

**Beldandi Rural Municipality
Office of the Rural Municipal Executive
Beldandi, Kanchanpur
Kanchanpur District**



Terms of Reference(TOR)

For

**Hiring of Consultants for Preparation of Detail
Design Drawing and Estimate of Cold Store and
Dugdh Chisyan Kendra (Dairy) at Beldandi Rural
Municipality.**

January 2023



1. Background

Beldandi Rural Municipality in the fiscal year 2080/81 in its annual planning and budgeting has proposed the construction of Cold Store and Dugdh Chisyan Kendra (Dairy). In line with the proposed plan. Beldandi Rural Municipality seeks to out source the consulting services for preparation of design drawing and estimate of Cold Store and Dugdh Chisyan Kendra (Dairy) project. In order to out source the competent Consulting firm this Terms of Reference (ToR) has been prepared for the preparation of design drawing and estimate of Cold Store and Dugdh Chisyan Kendra (Dairy) project of Beldandi Rural Municipality.

2. Objectives

The objectives of the assignment are to prepare the Master Plan with DPR, Drawings, Cost Estimate & Report for the Building. However following objective fulfill the proposed study:

- To carry out detailed topographic survey and map of the areas (in appropriate scale).
- To prepare master plan with all physical infrastructures required in the building Area.
- To carry out the Geotechnical Investigation (Soil test by digging 3 boreholes).
- To carry out the structural design of the Building.
- To carry out the Sanitary design required for the Building.
- To carry out the Electrical design (Lighting, Telecommunication and data networking, Security system, fire Alarm System) required for the Building.
- To design the security System.
- To design the Fire fighting system.
- To prepare the Landscape Design.
- To prepare the HVAC Design.
- To prepare the Interior Design.
- The detailed master plan would include detailed engineering survey and design for all the components of infrastructures.
- To design the infrastructure depicting the local architecture and using local construction technology and materials. Drawings of infrastructures should include Plan, Section, Elevation and Perspective view in color format along with soft copies.
- To prepare cost estimates, Bidding Document and Specifications of the project.
- Preparation of schematic drawings, 3D Master plan, cost estimate and Infrastructure development plan

3. Scope of the Work

The Consulting service is required for the preparation of architectural design, structural design, Drawings, detail cost estimate. Specification and bid document of Beldandi Rural municipality. The coldstore should be safe, reliable, cost effective, energy saving (aiming zero energy loss).

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3.1. **Desk Study**
A Desk Study should be carried out, collecting all data, maps (cadastral maps, GIS map, Google map) and other information relevant to building design for planning of further field survey and investigation works as well as detailed design and checked the actual area of the plot and verify with the land revenue office record.

3.2. Detailed Engineering Study and Survey

3.2.1. Technical feasibility study

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It should include reviewing the available data, collecting, reviewing and analysis field data including topographic survey, nature and structure of surface soil and subsurface soil including groundwater and other information as required for the study and conducting analysis to decide upon the technical feasibility of the building.

3.2.2. Master Plan and Conceptual, Designing

The consultant shall prepare and submit conceptual architectural plan design/ outline proposal as well as preliminary cost estimate of the project for approval by Rural Municipality. The consultant shall follow design of the building as per the rules and regulations of one and / or any prior existed Rural municipality within the district.

3.2.3. Building layout Selection

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The most suitable Layout for the Building based on the access to the road. Adequacy of light as well as other building on the surrounding location shall be selected. The Building layout should also be guided by climatic factors and environmental considerations such as solar, rain, wind, temperature, noise, light, energy, efficiency, ventilation etc, and other existing and/ or planned facilities in the area. The selected layout should be clearly indicated in the map and should be as per the Municipality Norms. Rule and Regulation. All the characteristic features of the chosen building site shall be given in order to facilitate easy reference while designing the building.

3.2.4. Seismological Study

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The consultant shall collect and refer to the available seismic data/ records of the area. Seismic Forces. According to the Indian standard criteria for Earthquake Resistant Design of Structure. Nepal National Building Code (NBC). Rural Municipality Norms, Rule and Regulation may be followed.

3.2.5. Consideration on Environment protection

Environment Consideration should start early-on Layout plan of the building should be guided by environmental and climatic factors, and alternative layouts will be compared on environmental and climatic ground. The design of the building should incorporate environmental concepts such as avoiding/ minimizing adverse environmental impacts, recycling or reusing and proper handling of wastes. Making optimal use of natural systems (such as solar energy and natural lights), health and safety as well as accident/ emergency management measures. Contributing, to positive environment aspects (such as recharging

ground water) etc. The proposed layout and designs should be screened for any environmental risks. The consultant shall carry out environment assessment to predict damages of the buildings construction to the environment and attempt first to avoid and then to minimize the risks or damage through appropriate layout and design features. The unavoidable risks should be mitigated through appropriate mitigation measures (technology, type of structures, management etc.). The consultant will suggest appropriate measures in the design for protection of surrounding environment.

3.3. Detailed Design and Quantity/Cost Estimates

Based on the collected information and results of the discussion mentioned above the consultants shall design the building, following the standard codes of practice, norms and guidelines. The relevant codes of IS for the design of Nepal National Building Code (NBC:105:2020) , pre existed Municipality Norms of the district. Rule and Regulation shall be followed. The list of all reference literature and materials shall be provided on the report.

The consultant shall initially complete structural analysis and prepare final structural design drawings showing the structural system used for RCC. Wood, Steel etc. as necessary together with reinforcement details, construction details sizes etc. The structural drawings shall be accompanied by a compiled structural design report giving verifiable calculations for all structural members. The consultant shall prepare Specifications for Structural Design Components.

The consultants shall produce details and all structural drawing as per Rural Municipality Norms. Rule and Regulation and preparation of all documents need for approval.

The consultants shall produce detailed quantity estimate of the building and its accessories including provisions of demolition of existing office buildings. The consultants shall collect information on sources of materials and their lead distances and prepare rate schedules and cost estimates based on the standard norms and prevailing district rates.

3.4. Preparation of the Document

The Consultants shall prepare detailed design and drawings for:

- Architectural
- Structural
- Electrical and Alliedsystem

Drawings should include Structural / Working Drawings. Deliverable shall include,

- Detailed Design.Drawings.
- Drawings for approval of Municipality
- Detailed Unit Rate Analysis, Cost Estimate, work Specifications.
- Complete set of Bidding Documents.

3.5. List of the Drawing Requirements

This list is subject to revisions by the consultant after giving prior notice therefore any further details, Drawings, Design, Documents, and Specification etc. that are deemed necessary for

1. Plan ; scale 1:100/1:50/1:25	a) Ground floor plan with all the necessary details.
	b) Detail drawing showing the all-necessary details.

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	c) Schedule of finishes and specification for different areas and surfaces.
2. The Building Sections; Scale 1:100/1:50/1:25	All relevant longitudinal and cross-section indicating;
	a) All major changes of levels and building heights. Clearly defining the relationship of the various building elements with each other, in terms of vertical heights and distance to be drawn.
	b) Heights of basic elements and levels such as plinths sills, lintels, ceilings, floors, cornices eaves, truss bottom etc.
	c) Slopes of roof and floors applicable to be defined.
	d) All the materials to be specified.
3.The building Elevations scale 1:100	Basic elevations indicating.
	a) Elevation features of doors, Windows columns, Brackets, railings, roof profiles etc. and showing all external faces of the buildings to be drawn.
	b) Details of the elevations and corresponding external wall sections. Defining the arrangement of various elements whether in different of the same vertical plans etc. along with the building's materials used.
4.Construction Details: scale: 1:20/1:10/1:5	Construction details for all building features indicating.
	a) Flooring, Steps and step guards, sills, railing, lintels, Columns, beams, brackets, cornices, ceilings, roofing, plinth protection etc. along with the material to the used.
	b) Partition walls, paneling, skirting, false ceilings, shelving, counters cupboards and other miscellaneous built-in furniture along with the materials specifications and hardware to be used.
5.Doors/ Windows: Scale: 1:20/1:10/1:5	The followings shall be indicated together with the schedule of finishes.
	a) Details elevations clearly showing all traditional features and elements to be incorporated and prepared.
	b) Details section explaining the opening, frame, threshold, shutter sizes etc. to be prepared, along with a drawn description of the traditional detailing aspects and materials to be used.
	c) Details for grills and security bars together with the material used, specifications fixing details.
	d) Schedules and specification for hardware.
	f) Details plans sectional elevations clearly explaining the location of various fixtures ie. Sinks and drain boards exhaust, fans, etc. along with all materials specifications and catalogue references applicable.
6.Structural Drawings: Scale 1:100/1:50	The followings shall be indicating together with the relevant schedules;

1. 10



	a) Layout plans with complete center-to-center measurements.
	b) Foundation plans up to plinth level, complete with details for column footing; load bearing walls, partition walls, plinth beams, etc. with sections at various points and supports showing the entire arrangement of reinforcement with full measurements.
	c) Design and details for lintels, beams cornice beams, suspended floors, columns, shear walls water tanks, posts struts, brackets, etc. at all floor levels with complete sections showing the entire arrangement of reinforcement including bar bending schedule for the complete structure together with full measurements.
	d) Design and details for stair cases with plans and sections at all level's showing the whole reinforcement arrangement with all measurement for stairs. Landing, slabs, beams and foundations.
	e) Details of ceilings, sizes of joists, suspenders and fixing details complete with sections showing the structural arrangement and measurements.
	f) Design and details for trusses, purlin, rafters, posts, struts, post plates, etc. complete with sizes, section and
	g) Design and details of all steel sections with complete measurements, showing the structure arrangement, details of connections, etc.
7. Electrical Layout: Scale 1:50	Proposal for electrification of all floors together with related furniture layout indicating:
	a) Internal electrical layout with respect to location and height of fixture/ fittings such as light points, switches, switch boards, power outlets, exhaust fans, bulk heads, sub distribution boards, main control board, etc
	b) Layout for compound electrifications inside plan along with specification of fittings, poles, brackets, etc, as proposed.
	c) Layout and sections where applicable for cable trenches, cable routes and carthing and its specifications.
	d) Single line diagram in respect of main control board and energy meter, sub distribution boards and load circuits.
8. Engineering consulting during Construction phase	a) The consultant shall have to provide aid and assist during construction process to the RM technical team.

Genda



4. Personnel Requirements:

The consultant should provide and manage a work team comprising of the following professionals to accomplish the proposed assignment. The required number of manpower and man-month should be in accordance with work schedule and manning schedule:

Item	Gazetted Class	Experience
Team Leader (Urban Planner)	Second Class Equal	5 years Experience
Geotechnical Engineer	Second Class Equal	5 years Experience
Architect	Second Class Equal	3 years Experience
Structure Engineer	Second Class Equal	3 years Experience
Civil Engineer	Third Class Equal	3 years Experience
Electrical Engineer	Third Class Equal	3 years Experience
Mechanical Engineer	Third Class Equal	3 years Experience
Sanitary Engineer	Third Class Equal	3 years Experience
Surveyor		

The team should also consist of supporting technical and non-technical staffs.

5. Submission of Reports and presentation of the Works

5.1. Inception Report

This report will contain building size, type and layout plan. Preliminary inception report shall be submitted to Rural Municipality in five topics. This should contain master concepts of overall project as well as the time schedule.

5.2. Preliminary Design Report

This report shall contain the preliminary design concepts and short descriptions relating to the proposed structure and its major components'. Architectural Structural, Electrical, Mechanical and others. It shall include location of proposed if foundations and arrangements of the building components along with comparison/ between the possible alternative types. This report shall be submitted in Three copies and the content shall be discussed with municipality before proceeding to the detailed design of the building. The consultant shall present the preliminary design report to the municipality audience. The cost of such presentation shall be borne by the consultants.

5.3. Draft Report

This draft report shall be in standard format, containing all the required components of the design and be presented in clear and easy to refer formats as per the general design guidance attached.

The complete set of the report should consist of:

- Volume I – Main Report
- Volume II- Drawings (structural/working)
- Volume III- Design Calculations
- Volume IV- Unit Rate Analysis, Cost estimates, Bill of Quantity, and Special provisionsto Standard Specifications, if any.
- Appendices

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This report shall be submitted in Three copies. The report shall also include the drawings, quantity and cost estimate of any standard design the is used in the design. A copy of this draft report shall also be submitted to the Beldandi Rural Municipality for its review.

5.4. Presentation of the Draft Report

Consultant shall present the design report in specified standard format audience prior to the submission of the final report. They shall review the issue raised during the presentation while finalizing the report and make necessary amendments/ corrections if needed. The date and venue of the presentation shall be determined by mutual agreement between the Municipality and the consultants. The cost of such presentation shall be borne by the consultants.

5.5. Final Report

Apart from the presentation, the Municipality will verify the content of the report against the Terms of Reference and the checklist. The Municipality may also discuss upon the technical content of the report and many suggest some changes if through necessary. While preparing the final Report the consultant shall consider the comments/ suggestions and make corrections or amendments if required. It doesn't however relieve the consultants or their responsibility over the technical content of the design. The final report shall be submitted in live copies as indicated in the checklist.

5.6. Soft Copy (Electronic Copy) of the Design

Apart from the bound report the consultants shall submit soft copies (Electronic Copies) of the final report if USB as specified in the checklist.

6. Time Schedule

If not indicated otherwise in the contract documents the consultant shall complete the assigned works as per the following schedule:

- I. Inception report within 1 (One) weeks from the date of signing of the contract.
- II. Preliminary Design Report within 2 (Week) from the date of signing of the contract.
- III. Draft Report within 2.(Week) from the date of signing of the contract.
- IV. Final Report within 4(Four) week from the date of signing of the contract.

7. Payment Schedule

If not indicated otherwise, the payment shall be made as mentioned below:

- 100% after preparation and approved of cost estimates, final BoQs and other contractual documents.

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