



Project: 2 x 660 MW Ennore SEZ Super Critical Thermal Power Project

**CORRIGENDUM
NO. –1 dt.
18.05.2021**

Supply & Supervision of Installation of Ground Improvement System for Coal Stockpile

**Tender Ref. No.
Enquiry No.
77/20/6134/RRC
Dtd.29.04.2021**

Please note the following point

Sl. No.	Event Description	TO NOTE
1	Techno-commercial	Corrigendum -1 issued to Include the following documents 1. Replies to Pre bid queries 2. Corrigendum-I to commercial terms and conditions.
2	All other terms & conditions	Remain unchanged.

Note:

Also, please note that the full tender document can be downloaded from the website
<https://eprocurebhel.co.in/nicgep/app>

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All other terms and conditions remain the same as per the original enquiry and it's subsequent amendment / addendum / corrigendum /clarification.

Any further addendum / corrigendum/ clarification/ notice of due date extension such issued shall be part of the bidding documents and this will be available at the web site from where the original documents have been received / downloaded by the bidder.

Hence bidders are requested to visit the web site on regular basis.

Corrigendum-I to Commercial terms and conditions

Enquiry No: 77/20/6134/RRC dated 29.04.2021.

Item: Supply & Supervision of Installation of Ground Improvement System for Coal Stockpile

Project: 2 x 660 MW Ennore SEZ Super Critical Thermal Power Project

Sl.No.	cl.no	Existing	To be read as
1	21 of SCC, Validity of the Offer	90 Days from the date of the opening of the tender. In case revised price bids / impact price are sought due to revision in BOM / scope during techno- evaluation, then the revised price bids shall also be valid for another 60 days from the revised due date.	120 Days from the date of the opening of the tender. In case revised price bids / impact price are sought due to revision in BOM / scope during techno- evaluation, then the revised price bids shall also be valid for another 60 days from the revised due date
2	48 of SCC (New clause)	New clause: Time schedule for conducting test patch work	<u>To be added:</u> Time schedule for conducting test patch work shall be as follows: a) Supply: within 15 days of intimation from BHEL. b) Bidder shall depute adequate competent engineers for supervision of installation of test patch within 1-week intimation from BHEL and shall be available till completion of installation of Ground Improvement as per instruction of engineering in-charge.

Replies for pre bid queries -Lot1

Project	TANGEDCO - Ennore SEZ - 2x660 MW TPS	
Package	Geocell Ground Improvement for Coal Stockpile area	
Tender ref	77/20/6134/RRC dtd.29.04.2021	
S. No.	Bidders' Queries	BHEL Reply
A	COMMERCIAL/ PQ criteria	
1	We are the Indian entity involved in engineering design and supply of Geocell/ other Geosynthetics from our principal manufacturer abroad. We request you to allow us to bid for the tender as the main bidder. We shall further submit the required credentials/docs of similar job performance from our principal manufacturer along with an authorization letter from them. Also, since we shall be bidding for this tender the required financial turnover certificates will be submitted by us i.e. Indian entity we hope this to be acceptable.	Credentials for Technical & Financial criteria shall be that of the main bidder only. However, bidders may please refer annexure-V of GCC.
2	Timeline for procuring the Geocell will be prolonged during the current situation for an entity like us who are proposing to procure Geocell material from the principal manufacturer. In such a case, the test patch evaluation may not be done for all bidders simultaneously under similar environmental conditions. In conjunction with other points such as resources, logistics, and cost heads involved in the test patch we request you to consider the test patch item.	Schedule for Test patch Work shall be as follows: a) Supply: within 15 days of intimation from BHEL. b) Bidder shall depute adequate competent engineers for supervision of installation of test patch within 1-week intimation from BHEL and shall be available till completion of installation of Ground Improvement as per instruction of engineering in-charge.
3	Wherever it is not feasible for bifurcation of value for the supply of material and of providing services, the purchase order/contract will be treated as Composite Contract and TDS will be deducted on whole contract/purchase order value as per applicable rate. Query: TDS will it be deducted on services part only or both material and services?	GST TDS will be applicable for total contract value. However, IT TDS will be applicable only for service portion as per statutes and as stated in NIT
4	75% of ex-works price value on pro-rata basis with 100% GST (as applicable) against receipt of material to project site. Query: Since this is a short duration project (i.e. 3 months), is it possible to allow payments through lot-wise Letter of Credits (LCs)? Such provision can help the supplier maintain the project cash flow by discounting of LCs. Else a large amount of money will be blocked for the supplier as the supply will have to be continued till the bills are processed.	Tender conditions prevail
5	25% of ex-works price value along with 100% freight on pro-rata basis after submission of Material Receipt Certificate (MRC) issued by project site engineer of Purchaser / TANGEDCO. Obtaining MRC from the project site engineer of Purchaser / TANGEDCO is in the scope of Bidder. Query: The work will be awarded to the supplier by BHEL and materials shall be supplied to the BHEL store. Under this condition, the supplier need not get the MRC from TANGEDCO. Also, since the supplier will not have any formal contract/agreement with TANGEDCO, it may become a lengthy process for the supplier to get MRC and will further delay the release of payments to the supplier. Hence, we request that the material receipt certificate (MRC) be obtained by BHEL from TANGEDCO.	Tender conditions prevail
6	For supervision of installation - 100% basic price + GST on prorata basis, against completion and certification by the site in charge. The statement is contradictory, both Prorate basis and Completion & certification by site in-charge is mentioned. Query: The statement is contradictory, both Prorate basis and Completion & certification by site in-charge is mentioned. Typically, monthly invoices shall be raised for installation supervision. The same should be certified by the site in charge and payment should be processed.	It is clarified that payment will be processed on prorata basis for the completed quantity in the respective month upon certification by site in-charge
7	We request the following: a. The LD clause shall not be evoked in case the supplier payments are not released as per the payment terms mentioned in clause 12 of SCC by BHEL. b. the LD amount shall be restricted to a maximum of 5% of the contract value.	a)Tender conditions prevail b)Tender conditions prevail. However, bidder may please refer GCC ,Annexure-VIII for loading incase of deviation to LD
8	Please clarify, when the LOI will be issued to the supplier. In addition, we request the following : a. Can the PBG amount be reduced to 5% and its validity to 12 months from the date of completion? b. Share the list of consortium banks	1. Please refer sl.no.3 of SCC for bid evaluation and ordering methodology 2.PBG amount and validity shall be inline with tender conditions. 3. Please refer GCC for list of consortium banks.
9	Kindly share the timeline for the entire tender process and work execution. This will enable bidders to plan for the test patch as well as the main work after the successful performance of the test patch. We request that the first supply for main work should be after 45 days from the date of LOI	Follow Tender specifications
10	The Expenses involved with testpatch are high and not possible to supply the material and resources free of Cost. Hence please do the corrigendum in tender for the Paid test patch or remove this design validation criteria though Field Test	Tender conditions prevail

11	Request to either remove test patch section requirement or float separate tender for the same along with commercial terms and price bid requirement - executing on FOC basis is limiting factor for participation as cost of execution is considerable Furthermore, already performance guarantee is being taken for longer term that 45 days.	Tender conditons prevail
12	Since each bidder has to submit own design and cross section conforming to design criteria ; please clarify in case L1/L2A and L3A have different Geocell specs/ design cross section and Layer thickness ; how same will be adjusted at site	The stockpiles shall be allocated to the successful bidders as detailed in SCC Cl. 3. Only one vendor and Geocell system shall be followed in each of the stockpiles
13	Applicable in case of failure of Geocell material as per approved cross section and not applicable if failure attributable to overloading or Force Majeure condition	Tender conditons prevail.
14	As we are authorized Distributors and Applicators for M/s PRS Med in Inda ; we shall submit Documentary proof sourced from M/s PRS Med ; Kindly Approve	Credentials for Technical & Financial criteria shall be that of the main bidder only.However, bidders may please refer annexure-V of GCC.
15	We request you to remove the test patch demonstration item due to following Commercial reasons: Resources and Logistics for arrangement of test patch and preparation of final top layer of M20 RCC as per cross section will be time consuming The proportionate cost of mobilization and logistics is very high for doing test patch and hence not viable free of cost.	Tender conditons prevail
16	Furthermore bidder will be required to give Guarantee/Warranty for DLP & LDL as per SCC (2yrs+5yrs) which is sufficient to hold bidder laible for successful implementation of Geocell system as per technical criteria; thus obliivating requirement of test patch for evaluation period of 45 days	Tender conditons prevail
17	Further in case test patch is non-dispensable item; We request you to float separate price bid for executing test patch to account for cost heads such as material/test arrangements/manpower ; we can execute the same against 10%PBG	Tender conditons prevail
B	TECHNICAL	
1	Geocell is manufactured by polymeric material which tends to have plastic volumetric strain due to continuous static loading. Hence it will degrade the Stiffness of Geocell material over time which directly affects the Computed settlement through FEM. Hence this Property of Geocell material should be analyzed separately during technical evaluation (Supported by laboratory test docs) as it cannot be modeled in FEM	Stiffness of the Geocell system shall be modelled in FEM Analysis considering the long term effects like creep etc. as applicable as per relevant codes. Geocell properties with supporting Lab test reports shall be submitted as per Cl. 5.1 of the Technical Specofocations.
2	We require assistance to determine quality and grade of infill material available at site as we are unable to travel under the current conditions to site. It is important to have this data at design stage as it is one of the factors which determines geocell grid dimensions. In addition, it also impacts overall cost if we assume optimal material ourselves and the same is extremely cost prohibitive to use at site at a later date	The readily available material at site is the existing pond ash which is to be excavated for installation of Geocell. Any other cost-effective suitable in-fill material shall be chosen by the bidder. Properties of the in-fill material shall be suitably chosen by the bidder.
3	We represent international geocell manufacturers who are not at this time interested or able to independently participate in the tender – we would like to be able to participate in our name using their documents to satisfy tender technical criteria. This helps widen the net and ensure more participation combining the best of international OEMs and design talent – ensuring we are bringing in new technology to building our nation.	Credentials for Technical & Financial criteria shall be that of the main bidder only.However, bidders may please refer annexure-V of GCC.
4	Geocell manufacturing is a well-known technology and there are various manufacturers in India, however our partners specialize in such ground stabilization solutions through material and manufacturing process innovation that is not yet available in India. It is requested that design methodology explicitly mention that design process must consider life of the stock yard and consistent performance notwithstanding external factors. This can also be done by specifying fatigue and creep properties of geocell material being used as per relevant international standards.	The design life of the Coal stockyard is 30 years . Stiffness of the Geocell system shall be modelled in FEM Analysis considering the long term effects like creep etc. as applicable, as per relevant codes.
5	As per design requirement, to meet the Technical Performance mentioned in the bid document, we shall source the Geocell with suitable material properties from any Indian/International manufacturer. In respect to same we shall submit following documents along with our offer : (i) Authorisation letter from Manufacturer in our favour to participate in subject bid. (ii) Credentials/experience of manufacturer for use of quoted product in Similar Project and Value as specified in Tender Documents. (iii) All the test certificate of Geocell to confirm material properties as per International Standards, obtained by manufacturer.	Credentials for Technical & Financial criteria shall be that of the main bidder only.However, bidders may please refer annexure-V of GCC.
6	To keep all the bidder on common platform, BHEL should specify the Infill material properties. Geocell performance in any project depends on properties of Infill material and will have bearing on overall project cost. Hence, variation in total project cost will affect Bid evaluation process.	The readily available material at site is the existing pond ash which is to be excavated for installation of Geocell. Any other cost-effective suitable in-fill material shall be chosen by the bidder. Properties of the in-fill material shall be suitably chosen by the bidder.
7	To keep all bidder on common platform, The Property of Geocell material for Long term plastic deformation i.e. Creep should also be considered as a criteria for technical evaluation for the design life.	Stiffness of the Geocell system shall be modelled in FEM Analysis considering the long term effects like creep etc. as applicable, as per relevant codes.
8	We request that the test patch size be reduced to 50m wide x 30m length, this will reduce the cost impact on bidders.	Dimensions as per Tender specifications retained.
9	The loading and settlement monitoring of the test patch shall be in the scope of BHEL	Loading shall be in the scope of BHEL, to be executed under the supervision of the bidder. Instrumentation and monitoring shall be in the scope of the bidder.

10	We request you to compute settlement through empirical methods as per IRC / BIS. Also Please specify the Design Concept / Code	Computation of settlement shall be using FEM analysis as detailed in Cl. 4 of the Technical Specifications
11	The additional Reinforcement to be provided to conventional cross section or it is allowed to optimize the conventional solution with Concrete Paver blocks + Geocell item. Please clarify	Conventional Grade slab as detailed in Technical Specification will be provided by BHEL over the installed Geocell system.
12	Please also Specify the Properties of Locally available material shall be used as Geocell infill (i.e. Cohesion & internal friction angle, CBR)	The readily available material at site is the existing pond ash which is to be excavated for installation of Geocell. Any other cost-effective suitable in-fill material shall be chosen by the bidder. Properties of the in-fill material shall be suitably chosen by the bidder.
13	The Design Life is not included in tender documents except 45 days of testing. Therefore, it is requested to Specify the design life of yard for Settlement analysis.	The design life of the Coal stockyard is 30 years . Stiffness of the Geocell system shall be modelled in FEM Analysis considering the long term effects like creep etc. as applicable, as per relevant codes.
14	We request you to please add Case 4 in Load conditions maintenance support with heavy duty machinery to limit platform deformation and ensure its stiffness subject to such traffic for the lifespan of the stock yard	There is no such heavy duty maintenance machinery and therefore this load case is not required.
15	Please specify the Height.	Height of Coal Stack is 12.5m having a surcharge load of 15 T/m ² as stated in the Technical Specifications.
16	Durability criteria – should be required life span of more than 30 years for the application without degradation of performances. This is a normal requirement. Any values of design parameters should be taken at end of design life. The MIF factor of the selected Geocell should be durable for 30 years. The stiffness requirements of the platform to achieve the minimal settlements should be validated for design life of 30 years.	The design life of the Coal stockyard is 30 years . Stiffness of the Geocell system shall be modelled in FEM Analysis considering the long term effects like creep etc. as applicable, as per relevant codes.
17	We request you to provide in bore log data sheets additional data related to compressive properties of the soil sections along with the SPT values	Borelog with SPT N values already available in Technical Specifications
18	Other analysis methodologies that are technically sound should also be accepted	Well established FEM design tool like PLAXIS or equivalent can be used.
19	Different geocells behave differently depending on material, dimensions and manufacturing process. It is not possible to judge geocell performance behaviour over a period of just 45 days - relevant geocell properties can be specified like strength and plastic creep which have a direct impact on overall settlement - these properties can be measured as per international standards which will be a better reflection of real life performance over longer term. For this design life of stocking area needs to be defined clearly as well. Along with design life - loading cycles also need to be considered i.e. weather maximum load will be maintained throughout design life or cyclical loading can be expected as and when coal is used and replenished	Material with suitable properties like stiffness strength etc. to be chosen by bidder. Additional factors like Creep etc. as applicable as per relevant codes to be considered in the designs for the design life. Considering the silty sub-soil, major settlement will be immediate and therefore the 45 days observation beyond loading is inadequate
20	As per IRC 75 2015 - settlement of up to 300mm is required - so kindly consider increasing threshold accordingly. The soil investigation reports indicate that a settlement of just 150mm is not viable	No changes in Tender specifications.
21	Kindly mention what is the factor of safety to be considered at design stage in the design criteria section	The design shall be done for the settlements stipulated under the defined loading.
22	Can design approach change pre defined cross section layers or the same are to be necessarily followed as specified?	Paving layers and thickness shall be as per Technical specifications.
23	We request you to consider total cumulative settlement criteria to be limited 250mm-300mm instead of 150mm	No changes in Tender specifications.
24	Pls allow Limit state method to be used for design validation as per Mohr-Coloumb. FEM is more relevant for R&D cases so beside FEM other method of design shall also be allowed	Analysis shall be done using PLAXIS or equivalent software with material modelling.
25	We request you to remove the test patch demonstration item due to following Technical reasons 1. Design Validation through test patch time period of 45 days may not hold good for entire Design Life of Coal stockyard 2. Settlement is directly related to deformation of Geocell and deformation is Proportionate to creep resistance of Geocell material which should be less than 3% for the entire design life; the same can be measured as per ASTM 6992; and tensile strength shall not less than 16kN/m for (perforated strip) as per ISO 10319. Most of the Geocell material may not show deformation and subsequent settlement within 45 days' time however it may deform over a period of 12 to 24 months; hence design validation by test patch for 45 days may not hold good for entire design life and may be misleading	As the soil is predominantly silty, major settlement is expected to be immediate and therefore the 45 days monitoring is adequate. Analysis considering the long term effects like creep etc. as applicable, as per relevant codes.
26	Please indicate the design life of the stack yard. Is stage wise stacking up to full capacity is allowed. As the 45 days testing is mentioned to certify the settlement of 150mm.	The design life of the Coal stockyard is 30 years.
27	We request you to indicate Design life of Coal stockyard and stipulate the settlement criteria to be demonstrated by design for the entire design life based on Creep Criteria as per ASTM D-6992 to be <3%	The design life of the Coal stockyard is 30 years . Analysis considering the long term effects like creep etc. as applicable, as per relevant codes.
28	We propose to design Geocell layer after boulder soling and other layers will be same as conventional cross sectional given. Please confirm.	The grade slab/ paving layers as detailed in the Technical specification shall be laid over the Geocell layer.

29	<p>The performance of Geocell based solution also depends upon infill material type . Hence please provide the Geocell infill material properties as it will affect the analysis?</p> <p>For a satisfactory estimate of the settlement, the effective stress-void ratio relationship of the soil in each layer is required. No test result of consolidation test are available from bore holes considered in this report. Coefficient of compression C_c, initial void ratio e_0, coefficient of consolidation C_v and over consolidation ratio OCR, Kindly provide or clarify this</p> <p>We understand that the top infill is flyash/pond ash upto 2-3m as per soil report. Please clarify if the pond ash layer is to remove fully or partially. If not then please provide the fill material properties as shown in Bore Log report.</p>	<p>The readily available material at site is the existing pond ash which is to be excavated for installation of Geocell. Any other cost-effective suitable in-fill material shall be chosen by the bidder.</p> <p>Properties of the in-fill material shall be suitably chosen by the bidder.</p>
30	<p>The soil report of 7 nos of bore hole is given please mentioned which bore hole data is to take in design analysis. or We have to consider average value . Please confirm.</p>	<p>Design parameters shall be suitably derived from the provided borehole data.</p>