Addendum 1: OHS item description

Code	Description	Units	PL	GP	SJ	TH
OHS001	Incorporation of Occupational Health and Safety measures at construction sites as per the attached requirements list. The standards and specifications for the Insurance, OHS materials and (or) equipment shall be in compliance with the Labour and Employment Act - 2007, Regulation on Occupational Health, Safety and Welfare - 2012, and other relevant national documents. All OHS items will remain as the property of the bidder upon completion of the project.	Item		Lump sum		

OHS requirement (Sample)

1. Insurance

Every worker shall be insured for the entire period of construction. The capital sum to be insured shall be as per the requirements of Labour and Employment Act of Bhutan - 2007 and its regulations.

2. Personal Protective Equipment (PPE)

Every worker shall be provided with minimal PPE to minimize exposure to hazard and to ensure safety at the construction sites **"at all times"**. The PPE could be grouped and provided as below:

- ❑ To be provided to all:
  - Safety helmet
  - Safety shoes
  - Protective gloves
  - High visibility Vest
  - Dust mask
- ❑ To be provided to specific workers: [1]
  - Safety belt
  - Safety harness
  - Safety goggle and spectacle
  - Ear muffs
  - Ear plugs
  - Welding shield/glass

3. Common Protection Measures (CPMs)

- First Aid tool box with aid kits
- Medical examination and records
- Adequate safety signs and signboards
- Boundary fence/barricade
- Fire and electrical safety
- Fall protection
- Trained OHS Officer/ Safety Supervisor/Safety Representative [2]
- Trained first aider [3]
- Safety and health orientation to new workers and safety training
- Housekeeping
- Traffic management at construction site
- Trenching and excavation safety

Important Note*: *This sample only includes the minimal mandatory requirements. If a procuring agency requires additional OHS inputs, then these requirements should be added to the list. The list will have to be attached in the bid document by the procuring agencies.*

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[1] *Specific workers includes (but not limited to) those workers working at height, welders, workers engaged in works with high noise level, etc.*

[2] *This requirement will only come into effect after the DoL and CDB starts the required training. The site engineer/project manager of the contractor can be OHS officer after getting trained.*

[3] *The site supervisor or one of the workers can be the first aider after getting trained.*

Addendum 2: Guideline on Project Estimation

To bring about uniformity in the estimation process following the incorporation of Occupational Health and Safety (OHS), all the users of the Bhutan Schedule of Rates (BSR) should follow the following procedure for project estimation:

Step 1: Compute the quantity of work and subsequently find the cost against each item of work.

Step 2: Add the cost of all items to get cost 'A' which is the cost of the project at the selected base town.

Step 3: Calculate the Occupational Health and Safety (OHS) cost as per the 'Guideline for Occupational Health and Safety Cost' (OHS cost = OHS cost in % x A).

Step 4: Add the OHS cost to 'A' to get 'B' which is the total cost of project including OHS at the selected base town (B = A + OHS cost).

Step 5: For project locations other than the base towns, add Cost Index to 'B' to get the total cost of project at site (Total Project Cost = B + Cost Index). This will be the final estimate for the project.

Beside the OHS cost and the Cost Index (CI), no other additions shall be permitted in the preparation of project estimates. A sample for the same is also provided for guidance.

Table 1: Sample Calculation

Steps	*Sl. No*	*Code*	*Description*	*L (m)*	*B (m)*	*H (m)*	*Quantity*	*Units*	*Rate*	*Cost*
Step 1	1	RW0067	Construction of gabion wall as per drawings with dry stone masonry (hammer dressed facing) including excavation of foundation in all types of soils, sides and backfilling, delivery of machine woven gabion mesh (Hexagonal mesh of size 100mmx120mm with a minimum of doubly twisted) with GI wire 2.70mm dia, fixing of selvedge wire 3.4 mm dia, binding/lacing wire 2.40 mm dia complete	100.00	-	-	100.00	m	10,458.41	1,045,841.00
	2	RW0108	Construction of Lined V Shaped drain 600 X 300 with 50mm thick PCC 1:2:4, 150mm thick stone soling, RRM in CM 1:5 on sides, finished with 20mm thick 1:4 cement plaster including excavation, leveling and disposal of surplus earth within 50m	100.00	-	-	100.00	m	881.12	88,112.00
	3	RW0081	Providing and constructing boulder barrier, height not exceeding 1.5 m, max. inclination of 20 deg. to the road alignment and width not less than 900mm within 50m lead	35.00	-	-	35.00	m	1,342.37	46,982.95
Step 2	**'A'** (cost of the project at the selected base town) = Sl. No. 1 + Sl. No. 2 + Sl. No. 3									1,138,651.95
Step 3	**OHS cost** (4% in this case)									45,546.08
Step 4	**'B'** (cost of project including OHS at the selected base town) = OHS cost + 'A'									1,184,198.03
Step 5	**Cost Index** (example 5%)									59,209.90
	Total cost of the project = 'B' + Cost Index (final estimate of project)									**1,243,407.93**