

Queries regarding the bid document from the bidders.

S no.	Prevailing Clause	Queries	Final Response
1	Vol II 2 Site specific information	Q.Only a single GPS coordinate is provided, and the scope of the power plant site is not given.	Coordinates of each site have been provided in the bid document along with google earth image highlighting the boundary of the land parcel for each site to make it easier for bidders to visit site and understand the site conditions by themselves. Further, the detailed scope of work for the project at each site is provided in volume II: employer's requirements.
2	Vol II 2 Site specific information Vol III Schedule No. 4 Installation and other services (d) Routine Test Charges for Tests to be conducted at an independent lab to verify quality of goods after delivery of goods.	Q.Detailed distance between each power station and 11kV pole at the interconnection point required for interconnection to be made with 11kV pole and routine test charges for the quality of tests to be done .	The contractor is to erect a pole and terminate at the appropriate location in the site premise. From there on the 11 kV line shall be constructed by NEA. The routine test charges are to be filled by the bidder.
3	Vol I Section 3 Evaluation and qualification Criteria 1.3.3 Operating and Maintenance (o&M) Costs	Q.Three years of operation and maintenance service is proposed in the bidding scope , but it is not mentioned in the quotation form, nor it is mentioned in the payment terms. Please confirm whether the bidding scope of this project includes 3-year operation and maintenance services. If yes, please provide the quotation form of 3-year operation and maintenance services and the payment terms.	The bidder is expected to build in the cost for the Service Level Agreement related activities in the project cost itself. There will be no separate payment schedule for the Service Level Agreement related activities as stated in section 1.5 Service Level Agreement of Vol II: Employer's Requirements. Further, please follow payment terms for detail on payment.
4	Vol I Appendix 1- Terms and Procedures of Payment	The contract terms stipulate that the defect liability period is 540 days from the date of completion or 1 year from the date of operation and acceptance, but the payment condition require that the last 5% payment to be paid after the end of operation and maintenance, which is far beyond the defect liability period. Please reconfirm the last 5% contract payment terms.	They both are different. The 5% payment is held to ensure completion of service level agreement related requirements.
5	Vol I 13. Securities	Performance security shall be released only after the expiration of Service Level Agreement period of 3 years.	The query has been addressed through Addendum 01 - H
6	Vol I Performance Security	Q.As for the requirements of the performance bond, contract 13. security requires the release after the completion of operation and maintenance, and the form of the performance bond itself requires the release 18 months after the completion of the completion of acceptance. since the construction period of the project is 365 days and operation and maintenance period is 3 years , Can the EPC and operation and maintenance of the project be separated and the release condition of the performance bond re-determine?	The query has been addressed through Addendum 01 - I
7	Vol I Advance Payment Security	Q.The payment terms of the contract do not mention the issue of the decline of the advanced payment guarantee, Can the format requirement of the advance payment gaurantee or the payment terms be re-determined?	Bidders are requested to refer to Appendix 1 of Section 9, (A) Terms of Payment where condition for reduction in advance payment security is specified. Verbatim reproduced below: "The advance payment security may be reduced in proportion to the value of the plant and mandatory spare parts delivered to the site, as evidenced by delivery documents."



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8	<p>Clause 2.4.1 – Bidders Experience</p> <p>The requirements for all partners: must meet requirement as follows: Either one partner must meet requirement ,And requirements for each partner : One substantially completed contract of similar nature where such partner's value of participation exceeds US\$ 4.2 million.should be met at the same time.</p>	<p>Q.During the pre bid meeting,It was explained that in the JV partnership – 100% requirement to be met cumulatively by JV with one member having substantially completed a contract of similar nature where it's value of participation exceeded USD 4.2million.Please clarify 2.4.1 Contracts of Similar Size and Nature</p>	<p>Bidders shall refer to sub section 2.4.1 Contracts of Similar Size and Nature, section 2.4 Bidder's experience, Evaluation and Qualification Criteria, Vol 1</p>
9	<p>Clause 2.4.2</p>	<p>Q.As the scope of work under the tender requires expertise in different areas of specialization, it may not be possible for all members to meet the minimum criteria, however cummilyatively establishing the JV partners soundness in completing the works under this tender should be vital for consideration, therefore Clause 2.4.2 should also be reconsidered.</p>	<p>The requirements are in line with the scope and size of the project. No change</p>
10	<p>Concept of Operation (Vol.II, Clause 1.2) & Scope of Work (Vol.II, Clause 1.3)</p> <p>It mentions that the proposed Solar + BESS system should be interconnectable with proposed or existing hydropower plants (Mini/micro/medium) ,</p>	<p>Q.Please clarify if this project is responsible for the synchronization or NEA will through its own mechanism conduct the synchronization process between the various systems ?</p>	<p>Please Note:</p> <ol style="list-style-type: none"> 1. Synchronization of the Solar PV + BESS with the Integrated Nepal Power System Grid will be undertaken by the contractor. 2. Contractors shall analyse, study and propose technical requirement and requisite procedures/instructions for synchronization of Solar PV + BESS with nearby existing and upcoming hydro plants. Also, the contractor shall make the solar +BESS system ready to synchronize with the nearby hydropowers at their end. 3. NEA will be responsible for synchronizing the Solar PV + BESS plant with nearby hydro plants in future.
11	<p>Concept of Operation (Vol.II, Clause 1.2, page 6-7, para 3)</p> <p>mentions that the PCMS should stabilize the grid</p>	<p>Q.Is this related to current situation for even considering future scenario ? Ideally in sprite of the design, the PCMS should prevent reverse flow and any detrimental impact on the other sources of power at the same time providing protection and operational convenience to the plant in consideration.</p>	<p>PCMS is expected to stabilize grid in all scenarios i.e. PV+BESS, PV+BESS+Grid and PV+BESS+Grid+Hydro as stated in section 1.2 Concept of Operation and further detailed in section 3.6 PCMS of Vol II: Employer's Requirements. Further, the proposed power plant control and monitoring system (PCMS) must be capable of integrating and synchronising with the existing and upcoming hydropower generators at all 4 sites when required in the future.</p>
12		<p>Q.Are any provision for reactive power to be incorporated in the system ? If Yes, then what is the requirement of NEA.</p>	<p>(1) PV Inverter power factor shall be adjustable between minimum 0.9 lagging to 0.9 leading (Refer PV inverter data sheet at page 69 of Vol II: Employer's Requirements)</p> <p>(2) PCS or Battery inverter specification /function/protection refer page 80 (Vol II: Employer's Requirements): Power factor of PCS shall be adjustable for both leading and lagging reactive power.</p>
13		<p>Q.Given the global situation today, where supply chain and logistic prices are volatile and NEA assurance in the bid document that contract will be signed within 120 days, we assume that if this condition is deferred in any manner the bidder will have right to remedy ?</p>	<p>NEA will make all efforts to ensure that there are no delays. However, bidders are requested to do their own due dilligence and hedging, as required.</p>



14		Q.The bidders assume that NEA has already acquired the necessary Survey & Generation license from the concerned authorities and the bidder will not have to do the same, including summarized IEA, if necessary?	As per prevailing rules, no license are required for capacity below 1 MW. Further, for any local government approvals as required, the project shall assist.
15	Clause 2.4.1, as per requirement criteria Bidders are required to have experience in at least one contract that has been substantially completed within the last 10 years and that is similar to the proposed contract, where the value of the Bidder's participation exceeds US\$ 13.5 million	in "such types of small projects, the task will be completed in just US\$ 8-9 million " so that bidders participation of US\$ 13.5 million could be hard to meet. Can this criteria reconsidered?	The requirements are in line with the scope and size of the project. No change
16	volume I section 8 14. Taxes and Duties 14 The prices bid by the Contractor for the imported goods and equipment, shall include all taxes, duties and other charges imposed outside the Employer's country on the production, manufacture, sale and transport of the Contractor's Equipment, Plant, Materials and supplies to be used on or furnished under the Contract, and on the services performed under the Contract.	Q.In the item of 14, it describe lots of details of taxation and duty requirement, indicate the contractor should bid the price with all these factors, however the bid we should bid abroad is based on CIP. So how should we settle this, whether we should bid with CIP price but includes all the taxation charge?	The section elaborates on tax reimbursement on submission of relevant tax receipts. Therefore, bid quotations in schedule 1 is in CIP at site (including TDS) and without other taxes. The bidders may refer to Appendix 1 of Section 9, (A) Terms of Payment for further details.
17	volume 1 section 9 Appendix 3 - Insurance Requirements(g) Other Insurance	Q.Except the insurance indicate in the bid document, what other insurance will includes in other insurance scope?	Bidders are requested to do their own due diligence for any other insurance requirement considering the difficulty in transportation and consider that in their bid price.
18	Volume I section 9 Appendix 1 - Terms and Procedures of Payment(A) Terms of Payment:	Q1.In this item, it mentioned about lots of payment, may the bidders know which part is based on LC and which one is based on T/T or other payment? Q2. the detailed explanation of these 5% payment in the description. Q3.In this item, it also indicate of local currency payment, may the bidders know how NEA issue this, whether they will pay contractor whole payment and contractor pay the subcontractor, or they will directly pay the subcontractor of their local work.	Bidders shall refer to Appendix 1, (A) Terms of Payment and (B) Payment Procedures, of Section 9, Contract Forms, Vol 1 of the Bid Document for details
19	Volume I section 8 8. Time for Commencement and Completion: 8.1 The Contractor shall commence work on the Facilities within 7 (seven) days from the Effective Date for determining Time for Completion as specified in the Contract Agreement. 8.2 The Time for Completion of the whole of the Facilities shall be 365 days from the Effective Date as described in the Contract Agreement. Time for Completion for parts of the Facilities: Not Applicable	Q.Plz confirm your company is capable for this requirement or what is the definition of "commence work" in here.	Commence work means any work which marks the starting of the project so as to complete the project within the defined time frame and with required quality.
20	Volume II section 6 1.2 Concept of operation The PV-BESS systems will work under an AC-coupled (AC bus) configuration. The system shall be capable to operate as a standalone (off-grid) hybrid system and shall have provision to interconnect to the main grid at 11 kV through a bus coupler. The distribution feeder for loads operates at 11 kV. The solar PV + BESS plant must have the provision for future synchronization with upcoming and existing mini hydro plants at all 4 sites.	Q1. Are the four sets of independent systems operated in grid-connected mode or off-grid operation in normal condition? Q2. The power line they will connect is AC 11kv power line?	(1) In normal operating condition, the system will work in grid-connected mode. When there is a grid outage, PV+BESS+Hydro will work in standalone mode (2) The NEA grid voltage level where the system is to be integrated is 11 kV AC



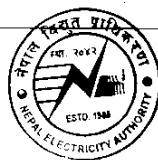
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21	<p>Volume II section 6 1.2 Concept of operation The PV-BESS systems will work under an AC-coupled (AC bus) configuration. The system shall be capable to operate as a standalone (off-grid) hybrid system and shall have provision to interconnect to the main grid at 11 kV through a bus coupler. The distribution feeder for loads operates at 11 kV. The solar PV + BESS plant must have the provision for future synchronization with upcoming and existing mini hydro plants at all 4 sites.</p>	Q. May you kindly share us the information of whole power load of each system? for example the information of power loading equipment, classification and nominal power rate of each devices.	Bidders shall refer to Load Profile data (2.2.6, 2.3.6, 2.4.6 & 2.5.6) given for each site under section 2: Site Specific Information in Vol II: Employer's Requirements. Further details regarding whole power load may be provided during Detailed Design and Engineering Stage
22	<p>Volume II section 6 3.3 Battery Energy Storage System (BESS) 3.3.1 Batteries. 2200 kWh with a maximum 80% Depth of Discharge for Gamgadi, Mugu 3800 kWh with a maximum 80% Depth of Discharge for Jumla 2000 kWh with a maximum 80% Depth of Discharge for Dolpa 3000 kWh with a maximum 80% Depth of Discharge for Humla</p>	Q. May the bidder know the capacity of 2200kWh, 3800kWh, 2000kWh and 3000kWh in the volume 1 document is DC side capacity or AC side capacity?	The capacity of BESS mentioned in the bid document is usable capacity of BESS energy storage on DC side with a maximum DOD. Nominal capacity of the BESS will be: $C(\text{nominal}) = C(\text{usable})/80\%$
23	<p>Volume II section 6 3.3 Battery Energy Storage System (BESS) 3.3.9 Warranty In the Data Sheet for Battery, it indicate the maximum DC voltage of battery shall be 1000 V. Please see attached pic in table reply.</p>	<p>Q. 1000V is the last generation tech, now popular one is 1500V DC supply with liquid cooling system. Comparing with fan cooling 1000V system, the 1500V system has following advantages: a, the battery cell density is higher than 1000V which will make the battery more compact. b, the control of battery temperature will be more efficient and accurate. c, it can be more suitable for higher power rate PCS system.</p> <p>As mentioned above, whether we can use 1500V and AC supply with 690V, reduction voltage via isolation transformer to 400V which can optimize the solution or 1000V DC supply is mandatory?</p>	Bidders shall follow technical specifications laid out for BESS in section 3.3 BESS of Vol II: Employer's Requirements and associated addendums.
24	<p>Volume II Annex Picture GSES/PROJECT/2022-23/KPMG_NEA-10. The maximum DC/AC ratio of the inverter for the design of the PV system shall be 1.1 or less. Additionally, the contractor must ensure that there is no clipping of the PV power due to missing inverter capacity. Selected PV inverters shall have a maximum nominal AC rating of 50.</p>	Q. The rated output power of the inverter in the drawing is 25kW and the rated output power required by the technical parameters of the inverter is 50kW. May I ask which technical parameters should be complied?	The maximum inverter capacity has been revised as per Addendum 01 - L
25	<p>Volume II Annex Picture GSES/PROJECT/2022-23/KPMG_NEA-10</p>	<p>Q. As can be seen from the picture, a DC combiner box needs to be set up between the photovoltaic module and the inverter. However, when a string inverter is applied in a photovoltaic power station, it is generally not necessary to configure a DC combiner box.</p> <p>Question: Does our bidding scheme need to configure the DC combiner box according to the picture requirements?</p>	A DC combiner box with DC isolator and SPDs are required for additional protection of PV inverters
26	<p>Volume II Annex Picture GSES/PROJECT/2022-23/KPMG_NEA-10</p>	Q. The number of PV modules connected to each MPPT string in the drawing is different, which has a certain effects on the power generation. Do the bidders need to change it?	Final number of PV modules in a string will be according to PV module and inverter selected compensating the lowest and highest temperature of the site
27	<p>Volume 2 section 6 3.4 hydropower generator synchronization Provision for communication between hydropower generator controllers and PCMS shall be provided via appropriate communication mode.</p>	Q. According to the bidding documents, the control system of the hydropower generator needs to be connected to the PCMS system, please provide the manufacturer of the hydroelectric generator, product technical specifications, product communication agreement.	Detailed information regarding hydropower generators shall be provided during Detailed Design and Engineering stage



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28	<p>volume 2 section 6 3.3.1.2 Battery Management System (BMS)</p> <p>Furthermore, for cooling no fans shall be used. Natural convection to be used to regulate temperature for less noise. (page 6-79) .</p>	<p>QThe energy storage system currently has two heat dissipation treatment methods, air cooling and liquid cooling, no matter what kind of heat dissipation treatment method, the energy storage system must have a fan. As far as we understand, there is no energy storage system without a fan in the market for similar bidding requirements. May I ask if this requirement can be deleted?</p>	<p>Please refer to ammendment in Addendum 01 - J</p>
29	<p>Volume 2 section 6 3.3.9 warranty (battery data sheet 1.9) and (Volume 3, 3. DOLPA part 1.2 Battery Energy Storage System, DOLPA no.1)</p> <p>1. Cycle lifetime (Full cycles till EOL @ 80% with DOD 80%, 1C/1C at 25°C) requires 6000 times .</p> <p>2. Li-ion Battery storage system in container with BMS, minimum 6000 cycles, Maximum Depth of Discharge 80%, Round trip efficiency 85%, 2 MWh at Dolpa (As specified at section 6: employer's requirements)</p>	<p>Q.In the bidding document volume 2, the battery system is 1C system. in the bidding document volume 3, it is calculated that the battery system is 0.5C system. (1000kVA/2000kWh=0.5). May I ask whether the battery system is based on the 1C system or 0.5C system?</p>	<p>The BESS will be rated at 1C</p>
30	<p>Volume 2 section 6 3.2.5.12 Documentation data sheet of PV Inverter No 1.5 & volume 2 section 6 2.2.3.2 Ambient temperatureTable 3: Solar and temperature data(page 6-22)(reference to the data sheet of inverter)</p>	<p>Q.The minimum temperature range of photovoltaic inverter bidding requirements is -45°C(reagrding to page 6-69 data sheet of pv inverter no 1.5), the actual site temperature minimum value is -10°C(page 6-22 table 3: Solar and temperature), may I ask whether the working temperature range of our bid inverter can be selected according to the lowest temperature of the actual site.</p>	<p>Operating temperature range of inverters can be considered as which is normally provided by reputed manufacturers, which maybe -30°C to +60°C</p>
31	<p>Volume 2 section 6 3.2.2.8 Documentation data sheet of PV module no 1.6 (page 6-55)(reference to the data sheet of PV module)</p>	<p>Q.The minimum temperature range of PV module bidding requirements is -45°C(reagrding to page 6-69 data sheet of pv inverter no 1.5), the actual site temperature minimum value is -10°C(page 6-22 table 3: Solar and temperature), may I ask whether the working temperature range of our bid inverter can be selected according to the lowest temperature of the actual site?</p>	<p>Operating temperature range of PV modules may be considered as the standard temperature range of -40C to + 85C as is provided by reputed manufacturers</p>
32		<p>Q.Is there is an international brand limit for the switchgear required for bidding?</p>	<p>Bidders shall refer to Annexure 1: List of Preferred Make, Vol II: Employer's Requirements</p>
33	<p>Sub-Clause No. 9 Civil Works under Clause No. 2.5 of Section 3 of Evaluation and Qualification criteria</p> <p>I. Must have civil works related experience of at least 5(five) years</p> <p>II. Must have successfully completed the site levelling, foundation works of a solar plant in minimum 1 plant over last five (5) years period ending on the last date of bid submission and shall have been in operation satisfactorily to the end users for at least One (1) year.</p> <p>Must submit end user certificate to substantiate the above experience.</p>	<p>Q1.Could you please clarify the purpose of this clause for Civil work subcontractor only? Since Electrical and BESS is major critical components of this project. Does this mean if there is a subcontractor then they don't need any electrical erection and BESS installation experiences?</p> <p>Q2. The clause intended to limit the participation of bidders as it gives advantage to only limited number of companies who had have completed such works within last 4 years, namely Kushal Projects, GTech, Renergo Developers. Hence, please make this clause open to attract more qualified bidders.</p>	<p>Please refer to EQC in Vol 1. Further, this is an ICB and hence not restricted to local companies. No change.</p>
34	<p>3.3.3 BESS Housing</p> <p>The BESS solution shall solve the module series mismatch in the battery, isolate faulty modules separately, and improve the system installation and maintenance security and maintainability. The detailed architecture solution and implementation mode must be provided, and the function must be tested during inspection at factor</p>	<p>"The BESS solution shall solve the module series mismatch" means it should have the module-level optimization management function. When one module is fully charged/discharged it will be bypassed with the module optimizer automatically, so that other not fully charged/discharged module can continue charging or discharging. How should the contractors prove that the solution has this function to solve the cell mismatch in the battery?</p>	<p>The contractor shall be required to provide an undertaking from the manufacturer. Bidder shall refer to Addendum 01 - X</p>



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35	<p>3.3.3 BESS Housing</p> <p>The BESS solution shall solve the module series mismatch in the battery, isolate faulty modules separately, and improve the system installation and maintenance security and maintainability. The detailed architecture solution and implementation mode must be provided, and the function must be tested during inspection at factor</p>	"isolate faulty modules separately" means if a battery module is faulty, the faulty battery module can be automatically isolated without affecting the normal operation of other battery modules?	Bidders shall refer to Addendum 01 - X
36	<p>3.3.2 Power Conditioning System (PCS) Protections:8)Black start capability</p>	Black start means one-click remote black start capability, and it should shorten whole microgrid recovery at minutes level.	Bidders shall refer to Addendum 01 - N
37	<p>3.3.7 Control and Communication Control Panel</p> <p>The control panel or console shall also include meters, indicators, and displays.</p>	Could the information be displayed through the app or management system? 3D image display of cluster-level and battery pack-level data, Monitors the battery pack-level SOC, charge/discharge power, electrochemical cell SOH/SOC, temperature, and voltage in the cluster.	<p>1. Control Panel must have a physical display at the site as stated in section 3.3.7 control and communications, vol II employer's requirements</p> <p>2. It must also have an app or web based platform for displaying all the information</p>
38	<p>3.3.1.2 Battery Management System (BMS) automatically calculate the battery state of charge (SOC) and battery state of health (SOH). The Contractor shall state how the BMS estimates the SOC, and how the SOC measurement system calibrates itself.</p>	It means the BMS has the capability of automatic SOC calibration function. Should the contractors provide the proof or certification?	Bidders shall provide manufacturer's certification and may further refer to FAT requirements for BESS provided in section 3.3.5 of Vol II: Employer's Requirements
39	<p>1.3 Scope of work</p> <p>Switchgears and other major electrical equipment except for transformers, string inverters, combiner boxes and panels must be housed inside the container.</p>	The protection level of the PCS is IP66, and the protection level of the PCS is higher than container's. The PCS does not need to be placed in the container for protection.	<p>Bidders shall have the option to install the PCS either inside or outside the container. The final decision shall be taken at the time of Detailed Design and Engineering, considering conditions at each site.</p> <p>Bidders are requested to refer to Addendum 01 - M</p>
40	<p>3.2.5.2 Codes and Standards</p> <p>The inverters should be TUV-tested for the required Certificates, CE-marked and in compliance with the applicable standards. Further, the inverter shall be designed, manufactured, and tested in full compliance with the latest edition of the following, but not limited to, standards, codes, rules and regulations:</p> <ul style="list-style-type: none"> •DIN / VDE 0126-1-1 Automatic disconnection device between a generator and the public lowvoltage grid •DIN EN 50178: Electronic equipment for use in power installations •DIN EN 50524 Datasheet and nameplate for photovoltaic inverters •EN 50530: Overall efficiency of photovoltaic inverters •EN 61000-6-4/A1: Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments •IEC 60146-1-1: Semiconductor convertors - General requirements and line-commutated convertors - Part 1-1: Specifications of basic requirements •IEC 60529: Degrees of protection provided by enclosures (IP code) •IEC 61140: Protection against electric shock - Common aspects for installation and equipment •IEC 61683: Photovoltaic systems - Power conditioners - Procedure for measuring efficiency •IEC 61727: Photovoltaic (PV) systems – Characteristic of the utility interface •IEC 62093: Balance-of-system components for photovoltaic systems - Design qualification natural environments •IEC 62109-2: Safety of power converters for use in photovoltaic power systems - Part 2: Particular requirements for inverters •IEC 62116: Testing procedure of islanding prevention measures for utility-interactive photovoltaic inverters •519-2014 - IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems 	<p>DIN / VDE 0126-1-1 DIN EN 50178 DIN EN 50524 IEC 60146-1-1 IEC 62116 519-2014</p> <p>we do not perform related certification, but we can provide related alternative standards to prove that the product meets the project requirements.</p>	Bidders are requested to refer to Addendum 01 - O



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41	3.3.1 Batteries 2200 kWh with a maximum 80% Depth of Discharge for Gamgadi, Mugu 3800 kWh with a maximum 80% Depth of Discharge for Jumla 2000 kWh with a maximum 80% Depth of Discharge for Dolpa 3000 kWh with a maximum 80% Depth of Discharge for Humla	Some energy storage solutions are designed based on 90% DOD, which can meet the project requirements and reduce the CAPEX.	Bidders shall follow the technical specifications defined for BESS in section 3.3.1, Batteries, Vol II: Employer's Requirements
42	3.3.1 Batteries Guaranteed Cycle Life Minimum 6,000 cycles, at DOD (Depth of Discharge) 80% or above at rated power, and remaining battery capacity (State of Charge, SoC) shall be equivalent or above 80% at the end of the above life cycle. The contractor shall provide a lifetime graph from the manufacturer showing the number of cycles vs. DOD.	When the charge and discharge rate is 1C, after the ESS is fully charged and discharged for 6000 cycles, EOL Less than 80% of initial capacity. This requirement could be met through initial overconfiguration.	The capacity of BESS mentioned in the bid document is usable capacity of BESS energy storage on DC side with a maximum DOD. Nominal capacity of the BESS will be: $C(\text{nominal}) = C(\text{usable})/80\%$
43	3.3.1.1 Standards for Battery Systems The following Code and Standards shall be applicable for the project as shown below: IEC 62620 Secondary cells and batteries containing alkaline or other non-acid electrolytes – secondary lithium cells and batteries for use in industrial applications IEC 61508 Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems: Applicable for all Battery Energy Storage IEC 61936-1 Ensure adequacy of workspaces, including protection from arc flash or exposure to electrical hazards, unrestricted access to emergency	We do not perform related certification, but we can provide related alternative standards to prove that the product meets the project requirements.	Bidders are requested to refer to Addendum 01 - P
44	3.3.1.2 Battery Management System (BMS) Furthermore, for cooling no fans shall be used. Natural convection to be used to regulate temperature for less noise. Also, the Contractor shall state how the BMS estimates the SOC, and how the SOC measurement system calibrates itself and if any external periodic intervention is required by the employer.	Air-cooling is a safer industry standard. The BMS is built into the ESS, so the temperature of the whole BESS can be controlled all the time.	Please refer to amendment in Addendum 01 - J
45	3.3.2 Power Conditioning System (PCS) Type: Indoor self-standing type (Installation inside BESS container) Quantity: One (1) set per site to complete the work Output: AC 400 V ($\pm 10\%$), 3 Phase 4Wire, 50Hz	The PCS can adopt the more reliable modular design, and the PCS is independent of containers and placed outdoors. The Rated AC Active Power is each device 200KW@40°C, The Rated AC Voltage is 800 Vac, 3W + PE. We can provide 400V AC output with transformer to meet the requirements.	The bidder may provide PCS of 800 Vac, 3W + PE, however, the bidder will have to provide the required transformer and all other associated equipment at no additional cost to the employer
46	Minimum Rated Capacity : (1) 1000 kW for Gamgadi, Mugu site (2) 2000 kW for Jumla site (3) 1000 kW for Dolpa site (4) 2000 kW for Humla site	The modular design has obvious advantages. The capacity of each modular PCS is 200 Kw.	Modular design is acceptable
47	3.3.1 Batteries Minimum round-trip efficiency: 85%	Is the metering point PCS output? When the metering point is PCS Output, the round-trip efficiency could be met (without auxiliary).	It is PCS output
48	3.2.5.6 Operating Conditions The maximum DC/AC ratio of the inverter for the design of the PV system shall be 1.1 or less. Additionally, the contractor must ensure that there is no clipping of the PV power due to missing inverter capacity. Selected PV inverters shall have a maximum nominal AC rating of 50 kVA	The inverter capacity of the mature solution is 100-150 kVA in the industry. So we suggest that inverters shall have a maximum nominal AC rating of 150 kVA.	The maximum inverter capacity has been revised as per Addendum 01 - L
49	3.3.2.1 Standard for PCS IEEE 519 Harmonics CEA, IEC 62910 LVRT and HVRT	We do not perform related certification, but we can provide related alternative standards to prove that the product meets the project requirements.	Bidders are requested to refer to Addendum 01 - Q



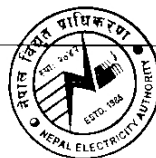
50	3.3.3 BESS Housing Rodent Repellent system – with Master Console panel including support bracket with SITC of Transducer capable of Emitting Ultrasonic sound of frequencies 20 Khz and higher, with blinking LED Indication & shall be capable to cover area of 150 Sq. ft. in floor & ceiling void and 300 Sq. ft. in Room void. Appropriate Rodent Cable and 25" PVC conduit including all accessories.	Most containers adopt the non-walk-in and fully enclosed design. Animals cannot enter the container. All operations can be done outside the container	Bidders shall refer to ammendment as per Addendum 01 - S
51	3.3.3 BESS Housing (c) Containment housing with sliding doors on both sides of the aisle. An intelligent lighting system is installed in the BESS room, corridor aisle and other areas. The lights shall be controlled thru. Motion sensors and turn off / on when there is no occupancy / when there are people. Lighting System - with internal light system shall include a general lighting system designed with ceiling LED lamps (IP20). Containers must have vinyl false flooring, anti-static flooring (IEC 61340), electrical fitments, ventilation, windows, fire rated doors etc.	Most containers adopt the non-walk-in and fully enclosed design. All operations can be done outside the container. Related configurations and functions are not involved.	Bidders shall refer to ammendment as per Addendum 01 - S
52	3.3.3.1 Thermal Management System The thermal management system shall be powered by an auxiliary electrical supply over the full temperature range. Alternate external heat sources are not available and combustible energy sources will not be accepted. The Contractor is to state the max amperage requirements of the electrical supply voltage for thermal management system and the power consumption of the thermal management system under the range of design ambient temperature for operation at full load and no load (idling).	Does the auxiliary power of the container come from hydroelectric power or energy storage?	The Auxiliay power should come from common ac bus
53	3.3.8 Other Design Requirements The Contractor shall provide for and maintain noise mitigation devices like Noise mufflers at site, if required. The contractor must also ensure noise level <1dB at 1m distance. The contractor should use natural convection for cooling to reduce noise levels.	Noise level ≤ 80 dB at 1m distance is more reasonable.	Please refer to ammendment on Addednum 01 - K
54	ITB24.1 The deadline for bid submission is 20th August 2023	We would like to apply for extension of deadline for bid submission for one month to 20th September 2023, considering tight time schedule for bid preparation	The submission date has been extended by 15 days to 04 September 2023. Bidders shall refer to Addendum 01 - E
55	Bidding Document, Volume 1 Section 8, Special Conditions of Contract 14. Taxes and Duties	1. Should VAT be included in Schedule No. 4 Installation and Other Services? 2. What is TDS rate for Schedule No. 4 Installation and Other Services, is it 1.5% to both foreign currency and local currency of Schedule No. 4? 3. Should TDS be included in Column of "CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)" in Schedule No. 1 Plant and Equipment including Mandatory Spares to be supplied from abroad? 4. If foreign currency is quoted in Schedule No. 4 Installation and Other Services, will it be paid in LC or TT?	1. No 2. As per rule of Government of Nepal. 3. Yes 4. Bidders shall refer to Appendix 1, (B) Payment Procedures, of Section 9, Contract Forms, Vol 1 of the Bid Document for details
56	Bidding Documents Volume I, II, III	Please provide WORD format for Bidding Documents Volume I, Volume II, and EXCEL format for Volume III Price Schedules	The pdf version is available at NEA website.
57	Bidding Documents Volume III	We understand that quantities given in BOQ are estimated only for bidding. The quantities can be updated according to detailed engineering design in execution with fixed unit price for all price schedules from Schedule 1 to Schedule 5. Is it correct?	Yes, the bidder's understanding is correct. For further details please visit Vol II, 1.3 scope of work.
58	Section 6 1.2 Concept of operation. Figure 2: Conceptual schematic block diagram of proposed systems	Figure 2 Photovoltaic and energy storage boost the voltage after the AC400V bus is parallel. Is the AC400V bus loaded? If not, can the PV and energy storage systems be connected in parallel after increasing their respective voltages to 11kV?	PV Inverters and BESS inverters will be connected parallel at 400 V AC bus. This bus will be loaded through the 11/0.4kV transformer.
59	Section 6 3.2.5 PV Inverters. The contractor shall use multi-string inverters (inverters with multiple MPPTs) of DC input capacity, not more than 10 kW per MPPT. Selected PV inverters shall have a maximum nominal AC rating of 50kVA	If the photovoltaic and energy storage are allowed to boost to 11kV respectively, can the photovoltaic use 300kW/320kW inverter, output AC800V, will greatly reduce the cable consumption, no need to set the junction box, reduce the point of failure. However, 50~70kW is required for each MPPT.	The maximum inverter capacity has been revised as per Addendum 01 - L



60	Section 6 3 2.4.4 Foundation Figure 26: Conceptual drawing of mounting structure with foundation. The figures may change considering the site condition and yield possibility of the panel.	Are the brackets and assembly layout in this diagram for reference only? Are there requirements for horizontal or vertical layout of components?	Drawing is for reference purpose only. Portrait mounting is not recommended. Please refer 3.2.4. of bid document (vol 2) for structure details.
61	2.3.7 Grid Infrastructure 2.3.7.1 Point of interconnection is to be made upto 11kV pole in the vicinity of the land parcel at each site. Connection beyond that point is the scope of the employer	Set up interconnect points at 11kV poles near each site plot. Is the tower at the loading end or connected to the hydropower station?	The contractor is to erect a pole and terminate at the appropriate location of the site premise. From there on the 11 kV line shall be constructed by NEA.
62	3.5.6 Containerized HT (11 kV) Switchgear	Can the 11kV interface with the hydropower system and load outlet be clearly defined? Is only the access switchgear provided for the optical storage system installed in the existing 11kV distribution system of the hydropower station?	Bidders shall refer to section 3.5 Electrical and Power System Requirements, Vol II: Employer's Requirements
63	3.3.9 Warranty Data Sheet for Battery 2.1 Item : battery Rate: 1C	Batteries with an energy storage capacity of 2MW/3.8MWh in Jumla District, 1MW/2.2MWh in Mugu District, 1MW/2MWh in Dolpa District and 1MW/2MWh in Humla, 0.5C battery rate can fully meet the needs of this project, can the battery charge and discharge rate be designed according to 0.5C?	The BESS will be rated at 1C
64	Section 6 1.2 Concept of operation Figure 2: Conceptual schematic block diagram of proposed systems	If BESS uses 20 'HQ battery prefabricated container, can the project road meet the transportation conditions, and does it need to remove batteries for transportation?	The bidders need to assess the sea/road/air networks, including turning radius leading upto each site and plan appropriate solutions. Bidders shall refer to section 3.3 BESS, Vol II: Employer's Requirements and related addendum for further details for transportation requirements
65	One substantially completed contract of similar nature where such partner's value of participation exceeds US\$ 4.2million.	Does "Similar nature" refer to photovoltaic or BESS projects?	The similarity of the Bidder's participation shall be based on, "Design, supply, installation, testing, commissioning of Solar PV + containerized BESS plants", as stated in sub section 2.4.1, section 3 Evaluation and Qualification Criteria, Vol 1 of the bid document
66	The bidder must have executed contracts of design, supply, installation, testing and commissioning of energy management system (EMS) or Power plant control and monitoring system(PCMS) to maximize renewable energy use in at least 04(four) isolated network with a peak load exceeding 1000KW in each.	The bidder provide the contracts that our EMS or PCMS system has operated in 4 isolated power project, does it meet the requirements?	Bidder shall refer to section 2.4.2 Experience in Key Activities, Evaluation and Qualification Criteria, Vol 1
67	GPS Coordinates 29.9894N, 81.8436E	On the Humla station, the GPS coordinates given in the bidding document are 29.9894N, 81.8436E, but the coordinates given on pages 6-47 of the bidding document are different. Please confirm the exact coordinates of the Humla station.	The location of Humla has been addressed through Addendum 01 - V
68	Routine test charges for tests to be conducted at independent labs to verify quality of goods after delivery of goods	Do products with test reports still need to be tested in an independent laboratory after delivery.	Yes, the bidder's understanding is correct. Please refer to Schedule 4b or 4d as appropriate.
69	3.2.7.3 Enclosure and environmental conditions	Chapter 3.2.7 describes the Metrological Station, why is it related to PCMS described in section 3.2.7.3	3.2.7.3 is related to PCMS where all data cables will be connected from the Meteorological Station
70	Further, the mounting system shall be certified by UL or an approved testing agency to meet the requirement of UL 2703	UL is an American standard, can it meet other international standards, such as TÜV certification in Europe.	Bidders are requested to refer to Addendum 01 - U
71	Data Sheet for Distribution Boxes	There are many types of distribution boxes. What does the distribution box in this table refer to and where is it used?	Distribution Boxes shall be used to install DC isolators and surge arrestors (Surge Protection Devices) in DC side before inverter and in the AC side (output of inverters) for overvoltage protection of inverters (in addition to the in-built protection inside the inverters). Please refer clause 3.9 of bid document (vol 2)
72	Data Sheet for MCCB (moulded case circuit breaker)	The following table provides a description of the cables. Please provide a data sheet for MCCB	The query has been addressed through Addendum 01 - W

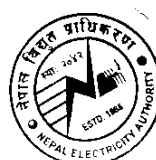


73	The panel area (inter row pathway and peripheral pathway) shall be illuminated with external lighting system; utmost care should be taken for avoiding any shading effect due to the poles. All lighting equipment shall be LED luminaries. They must comply with IES LM 79-08 and IES LM 80-15 standards. All external lighting used on the project shall be International Dark Sky Association IDA certified.	Is it feasible for the lighting system to meet IEC standards and provide relevant certification or test reports according to IEC standards	Bidders are requested to refer to Addendum 01 - Z
74	Single-Stage: Two-Envelope Bidding Procedure Volume I 1.3.4 Functional Guarantees of the Facilities 3. BESS Availability =96%"	The energy efficiency of batteries currently prevailing is $\geq 94\%$. Energy Efficiency – Rated Multiplier (Discharge Energy/Discharge Ah)/(Charge Energy/Charge Ah). Therefore, can the battery availability of 96% be changed to an energy efficiency of $\geq 94\%$?"	No change. Bidders shall refer to sub section 3.12.2 Guarantee Tests, of section 3.12 Functional Guarantee Tests, Vol II for the definition of BESS availability
75	Single-Stage: Two-Envelope Bidding Procedure Volume I 1.3.4 Functional Guarantees of the Facilities 5. Service Life*1 : BESS =8 years	According to the battery performance index, the battery life is generally calculated by the number of charge times. In the case of charging and discharging multiplication 0.5C, DOD $\geq 90\%$, 25°C, EOL=80%, the number of cycles (times) of charging/discharging $\geq 6,000$ times is used as a parameter indicator of battery life. Can the battery life be expressed as above instead of 8 years?"	No change. - The minimum number of cycles required are 6000. The minimum service life shall be 8 years - Bidder shall refer to sub section 1.3.4 Functional Guarantee of Facilities, Section 3 EQC of Vol 1 for definition of service life.
76	Single-Stage: Two-Envelope Bidding Procedure Volume II 3.10.8 Containerized office cum control room along with PCMS Other Specifications for the containerized control room shall be as follows: IP Rating =55 (min)	At present, the general enclosure protection level, the battery compartment protection level is IP54; 11KV box-type substation protection level is IP44 Can we design it according to this IP level?	No change.
77	Single-Stage: Two-Envelope Bidding Procedure Volume II"3.2.4 Mounting Structure/3.2.4.2Wind loading/As per Nepal National Building Code NBC 104: 1994 (Wind Load) the basic wind speed for all four sites is 55 m/s (≈ 200 km /hour). The PV module mounting structure shall be designed to withstand a minimum wind speed of 200 km/h for all four sites. Foundation must be designed considering the soil properties, snow level, icing and design loads accordingly.	Is the minimum wind speed of 200 km/h only for PV module mounting structures?	The minimum wind speed of 200km/h is to be considered for installing all equipment and structures
78		The four sites are 11KV outlets, external lines are not included in this bid, is it sufficient to reserve 11KV line connections for this project?	Please refer to clarification No.2
79		We hope the bidding can be postponed by four weeks	The submission date has been extended by 15 days to 04 September 2023. Bidders shall refer to Addendum 01 - E
80	2.4.2 Experience in Key Activities	Seek confirmation on the following options: A. If each partner of a JV need to submit evidence to prove that they have both PV and BESS experience B. JV combined to submit evidence to prove that they do have both PV and BESS experience (e.g. Partner A submit solar experience evidence and partner B submits BESS experience evidence)	Option B is correct. All partners combined must meet requirement.
81	3.3.8 Other Design Requirements The Contractor shall provide for and maintain noise mitigation devices like Noise mufflers at site, if required. The contractor must also ensure noise level <1dB at 1m distance. The contractor should use natural convection for cooling to reduce noise levels.	Noise level ≤ 80 dB at 1m distance is more reasonable.	The requirement for noise level has been addressed through Addendum 01 - K
82	3.2.5.6 Operating Conditions The maximum DC/AC ratio of the inverter for the design of the PV system shall be 1.1 or less. Additionally, the contractor must ensure that there is no clipping of the PV power due to missing inverter capacity. Selected PV inverters shall have a maximum nominal AC rating of 50 kVA	The inverter capacity of the mature solution is 100-150 kVA in the industry. So we suggest that inverters shall have a maximum nominal AC rating of 150 kVA.	The maximum inverter capacity has been revised as per Addendum 01 - L



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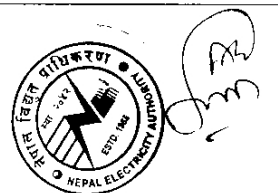
83	<p>3.3.1 Batteries</p> <p>Guaranteed Cycle Life</p> <p>Minimum 6,000 cycles, at DOD (Depth of Discharge) 80% or above at rated power, and remaining battery capacity (State of Charge, SoC) shall be equivalent or above 80% at the end of the above life cycle. The contractor shall provide a lifetime graph from the manufacturer showing the number of cycles vs. DOD.</p>	<p>After the ESS is fully charged and discharged for 6000 cycles, EOL Less than 80% of initial capacity. This requirement could be met through initial overconfiguration or post-replenishment.</p>	<p>The capacity of BESS mentioned in the bid document is usable capacity of BESS energy storage on DC side with a maximum DOD. Nominal capacity of the BESS will be:</p> $C(\text{nominal}) = C(\text{usable})/80\%$
84	<p>3.2.5.2 Codes and Standards</p> <p>The inverters should be TUV-tested for the required Certificates, CE-marked and in compliance with the applicable standards. Further, the inverter shall be designed, manufactured, and tested in full compliance with the latest edition of the following, but not limited to, standards, codes, rules and regulations:</p> <ul style="list-style-type: none"> •DIN / VDE 0126-1-1 Automatic disconnection device between a generator and the public lowvoltage grid •DIN EN 50178: Electronic equipment for use in power installations •DIN EN 50524 Datasheet and nameplate for photovoltaic inverters •IEC 60146-1-1: Semiconductor convertors - General requirements and line-commutated convertors - Part 1-1: Specifications of basic requirements •519-2014 - IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems <p>3.3.1.1 Standards for Battery Systems</p> <p>The following Code and Standards shall be applicable for the project as shown below:</p> <p>IEC 62620 Secondary cells and batteries containing alkaline or other non-acid electrolytes – secondary lithium cells and batteries for use in industrial applications</p> <p>IEC 61508 Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems: Applicable for all Battery Energy Storage</p> <p>IEC 61936-1 Ensure adequacy of workspaces, including protection from arc flash or exposure to electrical hazards, unrestricted access to emergency exits, and reduce risk of exposure to fire suppression systems.</p> <p>3.3.2.1 Standard for PCS</p> <p>IEEE 519 Harmonics</p> <p>CEA, IEC 62910 LVRT and HVRT</p>	<p>We do not perform related certification, but we can provide related alternative standards to prove that the product meets the project requirements .</p>	<p>Bidders shall refer to Addendum 01 - O for the revised requirements for PV inverters.</p> <p>For Battery systems bidders shall refer to Addendum 01 - P</p> <p>For PCS bidders are requested to refer to Addendum 01 - Q</p>
85	<p>1.3 Scope of work</p> <p>Switchgears and other major electrical equipment except for transformers, string inverters, combiner boxes and panels must be housed inside the container.</p>	<p>The protection level of the PCS is IP66, and the protection level of the PCS is higher than container's. The PCS does not need to be placed in the container for protection.</p>	<p>Bidders are requested to refer to Addendum 01 - M</p>
86	<p>3.2.4.5 Materials</p> <p>The structure will be designed to last for the complete 25 years of project life span; hence it should be free from corrosion. Hot Dipped Galvanised Iron (HDGI) structure with Stainless Steel (SS) nut bolts and fixing arrangements for the proposed solar PV plants. The thickness of the galvanised coating shall be more than 120 microns.</p>	<p>Please provide corrosive environment of the project</p>	<p>Bidders are requested to visit site, analyze and follow specifications provided in 3.2.4.5. Further details on corrosive environment shall be clear during detailed design and engineering once the contractor conducts all necessary soil tests.</p>

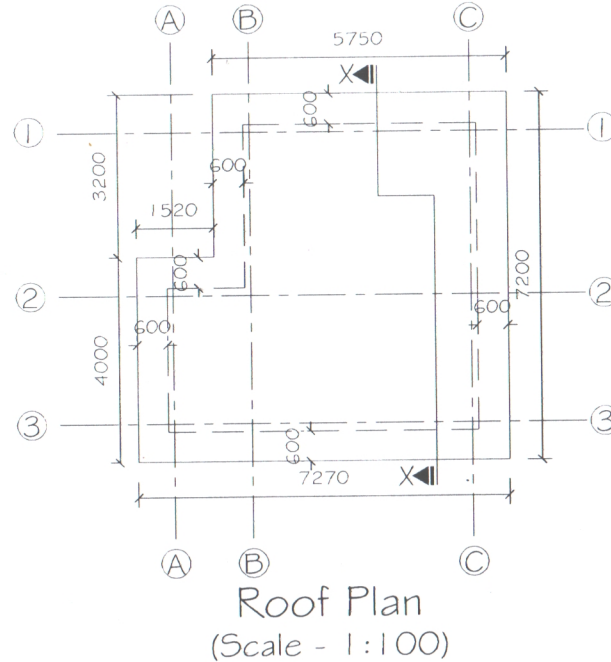
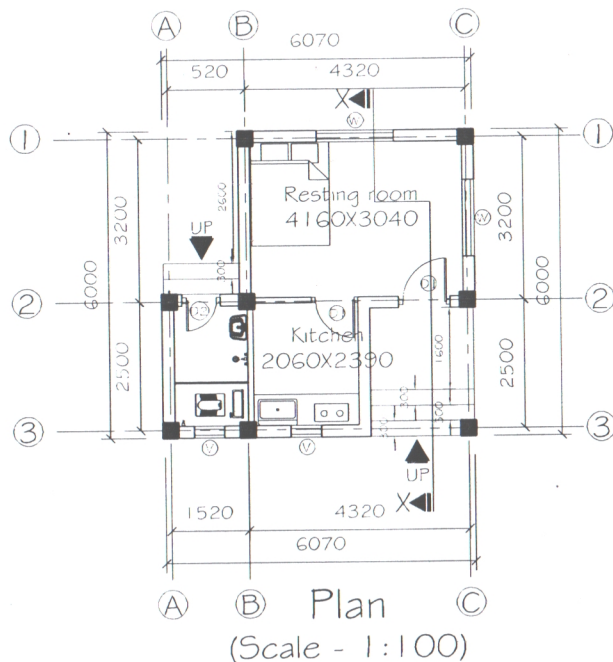


87	3.2.4 Mounting Structure	According to the feedback from the module supplier, the static load test data of the module on the front side under horizontal installation is +3600pa, and the static load test data of the module on the front side under vertical installation is +5400pa. Since the design wind speed of the project is 200km/hr and the installation angle is recommended to be 30 deg, the static load on the front side of the module in the project is preliminarily calculated according to the IEC specification to be +4400pa. Therefore, it is recommended to install the module vertically in this project. Can the mounting angle be reduced?	Bidders shall follow specifications as laid out in 3.2.4. However, this could be considered during detailed design and engineering once contractor conducts all detailed site analysis
88	Scope of Work	Whether the connection from the PV plant to hydro powerhouse, 11kV main grid, 11kV distribution feeder for loads under the scope of work? If so, tell us the distance of the transmission line (or cable) from the vicinity of the project area to grid, hydro power house.	Please refer to above clarifications
89	3.5.3 Power Transformer and switchgear Winding conductor should be electrolytic grade copper, free from scales and burrs. To avoid shrinkage during operation, windings shall be subjected to shrinkage treatment.	The winding conductor using aluminum can meet all the requirements. So can it be supplied the aluminum instead of copper?	No
90	HT/LT AC Cabling LT AC Cables: Cable sizes shall be selected considering the power loss, current carrying capacity, voltage drop, maximum short circuit duty and the period of short circuit to meet the anticipated currents. -Cables shall be 1100 V grade, multicore, XLPE insulated with extruded PVC inner sheath. -The conductor shall be high conductivity annealed copper and shall be smooth, uniform in quality and free from scale and any defects.	The LV AC cable conductor using aluminum can meet all the requirements. So can it be supplied the aluminum instead of copper?	No
91	3.2.2.5 Construction Requirements The contractor shall arrange an RFID reader at no additional cost to the employer to show the RFID details of the modules at the site.	Such information can provide a complete set of documents instead of adding RFID. Whether it can be accepted?	No
92	General Specifications of transformers & Technical parameters of LV/MV transformers 3.5.3 Power transformer and Switchgear Tapping Range: $\pm 10\%$ in steps of 2.5% Technical Parameters of LV/MV Transformer Tap Range +7.5% to -7.5% in steps of 1.25% each	Please confirm which requirement to follow?	Tapping Range: $\pm 10\%$ in steps of 2.5%
93		We would like to be allowed to visit at least one site to assess the site conditions and challenges involved.	Bidders are requested to visit all 4 sites and assess site conditions and accessibility before submitting the bids
94		Is it possible to put the lead member financial criteria as the eligible instead of all the JV members as the eligibility of the project	Please refer to EQC vol 1.
95		As the tender scope of work says solar PV system supply and installation and Bess system supply and installation and integration with hydro power and also says not limited to with a * mark. Can the scope be specified in clear instead keeping it as open ended for the better understanding of the services need and arrive at the actual project costs to quote for the bid	The bidders shall refer to section 1: scope of supply of plant and services, vol II: Employer's requirements for detailed description of scope of works of the project
96		What would be the time lines for completion of work as being an high altitude place with challenges in movement during winter and monsoon months	Bidders are to plan considering high altitude, transportation limitations, lack of infrastructure, yearly weather conditions and complete within stipulated time.



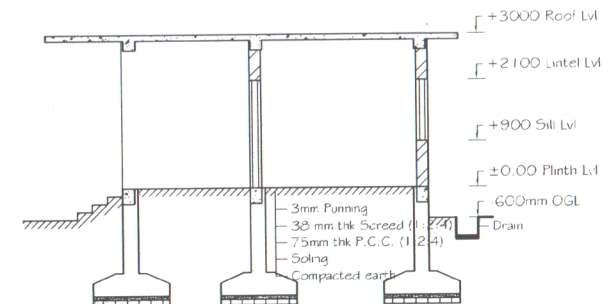
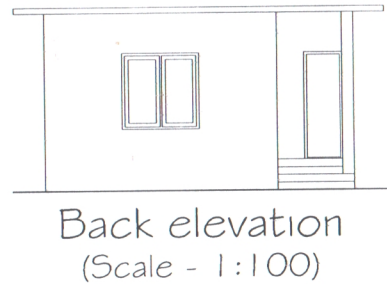
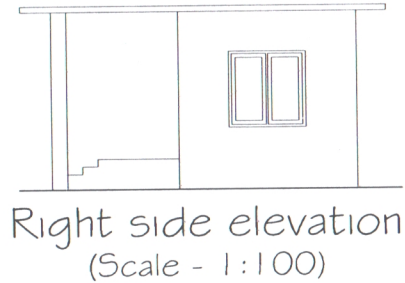
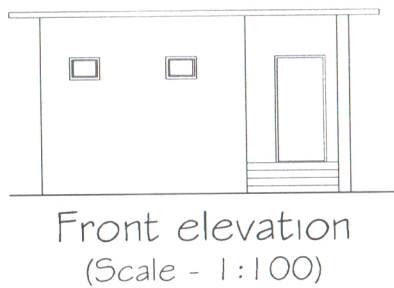
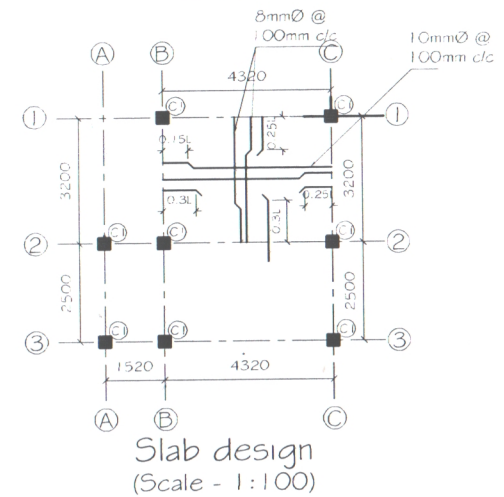
97	<p>Clause 2.4.1 – Bidders Experience</p> <p>The requirements for all partners: must meet requirement as follows: Either one partner must meet requirement, And requirements for each partner : One substantially completed contract of similar nature where such partner's value of participation exceeds US\$ 4.2 million.should be met at the same time.</p>	<p>Suggestion is to eliminate the requirement for each partner in a Joint Venture to meet the US\$ 4.2 million participation threshold. Instead, we suggest that the primary bidder (lead contractor) in a Joint Venture meets the minimum participation threshold of US\$ 13.5 million, while the overall Joint Venture itself demonstrates collective experience that aligns with the proposed project's scope and complexity.</p>	<p>Please refer to EQC vol 1.</p>
98		<p>In Vol 1 - section 9 Contract Forms- Appendix 1 Terms and Procedure of Payment for schedule 1 it is mentioned that "Forty percent (40%) of the total or pro rata CIP or amount upon Incoterm — CIP," within forty-five (45) days after delivery of goods in good condition at the site." what does good condition means?</p>	<p>Here the good condition means both good physical and working condition. As only physical condition can be observed at site in that stage, the contractor shall provide an undertaking stating that if the goods are found to be faulty during installation and operation, they shall immediately replace/repair as appropriate at no additional cost to the employer.</p>
99		<p>Please provide drawings for guard house as stated in BOQ 4(a) 7.01</p>	<p>Please find attached the drawings for guard house and boundary wall</p>





Door Window Schedule (Wooden type)

S.N.	Symbol	Description	Nos.	Size
1	D1	Single panel door	2	1000 X 2100
2	D2	Single panel door	1	750 X 2100
3	W	Double hung window	2	1500 X 1500
4	V	Ventilation window	2	600 X 450



GENERAL NOTES

1. NO MEASUREMENTS SHALL BE DIRECTLY TAKEN FROM THE DWG. WRITTEN DIMENSIONS SHALL BE FOLLOWED.
2. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS NOTED OTHERWISE.
3. PLACING OF FOUNDATION CONCRETE SHALL BE DONE AS SOON AS EXCAVATION HAS BEEN COMPLETED AND APPROVED BY SITE ENGINEER.
4. BACK FILLING OF FOUNDATION WALL SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDES.
5. BACK FILLING SHALL BE DONE IN LAYERS OF NOT MORE THAN 150 mm EACH LAYER.
6. DRAWINGS FOR ELECTRIFICATION AND SANITATION WILL BE SUBMITTED SEPARATELY AS PER SPECIFICATION.

B. CONCRETE AND REINFORCING STEEL

1. CAST IN SITU SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE CUBE STRENGTH OF 20 N/mm² FOR STRUCTURAL MEMBERS.
2. REINFORCING STEEL SHALL BE NEW HOT ROLLED DEFORMED BARS HAVING A MINIMUM YIELD STRENGTH OF 35 N/mm².
3. MINIMUM REINFORCING LAPS SHALL BE SPECIFIED IN STRUCTURAL DRAWINGS.

4. COVER TO MAIN REINFORCING STEEL IN STRUCTURAL ELEMENTS
CLEAR COVER OF CONCRETE
SLAB - 15 mm
BEAM - 25 mm
COLUMN - 40 mm
FOOTING - 50 mm
STAIRCASE - 20 mm
5. THE CEMENT USED SHALL BE ORDINARY PORTLAND CEMENT.
6. BAR BENDING SCHEDULE SHALL BE PREPARED BEFORE CASTING CONCRETE.
7. THE STIRRUPS SHALL BE PLACED AT 100 mm c/c AT EVERY LAP LENGTH OF THE REINFORCEMENT.

Nepal Electricity Authority
(Government of Nepal undertaking)

Karnali Solar Energy Project

Contractor:

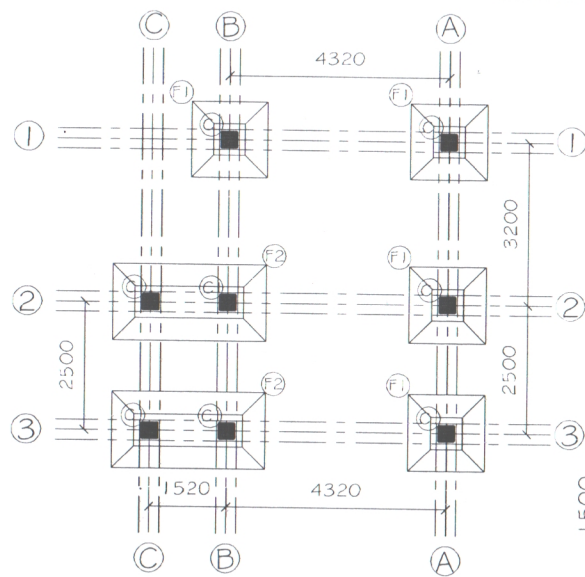


Brief Description:

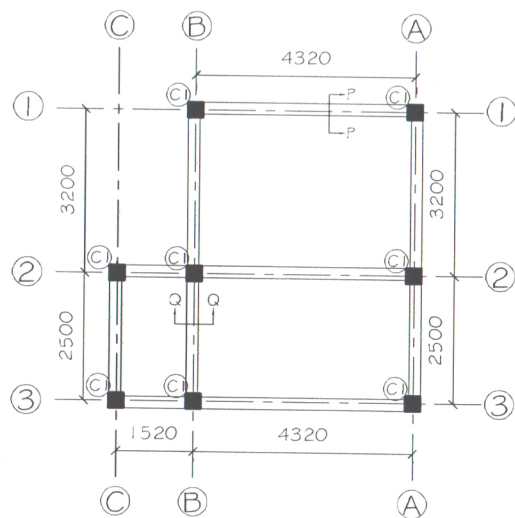
Guard House
Plans, Elevations, Section &
Slab design

Scale:
As Given

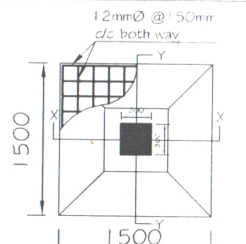
GH1



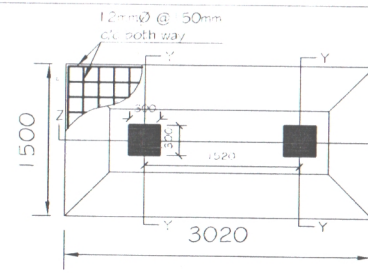
Foundation Plan
(Scale - 1:100)



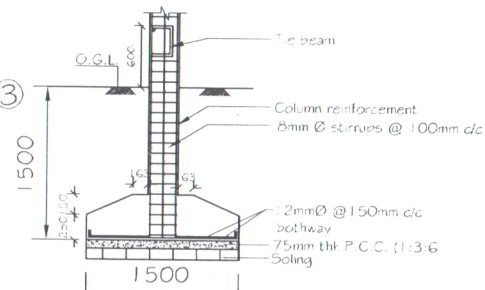
Tie beam Plan
(Scale - 1:100)



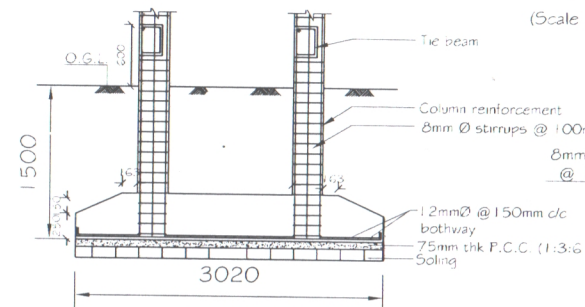
Footing Plan (F1)
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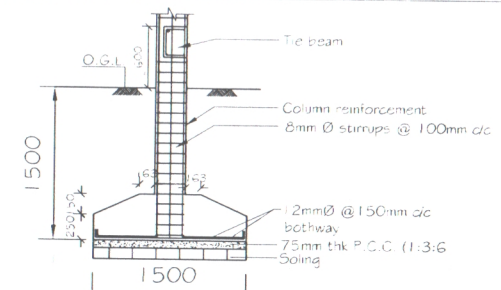
Footing Plan (F2)
(Scale - 1:50)



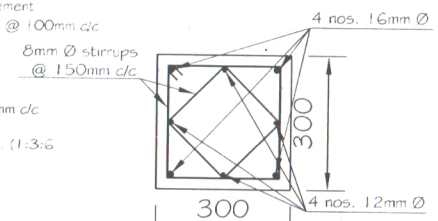
Section at Y-Y
(Scale - 1:50)



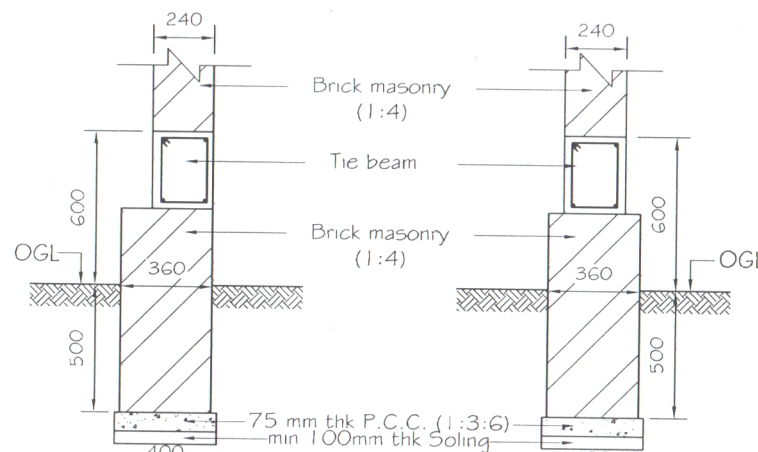
Section at Z-Z
(Scale - 1:50)



Section at X-X
(Scale - 1:50)

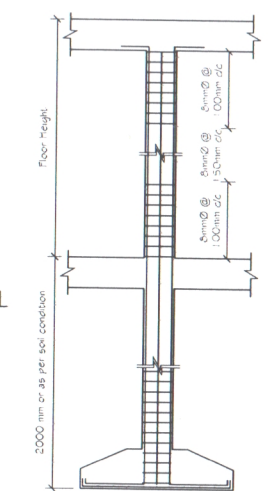


Detail of Column C1
(Scale - 1:10)

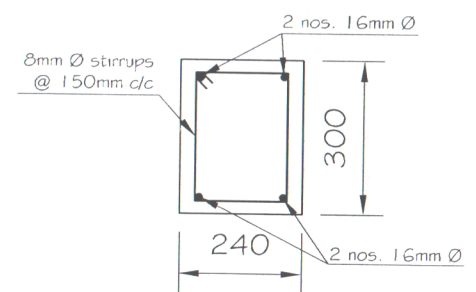


Section at P-P
(Scale - 1:20)

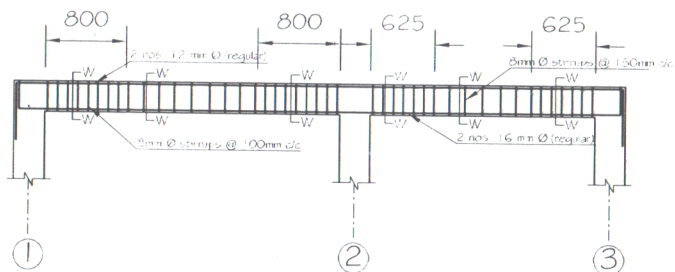
Section at Q-Q
(Scale - 1:20)



Column Ductile
Reinforcement Detail
(Scale - 1:50)

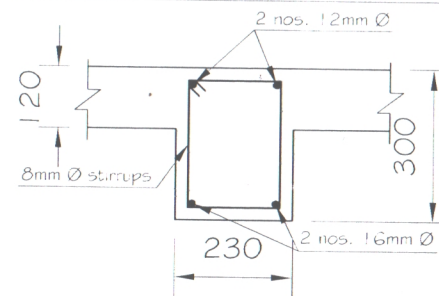


Tie beam section
throughout building
(Scale - 1:10)



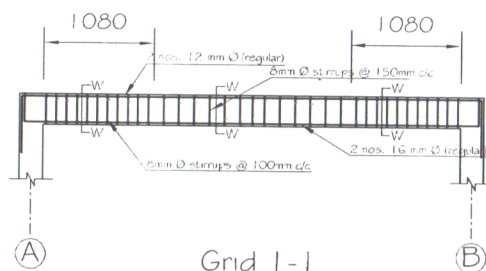
Grid A-A and B-B

(Scale - 1:50)



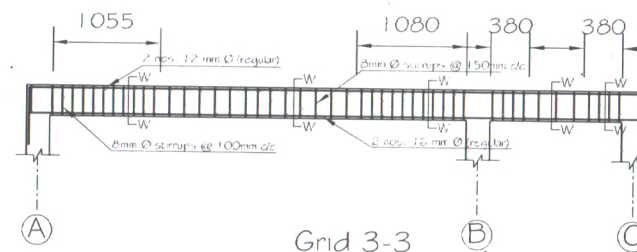
Section at W-W

(Scale - 1:10)



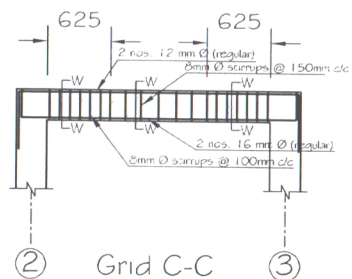
Grid I-I

(Scale - 1:50)



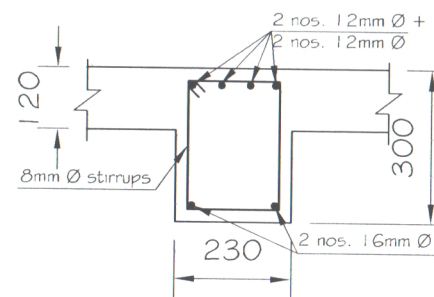
Grid 3-3

(Scale - 1:50)



Grid C-C

(Scale - 1:50)



Section at T-T

(Scale - 1:10)

Nepal Electricity Authority
(Government of Nepal undertaking)

Karnali Solar Energy Project

Contractor:

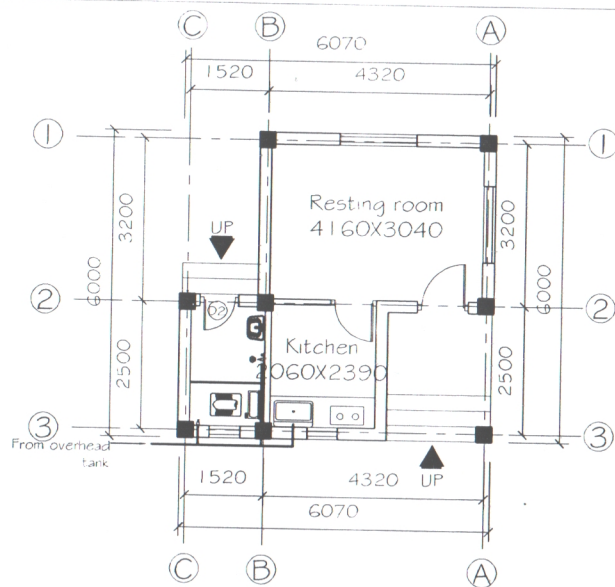


Brief Description:

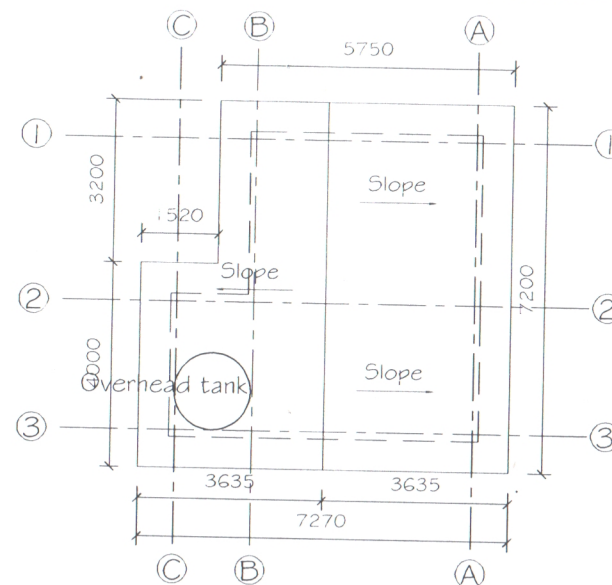
Guard House
Beam & Slab details

Scale:
As Given

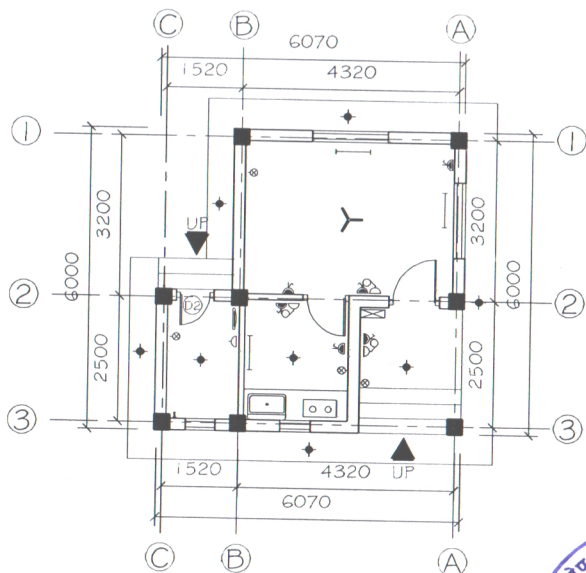
GH3



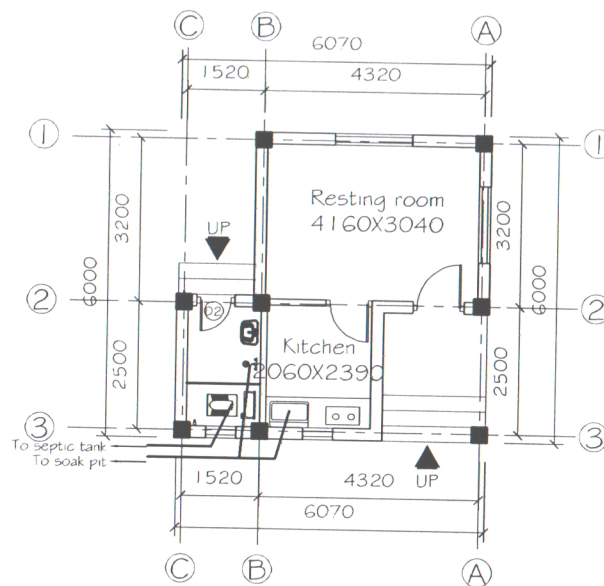
Water supply Plan
(Scale - 1:100)



Overhead tank Plan
(Scale - 1:100)



Typical Electrical Layout



Sanitation Plan
(Scale - 1:100)

Nepal Electricity Authority
(Government of Nepal undertaking)
Karnali Solar Energy Project

Contractor:

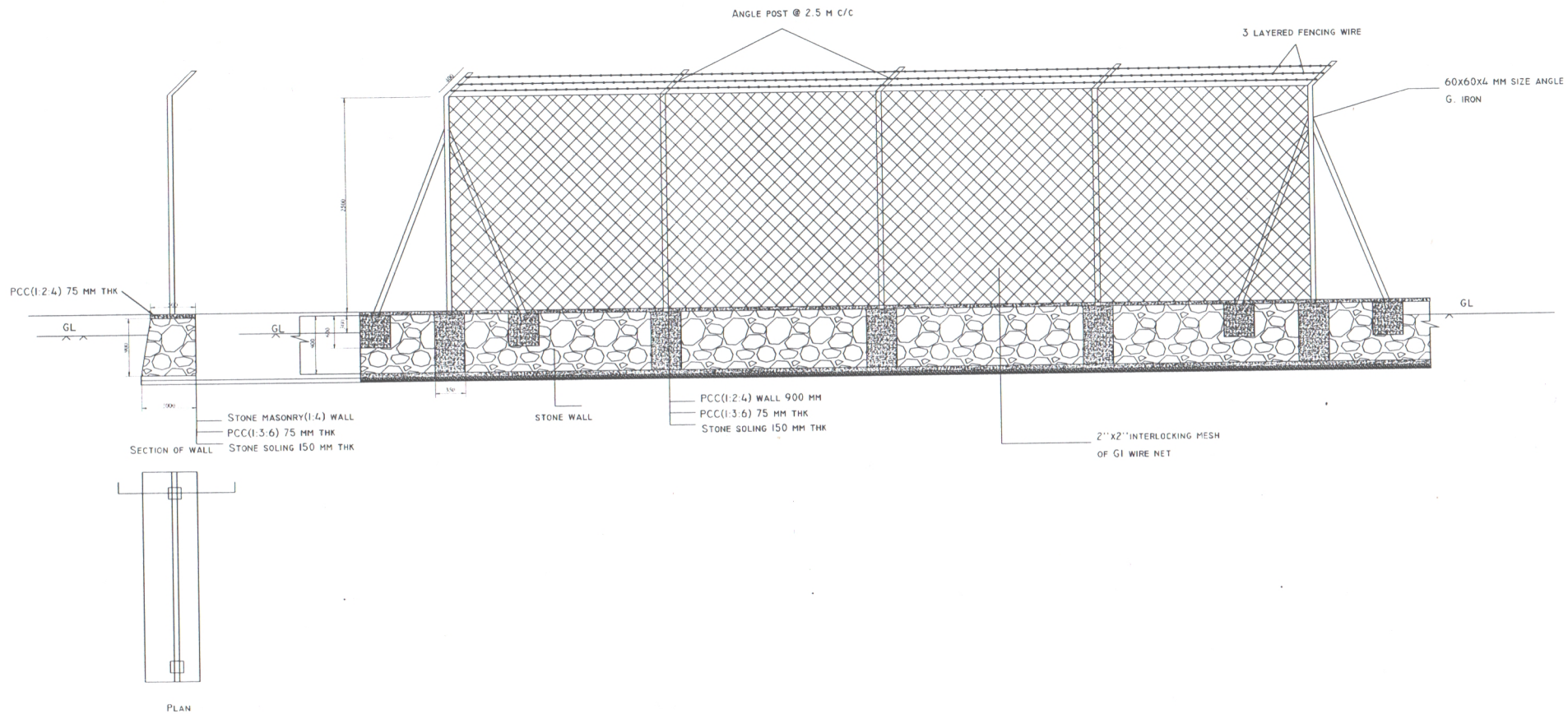


Brief Description:

Guard House
Water Supply and Sanitation

Scale:
As Given

GH4



FOR TENDER PURPOSE ONLY

NEPAL ELECTICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
KARNALI SOLAR ENERGY PROJECT

SHEET TITLE:

BOUNDARY WALL

DESIGNED BY:

CHECKED BY:

APPROVED BY:

NOT IN SCALE

DRG NO :
FOUNDATION

SHEET NO:

[Handwritten Signature]

