EE, (EID No. 9807059)

#### **4.2 Excess payment on L-Drain construction – Nu. 384,631.00 (5.1.18)**

The specification for item of works -L-Drain construction stipulates as under:

“Construction of L-shaped road side drain clear width 800mm with 150mm thick PCC 1:3:6, 300mm thick plum concrete (60% PCC 1:3:6 and 40% 75mm down boulder) hill side, including

*excavation, leveling, backfilling necessary form works and disposal of surplus earth within 50m lead complete as per drawing.”*

The L-Drain was found constructed along the whole stretch of Simtokha-Dochula PNH, Package II, (Ch.538.00km-544.50km & Simtokha-Olakha 2km) and additional 1.5 stretch of M/s. Raven Builders & Company (P) Ltd executed by M/s Yangkhil Construction Pvt. Ltd.

However, during the joint physical verification of site along with the officials from Regional Office, DoR, Thimphu on 07.05.2018, the team noted excess payments to the contractor as there were mismatch in the measurements to the extent of 295.87m between the actual physical measurements obtained at site and the measurements recorded in the MB and paid for as shown in tabled 4.4 below:

<b>Table 4.4: Details of measurements</b>					
<b>Item of works</b>	<b>Qty. as per MB records (m)</b>	<b>Qty. measured at site (m)</b>	<b>Difference in qty. (m)</b>	<b>Rate (Nu.)</b>	<b>Amount (Nu.)</b>
Construction of L-Drain	7,815.00	7,519.13	295.87	1,300.00	384,631.00
<b>Total</b>					<b>384,631.00</b>

The Regional Office, Thimphu should recover the excess payment and deposit into Audit Recoveries Accounts besides commenting on the incorrect measurements of work done at site by the Joint Measurement Committee that had led to excess payment of Nu. 384,631.00 to the contractor.

***Auditee’s Response:***

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*The measurement on the construction of L-drain had been overlooked and paid 295.87mtr more to the contractor. The mistakes had been made while recording the measurements in the measurement sheet and thereby paid more to the contractor.*

*In this, RO had already informed and share the audit observations to the concerned contractor vide letter no. RO-T/DoR/2018-2019/W-23/552 dated. 24/10/2018.*

*However, the RO would recover the amount of Nu. 384,631.00 from the concerned contractor and deposit to RAA. Moreover, RO would undertake that we would not repeat such lapses in the future.*

*We would like to request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.*



### **RAA's Further Comments & Recommendations:**

*The RAA has taken note of the response on the recovery of overpayment of Nu.384,631.00 which had occurred due to failure of Site Engineer to properly cross check and verify the claims with the actual work done at site.*

*However, as agreed during the exit meeting, the RO should recover the overpayments within three months from the date of issue of the report beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016.*

*The DoR and the Ministry should institute strict supervision and monitoring controls to prevent acceptance of inflated measurements and claims as well as wrong certification of works and RA Bills in future. The measures and procedures proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the recoveries effected and accounted for in the books of accounts should be furnished for review and record.*

### **Who is Accountable?**

<b><i>Direct Accountability</i></b>	<i>: Tshering Lhaden, AE, (EID No. 9807059) M/s Yangkhel Construction Company Ltd, (CDB No. 2182)</i>
<b><i>Supervisory Accountability</i></b>	<i>: Drakpa Wangdi, EE, (EID No. 9807059)</i>

## PART C: FINDINGS OF RECOMMENDARY NATURE

The audit findings under this section of the report contains those issues, which are recommendatory in nature and intended to bring improved compliances through appropriate interventions and as such no accountability has been fixed for the findings. However, in the event the DOR and the Ministry do not take measures and actions on the recommendations within three months' time from the issue of the report, as agreed during the exit meeting, the RAA would fix the accountability for appropriate action.

### 5 Re-awarding portion of M/s Raven Builders & Company (P) Ltd. bituminous works to M/s SL Construction Pvt. Ltd on failure to complete the work within the scheduled completion deadline and other irregularities and lapses

The contract for road pavement works from Simtokha-Dochula covering Chainages 530km to 538km & 527km to -527.7km with a total of 8.7 Kilometers (**Package I**) was awarded to M/s Raven Builders & Company (P) Ltd , Pelrithang, Gelephu holding trade license No.3007580, CDB No.2356 being the lowest evaluated bidder. Accordingly, work order No. DoR/RO-T/2014-2015/W-7/1796 dated 6<sup>th</sup> June, 2015 was issued with contract amount of Nu.81,088,430.15 and contract duration of 15months commencing from 15<sup>th</sup> June 2015 to 15<sup>th</sup> September 2016.

M/s Raven Builders & Company (P) Ltd. had failed to complete the contract works on the stipulated contract deadline of 15<sup>th</sup> September, 2016 and within the subsequently revised completion deadline of 19<sup>th</sup> November 2016 and again within further extended deadline of 6<sup>th</sup> February 2017. The contractor had failed despite repetitive instruction to expedite the work progress and concern expressed over shortage of manpower, breakdown of machinery/plant and problem in manpower and efficiency.

However, following the approval of Note Sheet RO-T/DR/2016-2017/W-1/1836 dated **24<sup>th</sup> May, 2017** by Zhabtog Lyenpo, the Regional Office vide work order No. DR/CD/26/2016-17/4003 dated 26<sup>th</sup> May 2017 had awarded the portion of pavement works of M/s Raven Builders & Company (P) Ltd. to M/s SL Construction Pvt. Ltd. in the interest of time and also to avoid damages to the completed pavement works during the monsoon at negotiated cost of Nu. 15,858,310.00.

The negotiated cost of M/s SL Construction Pvt. Ltd. was much higher and cost differences to that effect was accepted by M/s Raven Builders & Company (P) Ltd. as per the resolution of meeting held on **10<sup>th</sup> May, 2017 (Minutes attached as Appendix A1)**. The recovery of cost difference was also stipulated in the letter No. DoR/CD/2016-17/24/3988 dated 24<sup>th</sup> May 2017 addressed to the Proprietor of M/s Raven Builders & Company (P) Ltd.

The total payments released in terms of sub ledger were as follows:

Name of Contractor	Running Account Bill	RA Bill Amount (Nu.)	Remarks
M/s Raven Builder Company Pvt. Ltd.	Up to 10 <sup>th</sup> Running Account Bill	70,440,261.83	The payments had already exceeded the

M/s SL Construction Pvt. Ltd.	Up to 3 <sup>rd</sup> Running Account Bill	16,352,096.00	contract cost of Nu. 81,088,430.15 by 7.03%
	<b>Total Payments</b>	<b>86,792,357.83</b>	

The balance works yet to be executed by M/s Raven Builders & Company (P) Ltd. were as detailed below:

<b>Table 5.(a): Details of unexecuted works</b>	
<b>Type of work/activity</b>	<b>Quoted Amount (Nu.)</b>
Road Marking worth	598,126.60
L-Drain	6,090,000.00
Box drain	40,000.00
<b>Total</b>	<b>6,728,126.60</b>

On verification of drawings, estimates, bill of quantities, contractor's bill and minutes of meetings, Note sheets and records of works awarded to M/s SL Construction Pvt. Ltd. following irregularities and lapses were observed:

**5.1 Non-termination of Contract despite fundamental breach of contract and flawed deferral of contract works for unreasonable periods as well as non-recovery of liable liquidated damages on reaching the maximum number (133) of days as defined in the SCC - Nu. 8,108,843.02**

Clause 58 under the GCC of the contract agreement amongst others stipulates following conditions as “Fundamental Breaches of Contract” for grounds of termination of contract:

*“58.1-The Employer or the Contractor may terminate the contract if the other party causes a fundamental breaches of contract.*

*58.2(a) the contractor stops work for 30 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Project manager:*

*58.2(i) the contractor has delayed the completion of the works by the number of days for which maximum amount of liquidated damages can be paid as defined in the SCC.*

On review of the related records it was apparent that M/s Raven Builders & Company (P) Ltd. had failed to complete the contract works on the stipulated contract deadline of 15<sup>th</sup> September 2016 and subsequently revised deadline as per time extension sanctioned by MLTC for 65 days to 19.11.2016 vide Meeting held on 20.09.2016 and within further extended deadline of 78 days to 5.02.2017 as evident from Minutes of Meeting held on 2.06.2017.

It was noted that the first time extension of 65 days was found granted towards increase of pavement width by 1m from 6.50m to 7.5m as per revised drawings including 6 days of other hindrances. The second time extension of 78 days was found granted but supporting documents particularly the minutes of the Regional Level Tender Committee Meeting held on 2<sup>nd</sup> June 2017

were not available on records. However, as per the hindrance register total hindrance recorded were just 30 days as indicated below:

<b>Table 5.1: details of hindrances approved</b>		
<b>Date</b>	<b>Hindrance type</b>	<b>Days</b>
5.2.2017 to 7.2.2017, 10.2.2017 & 14.2.2017	Power Cut down	5
21.2.2017 to 23.2.2017	HM Birthday	3
27.2.2017 to 28.2.2017	Losar	2
2.3.2017	Heavy rainfall	1
11.3.2017 to 22.3.2017	Snow fall	12
26.3.2017	Heavy rainfall	1
28.3.2017	Power cut down	1
1.4.2017	Heavy rainfall	1
15.4.2017	Heavy rainfall	1
14.5.2017 to 15.5.2017	Heavy rainfall	1
20.5.2017 to 22.5.2017	Power Cut Down	2
<b>Total</b>		<b>30</b>

In addition, the MLTC had awarded the incomplete DBM and AC works to M/s SL Construction Pvt. Ltd. on obtaining the approval vide Note Sheet dated 4th *May, 2017 from the* Zhabtog Lyenpo *that too after a delay of more than 85 days from the revised completion deadline of 8<sup>th</sup> February 2017.* Further, the contractor was yet to complete the balance contract works amounting to **Nu. 6,728,126.60 as on the date of audit i.e., 31st December 2017 (delayed by 245 days)** indicating that the contractor had delayed the completion of work by the number of days (133 days) for which maximum amount of liquidated damages can be levied as defined in the SCC.

It was also noted that due to non-achievement of the work plan, Milestone Commitment Agreement was drawn to accelerate the work progress. The commitment agreement stipulated that “failing to achieve two (2) consecutive milestone will lead to termination of contract”. It was evident from the review of records that the contractor had failed to achieve not only all the three milestone commitments consecutively but also the minimum 50% of the deliverables specified in the three milestone commitments. Thus, there was fundamental breaches of the contract by the contractor and should have been terminated as per the provisions of the contract and Milestone Commitment Agreement. The non-termination of the contract has resulted in violation of contract provisions by the Regional Office and MLTC.

The RO should also take note of the breach of contract in terms of failure to deploy key personnel and machineries vis-à-vis short realization of differential amounts. Thus, the Ministry should comment on the extension of the contract durations instead of invoking relevant terminations and additional clauses stipulated in the contract agreement.

The Ministry should immediately invoke all relevant clauses of the agreements besides recovering the liquidated damages of **Nu. 8,108,843.02 (10% at the initial contract amount of Nu.81,088,430.15)** and the amount deposited into ARA.

In addition, the Ministry should take appropriate action on the MLTC and other officials responsible for repeated time extensions without invoking the contract provisions and conditions stipulated in the Milestone Commitment Agreement as of date.

**Auditee's Response:**

*We would like to further furnish the facts and figures with due diligence and evidences of following comprehensive explanations in chronological order to substantiate for non-termination of Contract despite fundamental breach of contract and flawed deferral of contract works for unreasonable periods as well as non-recovery of liable liquidated damages on reaching the maximum number (133) days as defined in the SCC- Nu. 8,108,843.02*

- a) We would like to submit our explanations as submitted above table during that period contractor has completed the items that were of good rates quoted in BOQ and left the items that were quoted abnormal low rates. Since the BOQ rate contract for DBM, AC and L-shaped drain were observed to be abnormally quoted less against the departmental rates. Therefore, we thought by terminating the contract at that point of time would only benefit the contractor and shall have huge financial implication loss to the Government.*
- b) It is to submit as per the initial contract agreement M/S: - Raven builder have to complete the all the works with the pavement width 6.50 meter latest by 15<sup>th</sup> September 2016.*
- c) As per the Government directive received from MOWHS conveyed by DOR, HQ, because in change of standard design and drawing of PNH road pavement width from 6.50 meter to 7.50 meter, each and every items in BOQ, required to further regularize on the initial BOQ, items and nos of days requirement for taking up the extra works 1.00 meter pavement width from Sub-Grade preparation, GSB, WMM, DBM and ACWC, accordingly MLTC has approved and granted time extension of 65 days i.e. till November 21, 2016.*
- d) Based on the clear and genuine hindrances records maintained and submitted by our project Engineers to RLTC, the hindrances of 78 days was approved after half a day diligently/transparent deliberation and granted time extension of 78 days i.e. till February 08, 2017 as observed and verified by RAA.*
- e) As per the records maintained by our project Engineers the liquidated damages of 133 days have been referred page 73/83 and clause no. GCC 58.2 starts from February 09, 2017 and the last date of liquidated damages end on June 23, 2017.*
- f) Based on the Government directive, meeting was held on May 10, 2017 in the chamber Director DOR, accordingly field visit were also made officials from DOR, HQ and RO, during the field inspection an instruction was received by RO, from DOR, HQ, instructed RO, to consult with M/S: - SL Construction Pvt. Ltd. for submission of note sheet for approval, accordingly RO, called the proprietor of M/S: - SL Construction Pvt. Ltd. for the willingness to execute the DBM and ACWC and the firm agreed to work at their negotiated rate accordingly the DBM and ACWC work of M/S: - Raven builder DBM and*

*ACWC works was approved and awarded to M/S: - SL Construction Pvt. Ltd the note sheet has been approved through proper line of channel (Project Engineer – RO – DOR – MOWHS).*

- g) As substantiated and submitted above the balance works of DBM and ACWC of M/S: - Raven builder was further awarded to M/S: - SL Construction Pvt. Ltd. by appreciating the difference of rate amount from Raven builder, it was very unfortunate because huge pressure on inauguration of road by GOI, under PTA funded project, and under the Government directive conveyed through ministry unfortunately the works was awarded during the liquidated damages period.*
- h) As a matter of facts and figure the M/S: - Raven builder has penalized by imposing huge cost difference appreciating the difference of rate amounting to Nu. 9.500 million. The amount was workout more than the liquidated damages imposed to M/S: - Raven builder.*
- i) In view of the unfortunate timing everything were happened within the same period such as completion of project, involvements of two contractors in one work, major preparation of chadrey starting from sign boards, erection of Bhutanese gates, pitching of tents at two location and so on.*
- j) As per the Government directive the defect liability period for works has been imposed for three years by issuing in form of letter, since it was not incorporated in our contract document, contractors has not honoured and atomically came back to one year.*
- k) We would further like to substantiate here that similar to above points noted as (j) with regards to Milestone Commitment. We would like to submit our explanation further to substantiate that the Milestone Commitment Agreement it was not incorporated in the mother contract documents during the time of NIT nether incorporated SCC nor reflected in GCC and any parts of terms & condition of contract agreement. Since it was not incorporated in our contract document, contractors shall not honored, It is unfortunate to submit here as we meaningfully think in depth shall have legal issues in future if contractor approach to arbitration or court of law.*
- l) The Regional Office would like to substantiate that when the major portion of the Raven builder's works were awarded to SL Construction as per approved note sheet by higher competent authority work value amounting to Nu. 16.00million, it was felt as termination of Contract, this has let M/S: - Raven builder by imposing heavy penalties of huge sum of money by appreciating the cost difference.*

*The above note submitted in brief from (a) to (L) are our main explanations for non-termination of Contract.*

*We would like to submit the Royal Audit Authority to kindly review the above details explanations and requested to reconsider for dropping the above Para.*

### RAA's Further Comments & Recommendations:

*While taking note of the response on the recovery of cost differential amount of Nu. 9.50 million from M/s Raven Builders & Company (P) Ltd., the fact remains that the RO and the DOR had failed to recover the approved amount as on the date of exit meeting held on 12<sup>th</sup> December 2017 even after time lapse of more than Seven (7) months after the acceptance of cost differences by the Contractor during the meeting held on 10<sup>th</sup> May 2017.*

*It is also to reiterate that the Contractor had failed to complete the remaining works valuing Nu. 6,728,126.60 even on the completion of bituminous works by M/s S.L construction Pvt. Ltd. in June 2017. Thus, non-imposition of the liquidated damages even after delays of contract works by more than 196 days from the date of completion of bituminous work by M/s S.L construction Pvt. Ltd. on the grounds that substantial differential amount is imposed on the Contractor may not be rational in line with the provisions of the contract and PRR.*

*However, as discussed during the exit meeting held on 12<sup>th</sup> December 2017, on recovering of just the cost differential amount of Nu.9.55million as imposition of liquidated damages would tantamount to double penalty, the DOR and the Ministry should take up the matter with the Ministry of Finance for appropriate decisions. The decisions of the Ministry of Finance should be intimated to RAA for record and follow-up in future audits.*

#### **5.2 Non-termination of contract on non-fulfilment of Milestone Commitment Agreement by the contractor**

The contractor had failed to achieve all the three milestones and the minimum 50% of the deliverables specified in the three milestone contracts.

Thus, there was fundamental breaches of the contract by the contractor and the contract should have been terminated as per the provisions of the contract and Milestone Commitment Agreement. The non-termination of the contract had resulted in violation of contract provisions and also defeated the very purpose of drawing up the Milestone Commitment Agreement by the Regional Office and MLTC.

The Ministry should investigate the circumstances leading to non-termination of the contract as per the provisions of the contract agreement and Milestone Commitment Agreement. In addition, the Ministry should fix the accountability on the MLTC members for violation of contract agreements and RO for non-termination of the contract as envisaged in the Milestone Commitment Agreement which had impeded timely completion of works.

### Auditee's Response:

*We would like to furnish the facts and evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*For an instances as per the Government directive the defect liability period for works has been imposed for three years by serving them in form of letter, since it was not incorporated in our contract document, contractors has not honoured and atomically came back to one year.*

*It is to further substantiate here as similar to above points noted with regards to Milestone Commitment agreement, However the Regional Office DOR, Thimphu would like to substantiate further that the above terms and condition were not incorporated in the mother contract documents not even included in notice inviting tender (NIT), nether incorporated in special condition of contract (SCC) nor reflected in general condition of contract (GCC) and any parts of terms & condition of contract agreement.*

*The contractors were reluctant to not honour as stated as Milestone Commitment agreement. It is to submit here the above conditions were issued at the later stage conveyed through Government directive such as defects liability period for three years and milestone contract in three steps were received at the later stage while project was ongoing.*

*We would like to submit the Royal Audit Authority to kindly review above detailed explanations and would like to reconsider for dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response, the fact remains that there were fundamental and persistent breaches of contract by the contractor despite grant of unjustified time extensions, extending of undue financial supports, and curtailment of scope of works. It is also to reiterate that continuous failure on the part of the contractor to fulfil the contractual obligations indicated that the contractor lacked professionalism and experiences in executing such works as well as financial capacity.*

*Further, the response on the non-enforcement of the Milestone Commitment Agreement as it was outside the contract agreement indicated laxity and complacency as well as waste of time and resources in drawing up Milestone Commitment agreement.*

*However, as discussed during the exit meeting, the DOR in consultation with the Ministry should review the intention of coming up with the Milestone Commitment agreement which were not honoured and enforceable to the spirit. Besides, the Ministry should fix responsibilities on the officials responsible for drawing up milestones that were not enforceable.*

*The DoR and Ministry should institute appropriate technical committee to review all decisions and actions initiated by the MLTC, DLTC and ROs outside the scope of contract agreements to ensure enforceability in letter and spirit and not just on paper and become unenforceable at the end of contract.*

*The Ministry should come up with appropriate control mechanism to ensure that decisions and actions initiated by MLTC, DLTC and ROs in relation to contractual agreement are workable and enforceable.*



### 5.3 Irregular financial support by way of payments from retention money instead of directing to avail Credit Lines of Nu. 4,000,000.00 and recovery of interest thereon

In terms of the ITB 4.5(f) and Bidding Data Sheet (ITB 4.5 (f)) the contractor had submitted available credit line of Nu.33.839 million and the Evaluation Report indicated scoring of 20 points under the “Credit Line Available”.

However, on review of related documents, the Regional Office had facilitated withdrawals of 10% Retention Money in two occasions as a measure to support and solve financial crises faced by the contractor based on the decisions of the Meetings held on 21.10.2016 and 22.11.2016 respectively. It was also noted that the decision of the meeting of 21.10.2016 was found taken based on the request of the contractor for payment of secured advance which the RO was unable to pay as well as the work was not progressing well as per time schedule. The payments made were as detailed below:

<b>Table 4.3: Details of irregular financial support</b>		
<b>Amount (Nu.)</b>	<b>Purpose of Release</b>	<b>Remarks</b>
1,000,000.00	To start Bitumen works from 23 <sup>rd</sup> October 2016	
3,000,000.00	Payment of Nu. I million each for fuel to BOD, Quarry for materials, and miscellaneous expenses viz. hire charges, labour expenses and repairing machineries	Stated to have made payment against Bank Guarantee provided by BDBL, Sarpang.

It is apparent from the decisions of Regional Office that measures and due diligence exercise were not taken to verify the withdrawals and use of funds from the available credit lines of Nu.34.00million committed by the Bhutan National Bank Ltd. under letter No.BNB/TH/BO/CD/2015/1692 dated 21<sup>st</sup> April 2015 as per the tender documents which was duly accepted by the Evaluation Committee. Beside the RO had also failed to verify the proper use of 10% Mobilization advance and Secured Advances for materials released to the contractor as per contract documents.

The payments of Nu.4.00 million against retention money of Nu. 5,526,751.00 as of 21.9.2016 was in violation of the provisions of the contract documents as the contract was to be completed by 15<sup>th</sup> September 2016 when just 68% of the contract works were completed.

The Regional Office must direct the contractor to furnish details of credit facilities availed by the firm from the committed credit lines as well as supporting documents pertaining to utilization of payments of net RA Bills of Nu. 34.174 million, Mobilization advances of Nu. 8.108 million, secured advances Nu. 9,648,940.00 besides other advances paid, if any. In the event of failure to furnish such documents, the Regional Office should recover interest at the prevailing market rates from the date of payments till the date of adjustment on the undue release of retention money and other ineligible advances paid to the contractor.

### Auditee's Response:

*The observations issued by Royal Audit Authority have been acknowledged, we have a great concern and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*We honoured and respect for the observation issued by Royal Audit Authority with regard to credit line facilities mainly for procuring the civil materials on time and smooth progress of works by the contractor. We would like to submit that with due diligence and the facts that our project Engineers at site has verbally discussed and even sometimes with much difficulties, mainly to resolve day to day issues on contractors part, held many meetings at their field office and our project Engineers have attempted on several occasions with contractor. We would like to submit to RAA all the Regional office have put-up during DOR, Quarterly meeting on the issues related to banks were discussed in detailed and to further submit to Ministry (present Secretary) has held meeting with RMA accordingly Hon'ble Secretary has written official letter to some of the bank in Bhutan.*

*The observation made by RAA on review of related documents, the RO had facilitated withdrawals of 10% Retention Money in two occasions as a measure to support and solve financial crises faced by the contractor based on the decisions of the meetings held on 21.10.2016 and 22.11.2016 respectively. It was also noted that the decision of the meeting of 21.10.2016 was found to have taken based on the request of the contractor for payment of secured advance which the RO was unable to pay as well as the work was to be not progressing well as per time schedule.*

*We would like to substantiate that RLTC has discussed in detailed on the request made on secured advance by contractor, since the risk involvement of releasing secured advance was observed to be huge risk by RLTC and was rejected for releasing secured advance, while observing pros & cons on risk factors involved on releasing secured advance. The contractor has again submitted a letter dated to RO requesting for release of retention money that has been deducted from his/her running bills. The RLTC has instructed the project Engineer and his team for verification of all roads related to infrastructures that the work which have already been constructed during previous year by the contractor; accordingly all the road infrastructures were verified by the project team as per the contract agreement.*

*The RLTC meeting on release retention money was held on October 21, 2016 in Regional office conference hall, after detailed discussion for almost a day mainly on advantages and disadvantages for releasing the retention money. The verification report as submitted by project Engineers for the road infrastructures was found to be good and risk involvement on road infrastructures was observed almost nil. The reason for keeping the retention money with the client was mainly to rectify the defect if any structures failure during defect liability period.*

*The RLTC, based on above deliberations finally decided for releasing the retention money amounting to Nu. 1,000,000.00 through cheque issued to BOD Thimphu for procurement of POL amounting to Nu. 500,000.00, and other cheque to Bhutan Stone Aggregates Dramesa, Thimphu amounting to Nu. 500,000.00 for procuring stones aggregates and crushed sand. The RLTC has released retention money with good intension mainly focusing for the early completion of*

*project. It is to be substantiated that contractor was not benefited by releasing retention money and the progress of Government works has also improved substantially.*

*The RLTC meeting on release of retention money was held on November 22, 2016 in Regional office conference hall through detailed discussion for almost a day mainly discussed advantages and disadvantages of releasing the money against the Bank Guarantee provided by BDBL, Sarpang. As submitted by the project Engineers, the road infrastructures they have verified and was found good in conditions and risk involvement on releasing the retention money was observed almost nil, the main reason being keeping of retention money with the client was to rectify the defect of any structures during defect liability period.*

*The RLTC finally came to conclusions for released of retention money amounting to Nu. 3,000,000.00 directly through Cheque were released to BOD, Thimphu for procuring POL amounting to Nu. 1,000,000.00 other Cheque to Bhutan Stone Aggregates Dramesa, Thimphu amounting to Nu. 1,000,000.00 for procurement of stones aggregates & crushed sand, other for labors and hire charges of tippers for other hire agent amounting to Nu. 1,000,000.00. The RLTC has released retention money against the Bank Guarantee provided by BDBL, Sarpang, with good intension mainly focusing for the early completion of project. It is to submit here contractor was not benefited by the retention money instead the progress to Government works has improved substantially.*

*RLTC has taken decision for releasing the retention money based on contract agreement by referring terms and condition of contract agreement vide page no. 65 of 83 of GCC under clause 48, Retention sub-clause no. 48.3 (Bank guarantee value up to Nu. 4million submitted by contractor attached as Annex II for kind reference) as specified and as mentioned “In the case contracts beyond duration of 12 months, substitution of retention money by such a bank guarantee may be allowed on completion of 50% of the value of the contract and duly certified by the project Manager. The Bank Guarantee shall be valid until the issue of a No Defect Liability certificate by the Employer after the end of the defects liability certificate and subject to the certification by the project manager that all defects notified by the project manager to the contractor have been rectified to his satisfactions before the end of this period. If the contractor fails to remedy any reported defect within the defect liability period, the employer shall withhold the payment or realize claims from the bank guarantee of an amount which in the opinion of the employer represents the cost of the defect to be remedied”.*

*The RO, DOR, Thimphu would like to submit here with due diligent and further request the Royal Audit Authority to kindly review above details explanations/justifications and requested to reconsider by dropping the above Para.*

#### **RAA’s Further Comments & Recommendations:**

*While taking note of the response on the admissibility of refund of retention money on completion of 50% of the value of contract, the fact remains that the RO has made available the Bank Guarantee submitted by the contractor in lieu of the releases of the retention money for periods covering 21<sup>st</sup> November 2017 to 20<sup>th</sup> May 2018 although the amounts were found released on 23<sup>rd</sup> October 2016. In the absence of the supporting evidences, the RAA was not in a*

*position to validate the substitution of retention money by the requisite Bank Guarantee for the periods from 23rd October 2016 to 20<sup>th</sup> November 2017. It was also observed that while the RO had requested the BDBL for encashment of the Bank guarantee vide letter No. RO-T/DOR/2017-18/W-23/1046 dated 18<sup>th</sup> May 2018 for restoration of defective works, the BDBL had dishonoured the request and the Bank Guarantee could not be encashed as of the date of the verification of documents submitted on 10<sup>th</sup> January 2019.*

*The DOR and the Ministry should investigate the circumstances leading to stoppage of encashment of Bank guarantee by the BDBL despite the fact that the BDBL had undertaken to pay the sum as committed below:*

*“At the request of the, we hereby irrecoverably undertake to pay you any sum(s) not exceeding (Nu.4,000,000/-(Four Million) only upon receipt by us of your first demand in writing declaring the Contractor to be in default under the Contract, without cavil or argument, or you needing to prove or to show grounds or reasons for your demand or the sum specified therein”.*

*In addition, based on the outcome of the investigation, the DOR and the Ministry should take appropriate action as per the Laws of the Land against all the defaulting parties besides recovering the commercial interest on the release of Nu. 4.000million from M/s Raven Builders & Company (P) Ltd in the event of failure to encash the Bank Guarantee.*

*Further, the DOR and the Ministry should also investigate the circumstances leading to non-honouring of the credit line of 34 million committed by BNBL under letter No. BNB/TH/BO/CD/2015/1692 dated 21<sup>st</sup> April 2015 as well as on proper use of 10% Mobilization advance and Secured Advances for materials released to the contractor as per contract documents.*

*In the highlight of the failure to encash the Bank Guarantee, non-facilitating of Credit lines to the contractor by the concerned banks, the DOR and the Ministry should thoroughly review the present system of obtaining the Bank Guarantee and acceptance of credit lines during evaluation processes and come up with appropriate system and measures to legally validate the commitments and ensure that the Bank Guarantees issued are enforceable in the court of law in future projects.*

#### **5.4 Execution of defective and substandard DBM and AC works**

During the physical verification of pavement works taken over by the Regional Office, Thimphu, team noted from M/s Ravens & Company (P) Ltd. and M/s SL Construction Pvt. Ltd., the audit formation of crocodile cracks and depressions at road edge in few stretches of road and rectification of potholes with poor workmanships.

The existing conditions of newly constructed roads observed during physical verification are depicted in the photographs below:



**Fig: 5.4- Potholes not properly rectified and Depression of road at road edges**

<b>Table 5.4: Details of damaged road</b>				
<b>Dimension of damaged road</b>	<b>Area (m2)</b>	<b>Rate of AC</b>	<b>Amount (Nu.)</b>	<b>Remarks</b>
<b>M/s SL construction Pvt. Ltd.</b>				
2.2*1	2.2			Pot hole
0.8*0.8	0.64			Pot hole/crack
1.3*0.8	1.04			Pot hole/crack
12*1.5	18			Depression
15.5*2.5	38.75			Depression
9.7*1.6	15.52			Crack
4*2	8			Crack
32*3.5	112			Depression
<b>Total</b>	<b>196.15</b>	<b>305.42</b>	<b>59,908.13</b>	
<b>M/s Raven Builders &amp; Company (P) Ltd.</b>				
6*1	6			Pot hole
8*1.5	8.5			Cracks
<b>Total</b>	<b>14.5</b>	<b>123.42</b>	<b>1,789.59</b>	

As detailed in above table, a total of 196.15m<sup>2</sup> of pavement work valuing to Nu. 59,908.13 and 14.5m<sup>2</sup> of Nu. 1,789.59 respectively were found damaged along the road by formation of potholes, crocodile cracks and depression of roads. The damages of newly constructed roads within a short span of time is an indication of execution of works in deviation to the approved technical specifications and poor workmanship. It also indicated weak supervision and monitoring controls by the site engineer.

The Ministry should depute appropriate technical teams to thoroughly conduct inspection of the road conditions for all the completed works to ascertain the extent of defective and substandard works taken over by the Regional Office, Thimphu. The Ministry should direct the contractors to rectify the damaged road surface as per the technical specifications. The Ministry should also hold the site engineer and RO accountable for taking over of defective and sub-standard works.

### Auditee's Response:

*The Project management would like to honour and accept the observations made by Royal Audit Authority during the site visit. The Regional office further would like to submit to Royal Audit Authority all the defects such as potholes/crocodile cracks were all reconstructed by charging the expenditure to contractor's retention money that were deducted from their running bills.*

*With regard formation of depression below Dochula Eco Resort is a critical & problematic area where landslide was initially triggered in 2014 due to incessant monsoon rainfall resulting in road formation washed off along with two panels of retaining wall. Geotechnical assessment was conducted during the month of August 2018 by the Geo-tech Engineer from DoR HQ and recommended for construction of two layers of RRM retaining walls in this area. The above issues have been submitted to monsoon team for immediate release of budget on top priority, structures being critical.*

*The Regional office further would like to submit to Royal Audit Authority the formation of depression below Dochula Eco Resort had been reconstructed by charging the expenditure to contractor's retention money that were deducted from their running bills.*

*The Regional office would like to submit our explanation and further to substantiate with respect to above observations as instructed by Royal Audit Authority, the RLTC team have thoroughly conducted field inspection of the road conditions for all the completed works to ascertain the extent of defective and the defect found were below the 1% of their final bills. We are confident if any defect occurred within defect liability period we assured to carry out any defect because 10% retention money is with client as on date.*

*RO, DOR, Thimphu would like to submit with due diligent and further request the Royal Audit Authority to kindly review above details explanations/justifications and would like to request to reconsider by dropping the above para.*

### RAA's Further Comments & Recommendations:

*The rectification of defective road works is noted. However, it is to reiterate that rectification of defective and substandard works at the instant of audit verification of sites is an indication of laxity and complacency on the part of the RO and Site engineer toward works and procedures.*

*However, as agreed during the exit meeting the DoR and RO should institute strict supervision and monitoring controls to prevent execution and acceptance of defective and sub-standard works in future. The control mechanism proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the Ministry should fix the responsibility on the officials responsible for such lapses.*

## 5.5 Application of wrong coefficient in rate analysis with resultant ineligible payments Nu.715,835.74

In line with the tender terms and conditions M/s Raven Builders & Company (P) Ltd. had submitted rate analysis for Pavement works under letter No.RBCPL/Tender/2015-16/896 dated 18/05/2015. On the review of rate analysis, it was observed that the coefficient for item of work “scarifying metallised (water bound) road surface” was found wrongly applied resulting in inflation of analysed rates by Nu. 21.109 per Sqm as shown below:

Table 5.5: Wrong application of Co-efficient								
Item code	Description of item	Coefficient/m <sup>2</sup> applied	Coefficient as per BSR 2015	Unit	Rate (Nu.)	Amount as per Rate Analysis (Nu.)	Amount as per Audit (Nu.)	Diff. (Nu.)
<b>Item code RW0145: Scarifying metallised (water bound) road surface</b>								
LB0077	Labour	0.13223	0.03223	Day	220	29.09	7.0906	
MP0200	Roller, CAT-CS5551	0.00183		day	1000	1.83	1.830	
<b>Total</b>						<b>30.00</b>	<b>8.8906</b>	<b>21.109</b>

The application of inflated rates had resulted into ineligible payments of Nu.715,835.74 as computed below:-

Table 5.5.1: Details of Ineligible payment				
Sl. No.	Name of the item	Qty executed by M/s Raven Builders (m <sup>2</sup> )	Rate (Nu.)	Amount (Nu.)
1	Scarifying metallised (water bound) road surface	33,911.40	21.109	715,835.74

The Regional Office (RO) Thimphu besides recovering the overpayment due to application of wrong coefficient should also furnish justification for failing to verify the rate analysis submitted by the contractor.

### Auditee's Response:

*The observations issued by Royal Audit Authority have been acknowledged by us, we have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with due diligent and evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*We would like to submit and further clarify to RAA based on the directive received from MLTC, conveyed by DOR, HQ, because of minus deviation of his/her quoted price by contractor, we were instructed by HQ, and accordingly informed to Raven builder for submission analysis of rate for his/her quoted price in BOQ was conveyed vide letter no. RO-T/DOR/2014-2015/1620 on May, 07, 2015 and letter no. RO-T/DOR/2014-2015/1637 on May 11, 2015.*

*M/S: - Raven builder has submitted his/her analysis of rate derivation on his/her quoted rate in BOQ through vide letter no. RBCPL/Tender/15-16/896 on May 10, 2015.*

*The running bills of quantity were verified based on the quoted rate of contractor in his/her BOQ, work that was awarded by MLTC.*

*The Item code RW0145: Scarifying metallised (water bound) road surface was an open tender rate clearly quoted in BOQ, it is to submit neither it was negotiated rate nor extra item rate.*

*We would like request RAA for further review and revisit the above Item in BOQ, vide item code RW0145: Scarifying metallised (water bound) road surface. The Project Engineers have verified the running bills based on the quoted rate in BOQ, accordingly Finance & Administration Division under RO, DOR, Thimphu have passed their running bills.*

*The Project Engineers under RO, DOR, Thimphu would like to submit here with due diligent and further request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response, the fact remains that the contractor had not used the permissible coefficient for labour given in LMC rather used greater coefficient that had inflated the cost of scarifying.*

*It was the responsibility of the Evaluation Committee and the MLTC to detect such flaws and deviations from the LMC for appropriate deliberation and decisions to safeguard the interest of the project.*

*However, as agreed in the audit exit meeting, the DoR and RO in consultation with the Ministry should come out with appropriate guidelines and procedures and incorporate in the tender documents and TOR of the Evaluation Committee and MLTC to address such lapses in review of Rate Analysis in similar future projects.*

*The failure to take note of the discrepancies by the Evaluation Committee which have resulted in avoidable payment to Nu. 715,835.74 is brought to the notice of the Government.*

#### **6. Irregularities noted in the Double lanning of NEWH from Hongtsho to Semtokha (Package 2) executed by M/s Yangkhil Construction Pvt. Ltd**

The road pavement works Double Lanning of NEWH from Hongtsho-Simtokha (Ch: 538-544.5) covering a distance of 6.5 Kilometers and Semtokha-Olakha 2km, Package II was awarded to M/s Yangkhil Construction Pvt. Ltd, holding trade license No. 1006797, CDB No. 2182 being the lowest evaluated bidder vide work order No. RO-T/DoR/2014-15/W-7/1838 dated 10/06/2015 with following contract details:

<del>✗</del> Estimated Amount	:Nu.108,362,690.31
<del>✗</del> Contract Amount	:Nu.84,347,137.15 (22.16% below the estimated Amount)



✂ <i>Contract Duration</i>	:15 months
✂ <i>Start Date</i>	:21 June 2015
✂ <i>End date</i>	:21 September 2016
✂ <i>Actual Completion date</i>	:2 April 2017
✂ <i>Actual cost of construction</i>	:Nu.82,401,956.70
<i>Name of Site Engineer</i>	:Tshering Lhaden, AE II

On verification of drawings, estimates, bill of quantities, contractor's bill and physical verification of site following irregularities and lapses were noted:

### 6.1 Development of crocodile cracks awaiting immediate rectification

Out of 10km pavement works awarded to M/s Yangkhil Construction Pvt. Ltd. along Simtokha-Dochula covering Chainages from 538.00km to 544.50km & Simtokha-Olakha of 2km including the execution of 1.5km additional stretch of road of M/s. Raven Builder Company Pvt. Ltd., a total of 9.45km was actually executed at site were found taken over by the RO.

However, during the joint physical verification of site on 07.05.2018 comprising officials from the Regional Office and audit team, the team noted development of crocodile cracks measuring a total area of 449.05m<sup>2</sup> along the Chainage 538.00km-544.50km and in the 1.5km road stretch executed by M/s. Raven Builder & Pvt. Ltd and M/s Yangkhil Construction Pvt. Ltd. The photographic evidences of the cracks are as shown under:



Fig: 6.1- Crocodile cracks

The crocodile cracks had developed within defect liability period The Regional Office, Thimphu should initiate immediate rectification of the works at the cost of the contractor. .

#### Auditee's Respons:

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*The alligator cracks were developed at some stretches of the road as pointed out during the auditing totaling to about 449.05 sq.m of the total area of 76,599.62 sq.m. The work had been carried out as specified in the specifications; however few defects were developed at some stretches because of the following:*

*Due to continuous flow of traffic, the vehicle had to be processed before setting of the flexible pavement.*

*Some heavy vehicles pass over the pavement during the laying of flexible pavement despite keeping the stone at the edge of the pavement.*

*The structural design of pavement NEWH was designed for the dynamic loading capacity of approximately between 30mt however sometimes power project under construction are transporting the machinery parts almost 100mt along with dead and live loads on this road, because of overloading more than design loading were main causes of failure. The structure design if consider for 100mt the project would have cost more than five times.*

*In this, RO had informed the contractor and deducted the amount from their retention money amounting to Nu. 176,570.38 and the work had been rectified and made good with their retention money.*

*Photographs of the rectification of bitumen works and the disbursement voucher attached for your references (Attached for reference).*

*We would like to request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*The rectification of defective road works is noted. However, it is to reiterate that rectification of defective and substandard works on the instant of audit verification of sites is an indication of laxity on the part of the RO and Site engineer toward works and procedures.*

*However, as agreed during the exit meeting the DoR and RO should institute strict supervision and monitoring controls to prevent execution and acceptance of defective and sub-standard works in future. The control mechanism proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the Ministry must fix the responsibility on the officials responsible for such lapses.*

## 6.2 Non-construction of Catchpits and rectification of damaged L-drain

During the physical verification of site, the team observed that in some stretches portions of the L-drain constructed were damaged from running water. It was also observed that damages had occurred due to improper curing during the construction as well as use of incorrect proportion of mixture and lack of proper supervisions by the concerned engineer during the construction as evident from the site conditions.

Likewise, in the same stretch, the team also observed that some of the holes dug for catch pits were not constructed and left without proper dressing of the surface dug up which would contribute to the soil erosion during the rainy season and may cause damages to the permanent structure at any time. Pictorial evidences of the site are as shown under:



*Damaged catchpit and drains*

The Regional Office, Thimphu should initiate early rectification of the damaged L-drain and likewise for a proper construction of catchpits for those dug up hole to prevent further deterioration of surface areas and permanent structure at site.

### *Auditee's Response:*

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*During the construction time, some stretches of the drain PCC base concrete got washed due to heavy down poured and continuous flow of water from upper hill slope and there were no other options than to divert the flow of water, thereby the setting time of cement could not be achieved. Moreover, the payment for the damaged portion of the drain was not made to the contractor. The damaged drain had been repaired and rectified departmentally.*

*The estimates for the construction of catch pits were not included in the previous cost estimate because of fund constraint. The same have already proposed budget during this Financial Year 2018-2019. Hence, the construction of catch pits will be taken up this FY on 1<sup>st</sup> priority.*

*We would like to request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*The rectification of defective drain works and catchpits is noted. However, it is to reiterate that rectification of defective and substandard works at the instant of audit verification of sites is an indication of laxity on the part of the RO and Site engineer toward works and procedures*

*However, as agreed during the exit meeting the DoR and RO should institute strict supervision and monitoring controls to prevent execution and acceptance of defective and sub-standard works in future. The control mechanism proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the Ministry must fix the responsibility on the officials responsible for such lapses.*

### **6.3 Non-accord of approval for taking up of additional 1.5 km stretch of pavement work and excess payment thereof - Nu. 496,594.00 (4.4.60)**

The contract for road pavement works from Simtokha-Dochula, covering Chainages from 538.00km to 544.50km & Simtokha Olakha 2km awarded to M/s. M/s Yangkhil Construction Pvt. Ltd. was signed vide agreement No. RO-T/2014-15/AG No-32 (Bid No. DoR/RO-T/2014-2015/TH-01/22(Package II). Likewise, the pavement works from Simtokha-Dochula covering from Chainages from 530km to 538 km & 527km to -527.70km with a total stretch of 8.7 Kilometers (Package I) was awarded to M/s Raven Builders & Company (P) Ltd., Pelrithang, Gelephu holding trade license No.3007580, CDB No.2356 vide work order No. DoR/RO-T/2014-2015/W-7/1796 dated 6<sup>th</sup> June, 2015.

However, during the physical verification of work site, the Regional Office informed that M/s Yangkhil Construction Pvt. Ltd. had taken up additional road stretch of 1.5 km from the road stretches awarded to M/s. Raven Builders & Company (P) Ltd. to complete the works on time.

Further, records relating to decisions and approval accorded on the award of 1.5km pavement works to M/s Yangkhil Construction Pvt. Ltd. were not available on records. The RO, however, had made available a work order which did not record the consensus agreed upon with M/s

Raven Builders & Company (P) Ltd.. for award of such works. In the absence of document, the Audit team could not comprehend the rationale behind awarding of 1.5km additional works to M/s Yangkhil Construction Pvt. Ltd. that too without completing due process and obtaining approval from the competent authority. As such, it is evident that there is lack of proper control by the DOR over the RO.

The DOR and the RO should comment on the award of 1.5 km stretch of M/s Raven Builders & Company (P) Ltd. to M/s Yangkhil Construction Pvt. Ltd. without completing the necessary approval and tendering process for the award of additional work to one contractor through curtailing the scope of work of original contractor.

#### Auditee's Response:

*The observations issued by Royal Audit Authority have been acknowledged by us, we have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts & figures with due diligent and evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*We would like to submit our explanation during the initial stage, it was unfortunate while handing over of the site jurisdiction between contractors and our project engineers had made some lapses by not able to accurately handed over the length of road and its road infrastructures during the initial stage, in brief the box culvert near Yesupang farm was under the jurisdiction of Yangkhil construction and the road was under the jurisdiction of Raven builder.*

*The Finance and Administration Division under RO, Thimphu came to know and observed some of the lapses in distribution of road length on this same stretch to contractors by our project Engineers, we in RO came to know when final bill were under process by M/S: - Yangkhel construction Pvt. ltd. , which they came with huge financial minus deviation amounting to Nu. 16,720,232.10 (Details of financial figure and its calculation in Appendix attached for kind reference).*

*Mr. Sether Dorji proprietor of M/s Yangkhel construction Pvt. Ltd reported to our office with an extraordinary demand stating that as per bill of quantity in contract agreement the company has procured all the civil materials against the works awarded to his company on this stretches of road.*

*It is to submit here in brief Mr. Sether Dorji proprietor of M/s Yangkhel construction Pvt. Ltd. came to our office and said his work was given to M/s Raven Builders & Company (P) Ltd. as an extra works. Mr. Sether Dorji the proprietor of M/s Yangkhel construction Pvt. Ltd. have demanded, he don't want to take up the further works on stretches of this same road, he demanded us for claiming the huge minus financial deviation approximately Nu. 16.720 million.*

*Mr. Sether Dorji proprietor of M/s Yangkhel construction Pvt. Ltd. even demanded to RO, he shall proceed to arbitration and court of law for reimbursement of huge minus financial deviation approximately Nu. 16.720million.*

By observing and respecting the huge financial implications to the Government after referring huge minus financial deviation as submitted above, also by observing presiding set by some other project works where payment were made as per court verdicts without execution of works as observed in the department.

Because of its site distribution lapses while handed over of accurate road length jurisdiction to concern contractors, huge minus financial deviation has been observed, lengthy discussion were deliberated with our RO'S Engineers and Chief Accountants Finance Division before letter was issued to M/s Yangkhel construction Pvg. Ltd..

Regional office have given immediate directive based on above cited subject, accordingly instructed project engineers and written letter to contractor for taking up the DBM, ACWC and L-Drain works within 1.50Km. We would like to further substantive "even after the executions of DBM, ACWC and L-Drain works within 1.50Km it was further observed in 8<sup>th</sup> and final bill amounting to Nu. 10.495million in minus deviation" (Details enclosed in favor of kind reference please).

We would like to further clarify it was not an additional work, neither seems requirement of approval for taking up the above works of pavement from M/s Raven Builders & Company (P) Ltd.. The above length of road belongs to M/s Yangkhel construction Pvt. Ltd. as per contract agreement (Details calculation attached Appendix A for kind reference) as observed and noted by RAA after reduction of 1.50Km Raven builder have executed the works more than (+) 5.00% plus deviation of his/her bill of quantity the contract awarded by MLTC.

The Project Engineers of package no. I and II, under RO, DOR, Thimphu honestly would like to submit here with due diligent and further request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.

#### RAA's Further Comments & Recommendations:

The RAA has taken note of the response on the demarcation lapses and mistake made during award of work. However, during the re-verifications of sites and physical measurement of works actually executed at site by both the contractors it revealed that M/s Raven Builders & Company (P) Ltd. had executed only 7.189km against awarded road stretch of 8.7km and M/s Yangkhil Construction Pvt Ltd. executed 7.961km against awarded road stretch of 6.5km evidencing that approximately 1.5km road of M/s Raven Builders & Company (P) Ltd. was executed by M/s Yangkhil Construction Pvt. Ltd.

The details of road stretch awarded to both contractors, measurements reflected in the MBs and actual road length measured during physical verification as well as excess measurement entertained to M/s Raven Builders & Company (P) Ltd. are as tabulated in table 4.1 below:

Table 4.1: Actual Road length executed			Difference in terms of estimated and physically measured road length	Remarks
Package	DBM and AC work			
	Estimated length	Road length reflected in the MB	Actual measured road length at site (Physical	

			<i>verification)</i>		
<i>M/s Raven Builders &amp; Company (P) Ltd. Package 1</i>	<i>8.7 km from Dochula to Hongtsho</i>	<i>7.380km</i>	<i>7.189km</i>	<i>1.511km =1.5km</i>	<i>Road stretch less executed by M/s Raven Builder Company Pvt. Ltd (discrepancies of 0.191km between measurements recorded in the MB and actual work done at site.</i>
<i>M/s Yangkhil Construction Pvt. Ltd. Package 2</i>	<i>6.5 km from Hongtsho to Semtokha</i>	<i>7.980km</i>	<i>7.961km</i>	<i>1.460km =1.5km</i>	<i>Additional road length executed by M/s Yangkhil Construction</i>

*As apparent from the table, the excess road stretch of 1.5km executed by M/s Yangkhil Construction matches with the road stretch of 1.5km less executed by M/s Raven Builders & Company (P)Ltd. However, there is a discrepancy of 0.191km in the actual work done by M/s Raven Builder Company Pvt. Ltd which had resulted in overpayment of Nu.496,594.00.*

*The DOR and RO should recover the excess payment of Nu. 496,594.00 (1434sqm @ Nu.222.50 for DBM and 1434Sqm @ Nu.123.80 for AC) from M/s Raven Builders & Company (P) Ltd. within three months from the date of issue of the report beyond which penalty @ 24% per annum shall be levied as per Chapter IV, Section 4.5.1.4 of the Finance and Accounting Manual 2016. The Ministry should take appropriate action on the officials responsible for such overpayment. Besides, the DOR and Ministry should rectify the award of 1.5km road stretch of M/s Raven Builders & Company (P) Ltd. to M/s Yangkhil Constructions Pvt. Ltd.*

*The Ministry should institute proper procedures and process over the transfer of scope of works from one contractor to another to prevent violation of contractual obligations as well as to avoid cost implication due to variations in quoted rates of individual contractors and other complication in future.*

#### **6.4 Avoidable financial implication on the award of additional 1.5km stretch of M/s. Raven Builders & Company (P) Ltd to M/s Yangkhil Construction Pvt. Ltd. due to substantial price differences for items of works - Nu. 1,840,963.89(4.4.60)**

On verification of contract agreement, BOQ and other documents relating to execution of pavement works awarded to M/s. Yangkhil Construction Pvt Ltd. and M/s. Raven Builders & Company (P). Ltd., observed substantial rate differences for items of works as shown in table 4.2 below:

<b>SL No.</b>	<b>Description of works</b>	<b>M/s. Yangkhil Const. Pvt Ltd.'s rate (Nu.)</b>	<b>M/s. Raven Builder &amp; Pvt. Ltd's rat (Nu.)</b>
1	Providing and laying Asphalt/Bituminous Concrete to required degree of compaction basd on the job mixed design approved by the	176.18	123.8

	supervising engineer using asphalt plant, paver steel roller, vibratory roller, pneumatic roller etc, as per material gradation and aggregate quality specified. 50 mm thick		
2	Providing and laying Dense Bituminous macadam (DBM) to required degree of compaction based on mix design (job mix formula) approved by the supervising engineer including preparation of surface with road broom, application of prime coat@ 0.75 kg/aq.m by mechanized method using asphalt plant, paver, vibratory roller, steel roller, etc. complete 75mm thick.	197.10	222.50
3	Construct L-shaped road side drain clear width 800 mm with 150mm thick PCC 1:3:6, 300mm thick plum concrete (60% PCC 1:3:6 and 40% 75mm down boulder) hill side, including excavation, leveling, back filling, necessary form works and disposal of surplus earth within 50m lead complete as per drawing.	1,300.00	700.00
4	Construct box-drain with clear width 450mm with 150mm thick base PCC 1:3:6, 300mm thick plum concrete (60% PCC 1:3:6 and 40% 75mm down boulder), including excavator, leveling, backfilling, necessary form works and disposal of surplus earth within 50m lead complete as per drawing.	2,200.00	800.00

The final payment passed based on joint measurement recorded in MB reflected execution of 1393.65 meters (1.393km) as against 1.5km awarded. Thus, the financial benefit accrued to M/s Yangkhil Construction Pvt. Ltd. due to substantial rate differences on items of work amounted to Nu. 1,840,963.89 as worked out in table 4.2.1 below:

<b>Table 4.2.1: Details of cost difference with resultant loss to the Government</b>							
SL. No.	Description of works	Actual Qty. executed	M/s. Yangkhil Const. Pvt. Ltd (A)		M/s. Raven Builder Company Pvt. Ltd (B)		Difference Amount (Nu.) (A-B)
			Rate (Nu.)	Amount (Nu.)	Rate (Nu.)	Amount (Nu.)	
1	Providing and laying Asphalt/Bituminous Concrete 50 mm thick	10,951.22m <sup>2</sup>	176.18	1,929,385.94	123.8	1,355,761.04	573,624.90
2	Providing and laying Dense Bituminous macadam (DBM) 75mm thick.	10,951.22m <sup>2</sup>	197.1	274,688.42	222.5	310,087.13	(278,160.99)
3	Construct L-shaped road side drain clear width 800 mm with 150mm thick PCC 1:3:6, 300mm thick plum concrete (60% PCC 1:3:6 and 40% 75mm down boulder).	1,556.30m	1,300.00	2,023,190.00	700.00	1,089,410.00	933,780.00
4	Construct box-drain with clear width 450mm with	39.57m	2,200.00	87,054.00	800.00	31,656.00	55,398.00



	150mm thick base PCC 1:3:6, 300mm thick plum concrete (60% PCC 1:3:6 and 40% 75mm down boulder).						
<b>Grand Total</b>							<b>1,840,963.89</b>

The project would have saved Nu.1,840,963.89 had the works been executed by M/s. Raven Builders & Company (P) Ltd. instead of awarding to M/s Yangkhil Construction Pvt. Ltd. Thus, the award had resulted in additional financial burden to the Government Exchequer.

The Regional Office should recover the differential amount as worked out above from the contractor and deposit into ARA besides furnishing justification for failure to exercise due diligence and prudence prior to taking decisions in awarding 1.5km road of M/s. Raven Builders & Company (P) Ltd. to M/s Yangkhil Construction Pvt. Ltd.

**Auditee's Response:**

*The observations issued by Royal Audit Authority have been acknowledged by us, we have a concerns and high regards for the observation made by Royal Audit Authority.*

*The Project Engineers of package no. I and II under Regional office Department of Road Thimphu would like to furnish the facts and figures with due diligent and evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*We would like to submit our explanation during the initial stage, when NIT, BOQ was floated for tender the standard design and drawing of Primary National Highway pavement width was 6.50 meter and lowest responsive bid quoted by M/s Yangkhil Construction Pvt. Ltd with a quoted amount of Nu. 84,347,137.00.*

*As per the directive received from Ministry and DOR, HQ, the standard design and drawing of Primary National Highway pavement width was 6.50 meter has increased by 1.00 meter and the new standard design and drawing width of Primary National Highway pavement width became 7.50 meter, accordingly the BOQ was regularized amounting to Nu. (84,347,137.00 + 9,304,911.00) the total BOQ amount was worked out amounting to Nu. 93,652,048.00 (Details of financial figure and its calculation attached in Appendix B for kind reference).*

*Mr. Sether Dorji proprietor of M/S: - Yangkhel construction has taken up the Dense Bituminous Mix 75mm, Asphalt Concrete Wearing Course 50mm and Line drain within length of 1.30 Km works completed with the sub-total amount of Nu. 6,224,883.39 based on contract agreement, the letter was issued by regional office because of the lapses in handing over of site of road infrastructures by our project Engineers to M/s Yangkhil Construction Pvt. Ltd.*

*The total bills from (1<sup>st</sup> to 8<sup>th</sup>) i.e. 8<sup>th</sup> and final paid to M/s Yangkhil Construction Pvt. Ltd was amounting to Nu. 83,156,699.29 (Details of financial figure and its calculation attached in Appendix B for kind reference).*

*We would like to further substantiate and submit our explanation if we would have considered 1.50Km was additional works the then final bill amount to be paid to M/s Yangkhil Construction may have derived amounting to Nu. (83,156,699.29 – 6,224,883.39) Nu. 76,931,815.90.*

*We would like to submit and further substantiate here with facts & figure with due diligences without providing any form of favoritism and nepotism for both the contractors, the site jurisdiction was revisited by our project Engineers for both the contractors M/S: - Yangkhel construction and M/S: - Raven builder. We would like to submit and further substantiate here with facts & figure if the 1.50 Km was not considered it could have landed up with the reimbursement of huge minus financial deviation amounting to Nu. (93,652,048.00 – 76,931,815.90) Nu. 16,720,332.90.*

*Mr. Sether Dorji proprietor of M/s Yangkhel construction even demanded, he shall proceed to arbitration and court of law for reimbursement of huge minus financial deviation approximately Nu. 16.720million.*

*By observing & respecting the huge financial implications to the Government after referring huge minus financial deviation as submitted above, also by observing precedence set by other project works where payment were made as per court verdicts without execution of works as observed in our Department.*

*It was regrettable for the lapses in handed over of road length jurisdiction, huge minus financial deviation has been observed, on behalf of this Regional office, I have instructed both project Engineers and written letter to contractor for taking another 1.50Km, even after the executions of 1.30Km observed in 8<sup>th</sup> and final bill, it was also observed amounting to Nu. (93,652,048.00 – 83,156,699.29) Nu. 10,495,348.71 in minus deviation, We would like to request RAA for reconsider for the unfortunate lapses between our field Engineers and contractors, we submit here it was not additional work, neither required approval for taking up of additional 1.5 km stretch of pavement work from M/s. Raven Builder & Pvt. Ltd. The above length of road belongs to M/s Yangkhel construction as per terms and condition of contract agreement as observations noted RAA after deduction of 1.50Km for DMB, ACWC and L-Drain M/S: - Raven builder have executed the works approximately more then (+) 7.00% above his BOQ, terms and condition of contract awarded by MLTC.*

*We sincerely assured such type of oversight shall not be repeated for the ongoing project honestly would like to submit here with due diligent and further request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response on the demarcation lapses, the fact remains that the scope of works incorporated in the tender documents and BOQs of the contract documents clearly stipulated as 8.7 km road stretch for M/s Raven Builders & Company (P) Ltd and 6.5 km for M/s Yangkhil Construction Pvt. Ltd. In terms of actual execution of works, M/s Raven Builders & Company (P) Ltd. had executed 7.616km against 8.7km allotted and M/s Yangkhil Construction Pvt. Ltd. had executed 7.978km against allotted road stretches of 6.5km indicating award of the part of M/s Raven Builder's scope of works to M/s M/s Yangkhil Construction. It is also apparent*

in consideration to the response on the substantial minus deviations between the executed quantities and estimated quantities that the RO had failed to carry out proper planning and realistic preparation of BOQs and cost estimates of 6.5km stretch of roads.

The details of works awarded and actually executed at site by both contractors are tabulated below:

<b>Table 4.2.2: Actual execution of works</b>					
<b>Package</b>	<b>DBM and AC work</b>			<b>Difference in terms of estimated and physically measured road length</b>	<b>Remarks</b>
	<b>Estimated length</b>	<b>Road length reflected in the MB</b>	<b>Actual measured road length at site (Physical verification)</b>		
<i>M/s Raven Builders, Package 1</i>	<i>8.7 km from Dochula to Hongtsho</i>	<i>7.380km</i>	<i>7.189km</i>	<i>1.511km =1.5km</i>	<i>Road stretch less executed by M/s Raven Builder Company Pvt. Ltd (discrepancies of 0.191km between measurements recorded in the MB and actual work done at site.</i>
<i>M/s Yangkhil, Package 2</i>	<i>6.5 km from Hongtsho to Semtokha</i>	<i>7.980km</i>	<i>7.961km</i>	<i>1.460km =1.5km</i>	<i>Additional road length executed by M/s Yangkhil Construction</i>

Thus, the direct award of 1.5km road stretch from M/s Raven Builders & Company (P) Ltd. scope of works without following due processes particularly on the rate differences for the item of works between M/s Yangkhil Construction Pvt. Ltd. and M/s Raven Builders & Company (P) Ltd. has resulted in additional financial burden to the Government Exchequer to the extent of Nu. 1,840,963.89. The DOR and Ministry should review the circumstances leading to award of works without adopting due processes as well as addressing the expected financial burden on the Project and Government for taking appropriate decisions and action.

In addition, the DOR and the Ministry should also revisit the cost estimates prepared by the RO for 6.5km road stretch to ascertain the causes of huge minus deviations between the estimated quantities and executed quantities leading to curtailment of scope work from M/s Raven Builders & Company (P) Ltd. and awarding to M/s Yangkhil Construction Pvt. Ltd. to compensate such minus deviation. Further, the DOR and the Ministry should come up with proper control mechanism to ensure more accurate and realistic preparation of cost estimates for future projects and prevent such Nu. 496,594.00 financial burden to the Government. The measures and procedures proposed to be put in place intimated to RAA for record and follow-up during future audits.

## 7. Departmental execution of Formation Cutting works and irregularities thereon

The initial survey for the FC for double lanning works was found carried out for entire 19.5 km road from Simtokha-Dochula.

However, FC works for 17.5km road was executed departmentally during the financial year 2014-2015 under the RGoB funding. The remaining 2km road was executed during the financial years 2015-2016 under NEWH project.

On verification of drawings, estimates, bill of quantities, contractor's bill and physical verification of site following irregularities and lapses were observed:

### 7.1 Damaged L-drain due to execution of substandard works Nu. 49,915.04

During the physical verification of constructed structures, the team observed that 45m L-drain valuing Nu. 49,915.04 along Dochula-Lamperi road stretch executed departmentally on October 2015 was found damaged. Pictorial evidences of damaged L-drains are as depicted below:



Fig: 7.1-Damaged L-drain

The damages indicated acceptance of substandard works by the RO and due to inadequate supervision and monitoring controls.

The RO should immediately rectify the damaged wall as per the approved technical specification at the cost of either the responsible officials or labour contractors.

#### Auditee's Response:

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.

The above Line-Drain has been constructed on October 2015 based on the 6<sup>th</sup> DOR; Quarterly meeting resolutions held at Phuentsholing the work was carry out departmentally. The observation as made by RAA on 45m of L-drain valuing Nu. 49,915.04 along Dochula-Lamperi. It is to submit here as instructed by RAA our field Engineers have rectified the base concrete of Line-Drain in original complete shape.

We request the Royal Audit Authority to kindly review above details explanations and requested to reconsider dropping the above Para.

**RAA’s Further Comments & Recommendations:**

The rectification of defective drain works is noted. However, it is to reiterate that rectification of defective and substandard works on the instant of audit verification of sites is an indication of laxity on the part of the RO and Site engineer toward works and procedures.

However, as agreed during the exit meeting the DoR and RO should institute strict supervision and monitoring controls to prevent execution and acceptance of defective and sub-standard works in future. The control mechanism proposed to be put in place intimated to RAA for record and follow-up during future audits.

**7.2 Settlement of roadside resulting to Bulging of Gabion walls - Nu. 544,998.45**

During the physical verification, the team observed that settlement have occurred at the valley side of the road due to which the gabion walls constructed at a cost of Nu.544,998.45 were found bulging outward which is likely to collapse and completely get damaged if not attended immediately. The details of cost incurred and photographic evidences are depicted below:

<b>Table 7.2: Details of damaged gabion wall</b>				
<b>Sl. No.</b>	<b>Description</b>	<b>Length (m)</b>	<b>Rate (Nu.)</b>	<b>Amount (Nu.)</b>
1	Gabion wall height up to 6m	15	36,333.23	544,998.45



**Fig: 7.2- Layers of gabion wall bulging outward**

While the failure could be attributable to defective designing and poor workmanship, the damages indicated laxity and poor supervision and monitoring controls by the Site Engineer.

Therefore, the RO should take immediate measure to stabilize the roadside and re-construct gabion walls in order to prevent from being completely damaged.

#### **Auditee's Response:**

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*The above walls has once failed completely few months of its completion, it was during the heavy monsoon and contractor has reconstructed from his own finance, since it was within his defect liability period as instructed by RO, the contractor has reconstructed.*

*The main reason of failed walls were the surface run off from road surface and Line-Drain block was not taken care by contractor because of heavy rain during that night water poured directly on the back side of filled materials of wall, huge back pore pressure has been developed. The weight of soil back filling when saturated with water the weight of soil become more then the dry soil, accordingly filling materials was taken care after second construction.*

*The above wall has been kept under strict observation on by our field Engineers for finding out any settlement as of date it was observed to be satisfactory without any further settlement for last two years.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response that no further settlements were observed for last two years, the team during the physical verification of site had noted development of cracks at the backfilling portion of the gabion walls requiring rectification by filling up with proper compaction. It is apparent that proper studies were not carried out prior to approval of designs and execution of the structures.*

*However, as agreed in the audit exit meeting, the cracks developed at the backfilling portion of the gabion walls should be filled up with proper compaction and made stable to prevent further damages to the structures.*

*Further, the DoR and the Ministry should institute strict supervision and monitoring controls to prevent execution and acceptance of defective and sub-standard works in future. The control mechanism proposed to be put in place intimated to RAA for record and follow-up during future audits. Besides, the Ministry must fix the responsibility on the officials responsible for such lapses.*

### 7.3 Irregularities in payments for works executed through Labour Contracts of Nu. 558,315.09

The RO, Thimphu had executed the RRM wall, breast wall, extension of culvert and cross drains departmentally through engagement of labour contracts in line with the current practices adopted across the country by Regional Offices for execution of departmental works. It was noted that no tendering process were adopted to avail competitive rates but works were directly awarded by the RO.

Payments of Nu. 558,315.09 were found made to various labour contractors for executing the permanent structures. On verification of the contract documents and modality of rates agreed and paid, it was observed that payments based on analysis of rates for item of works included 1% water charges and 10% Overhead Charges.

The RAA is of the opinion that since all materials and tools and plants and other related cost are borne by the Department and awarded without undergoing competitive processes, the payment towards such accounts were not justified and admissible. Further, 2% TDS was not deducted.

Thus, considering the above facts, the inadmissible payments to the extent of Nu.558,315.09 were made as shown in table 7.3 below:

<b>Table 7.3: Details of inadmissible payments</b>					
<b>Name of work</b>	<b>Total Labour contract Amount Nu.</b>	<b>2 % TDS not deducted</b>	<b>Overhead charges paid 10%</b>	<b>1% water charges</b>	<b>Total Inadmissible Payments (Nu.)</b>
Permanent Works	4,294,734.32	85,894.69	429,473.43	42,947.34	558,315.09

Therefore, RO, Thimphu besides commenting on the above lapses and non-deduction of TDS should recover the inadmissible payments amounting to Nu. 558,315.09 from the concerned labour contractors and deposit into ARA.

#### **Auditee's Response:**

*The observations issued by Royal Audit Authority have been acknowledged by us. We have a concerns and high regards for the observation made by Royal Audit Authority.*

*We would like to furnish the facts and figures with evidences of following comprehensive explanations under the kind consideration by Royal Audit Authority.*

*As per the note sheet put up vide letter no. DOR/CE(Road)/2010-2011/Works-20/197 on August 02, 2010 submitted through proper channel and it was approved by ministry, RO, Thimphu had executed the RRM wall, breast wall, extension of culvert and cross drains departmentally through engagement of labour contracts in line with the current practices adopted across the country by Regional Offices for execution of departmental works. The tendering process were*

*adopted because only the unforeseen and emergency type works were given on ad-hoc basis mainly to save other structures that was already constructed with huge funds by the Government.*

*The above note sheet was put up based on the floor recommendation during 7<sup>th</sup> DOR, Quarterly meeting's resolution, taking in to account the positive impacts of the system. For the labour contract the cost of labour component was determined by the standard labour coefficients developed and circulated by BSB.*

*The lab or contract was only given to our presently deployed Bhutanese CID holding road workers, they don't have any form of contract licenses and it was unfortunate could not deduct the TDS notable to remit as on date.*

*We would like to submit and further substantiate that there was similar observations by RAA with regard to above subject on overhead charges 10%, Tools and plants 5% and Water charges 1% as per the observation and instruction by RAA, Tools and plants 5% was discontinued right after the observation issued by RAA, other overhead charges 10%, and Water charges 1% are still practicing as on date for the works given on Labour based contract system.*

*We would like to submit the Royal Audit Authority to kindly review above details explanations and requested to consider dropping the above Para.*

#### **RAA's Further Comments & Recommendations:**

*While taking note of the response, it is to reiterate that the labour contracts are awarded without requirement of a trade license, undergoing competitive bids and without establishment of firm/office. Besides, the guidelines of the labour contract Clause 9(h)-Payment, stipulates as "the payment is purely labour payment similar to daily wage paid to labours". The daily wage payment does not include payment for 1% water charges and 10% overhead charges. Thus, the payment of water charges and overhead charges was not justified and stands recoverable.*

*However, as agreed during the exit meeting, the DOR in consultation with the Ministry should look into the issue having regard to the contracting firms with trade license and adequate establishment who are also being paid same percentage of water and overhead charges and also required to pay BIT annually in their incomes. As for the non-deduction of 2% TDS, the DOR and the Ministry should seek clarifications from the concerned RRCO, Department of Revenue and Customs and outcome intimated to the RAA.*

*Further, as discussed during the exit meeting, the DOR in consultation with the Ministry should review the process and methodology adopted by the Regional Offices in the execution of departmental works besides instituting appropriate system for the execution of departmental works and engagement of labour contractors to prevent inflated estimations and expenditures. The appropriate system developed and implemented on the engagement of labour contracts and decisions taken on eligibility of payments of water charges and overhead cost should be intimated to RAA for records and follow-up in future audit.*

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