

Ref: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679/Corg 06

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ALL BIDDERS

**Sub: Corrigendum-06: PQR amendment, Issuance of clarification, Issuance of Revised BOQ**

**Job:** Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS

**Tender Specification Number:** BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

Bidders to kindly take note of the following:

**AA) PQR B and C-1 are being revised as below:**

| SI No    | Existing PQR                                                                                                                                                                                                                                                                                            | Amended PQR                                                                                                                                                                                                                                                                                             |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | <b>B_Technical PQR</b>                                                                                                                                                                                                                                                                                  | <b>B_Technical PQR</b>                                                                                                                                                                                                                                                                                  |
|          | Bidder shall essentially meet all the Qualifying Requirements <b>(i.e. B.1 &amp; B.2)</b> as under, in the last seven years as on latest date of bid submission:                                                                                                                                        | Bidder shall essentially meet all the Qualifying Requirements <b>(i.e. B.1 &amp; B.2)</b> as under, in the last seven years as on latest date of bid submission:                                                                                                                                        |
| <b>B</b> | <b>B.1:</b> Bidder should have Executed <b>"Piling or Civil or Structure or 'Civil and Structural Works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these works"</b> for any one of the following in the last seven years from latest date of bid submission: | <b>B.1:</b> Bidder should have Executed <b>"Piling or Civil or Structure or 'Civil and Structural Works' or RCC Chimney or RCC Cooling Tower or RCC Silo or Mill Bunker or any combination of these works"</b> for any one of the following in the last seven years from latest date of bid submission: |
|          | <b>B.1.1)</b> Executed One work of value not less than <b>Rs. 1224 Lakhs</b> against single work order.                                                                                                                                                                                                 | <b>B.1.1)</b> Executed One work of value not less than <b>Rs. 1212 Lakhs</b> against single work order.                                                                                                                                                                                                 |
|          | <b>OR</b>                                                                                                                                                                                                                                                                                               | <b>OR</b>                                                                                                                                                                                                                                                                                               |
|          | <b>B.1.2)</b> Executed Two works each of value not less than <b>Rs. 765 Lakhs</b> against maximum two work orders.                                                                                                                                                                                      | <b>B.1.2)</b> Executed Two works each of value not less than <b>Rs. 757.5 Lakhs</b> against maximum two work orders.                                                                                                                                                                                    |
|          | <b>OR</b>                                                                                                                                                                                                                                                                                               | <b>OR</b>                                                                                                                                                                                                                                                                                               |

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| SI No      | Existing PQR                                                                                                                                                                                                                                                                                                                                                                                                                                            | Amended PQR                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | <p><b>B.1.3)</b> Executed Three works each of value not less than <b>Rs. 612 Lakhs</b> against maximum three work orders.</p> <p><b>AND</b></p> <p><b>B.2:</b> Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least <b>7197 Cum</b> in cumulative of maximum two running/completed contracts within a common period of "twelve consecutive months" in any Power or Industrial Projects in the last seven (07) years.</p> | <p><b>B.1.3)</b> Executed Three works each of value not less than <b>Rs. 606 Lakhs</b> against maximum three work orders.</p> <p><b>AND</b></p> <p><b>B.2:</b> Bidder should have executed Reinforced Cement Concrete (RCC) quantities of at least <b>7960 Cum</b> in cumulative of maximum two running/completed contracts within a common period of "twelve consecutive months" in any Power or Industrial Projects in the last seven (07) years.</p> |
| <b>C-1</b> | Bidders must have achieved an average annual financial turnover (audited) of Rs. <b>459.00 Lakhs or more</b> over last three Financial Years (FY) i.e 2019-20 , 2020-21 & 2021-2022'                                                                                                                                                                                                                                                                    | Bidders must have achieved an average annual financial turnover (audited) of <b>Rs. 454.5 Lakhs or more</b> over last three Financial Years (FY) i.e 2019-20 , 2020-21 & 2021-2022'                                                                                                                                                                                                                                                                     |

**BB) ISSUANCE OF CLARIFICATIONS:.**

| Sr.no | Description                              | Existing                    | Bidders Query /Modification requested                                                                         | BHEL's Reply                                           |
|-------|------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| 1     | BOQ item no. 1100 – Damp proof course    | Item description is missing | We request you to kindly provide the details of type/specification of Damp proof course.                      | Item Description incorporated in revised BOQ           |
| 2     | BOQ item no. 908 (b) – Damp proof course | Item description is missing | We request you to kindly provide the details of type/specification of steel windows/ ventilator – fixed type. | Item Description for 908 b is already available in BOQ |

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| Sr.no | Description                               | Existing                                                                                                           | Bidders Query /Modification requested                                                                          | BHEL's Reply                                                                                                           |
|-------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 3     | "Unit" of BOQ item no. 704 (b) – PVC pipe | Unit of Item no. 704 b is mentioned as "kg"                                                                        | PVC pipe (of all Diameter) –                                                                                   |                                                                                                                        |
|       |                                           |                                                                                                                    | i) Kindly confirm the unit of the item.                                                                        | i) Unit of Item is "KG"                                                                                                |
|       |                                           |                                                                                                                    | ii) We suggest you to provide <b>diameter-wise quantities of PVC pipes in 'Rmt'</b> .                          | ii) Tender condition shall prevail                                                                                     |
|       |                                           |                                                                                                                    | iii) Also, provide <b>pressure rating</b> for the same.                                                        | iii) Pressure rating shall be 4 Kg/Cm <sup>2</sup>                                                                     |
|       |                                           |                                                                                                                    |                                                                                                                |                                                                                                                        |
| 4     | Ready Mix Concrete (RMC)                  | RMC shall be provided free of cost by BHEL at BP of BHEL's RMC / other Agency                                      | Kindly confirm the <b>lead in kms</b> from the proposed Batching Plant of BHEL's RMC / Other Agency from Site. | The batching plant(s) shall be inside the plant premises. Which shall be within Approx. 1Km radius.                    |
| 5     | Free Issue Material (Cement) by BHEL      | Item no. A510, A519, 1008, A1201, 1202, 1204, 1205, A1403,1406,1408, A1417, A1418, 1419, A1427, B1827, 2213, B2415 | Cement shall be provided free of cost by BHEL for these items. Please confirm.                                 | Cement Shall be free issue material as per TCC. Cement for making precast tiles/pipes etc. shall be in vendor's scope. |
| 6     | Free Issue Material by BHEL               | Item nos. 1809, 1814, A2418, A2419, A2421, A2422                                                                   | Concrete, Rebar, Structural Steel shall be supplied free of cost by BHEL for these items.                      | TMT, Structural Steel & concrete shall be free issue material as per TCC                                               |
|       |                                           |                                                                                                                    | Please confirm.                                                                                                |                                                                                                                        |

| Sr.no | Description                       | Existing       | Bidders Query /Modification requested                                                        | BHEL's Reply                                                                                                                                                                                                                                                                                                                |
|-------|-----------------------------------|----------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7     | Free Issue Material by BHEL       | Item no. A1603 | Structural steel required for Platform Grid shall be supplied free of cost by BHEL.          | Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be supplied by BHEL                                                                                                                                                                                                                     |
|       |                                   |                | Please confirm.                                                                              |                                                                                                                                                                                                                                                                                                                             |
|       |                                   |                |                                                                                              |                                                                                                                                                                                                                                                                                                                             |
| 8     | General Arrangement Drawing (GAD) | Not available  | We request you to kindly provide:                                                            |                                                                                                                                                                                                                                                                                                                             |
|       |                                   |                | i) <b>GAD</b> of proposed Switchyard, Switch Gear & Control Room, GIS Building, AHU Building | Presently General Arrangement Drawing not available. Civil Drawings will be provided to successful bidder after detail Engineering<br><br>Control Room Building- Proposed Control Room Building is single Storey RCC Building. However, it may be liable to change to Multi- storey RCC Building during Detail Engineering. |
|       |                                   |                | ii) Whether above proposed buildings are Single/ Multistoried?                               | GIS Building & AHU Building: GIS is pre Engineered Building having height of approx. 13M single storey while AHU is Single Storey RCC Building & AHU building may be liable to change in Multi-storey during detailed Engineering.                                                                                          |
|       |                                   |                | iii) Approximate area in square meter.                                                       | Control Room Building approx. area Ranges 1500Sqm to 2000Sqm.                                                                                                                                                                                                                                                               |

| Sr.no | Description                                             | Existing            | Bidders Query / Modification requested                                                                                                                                                                                                                       | BHEL's Reply                                                                                                                                        |
|-------|---------------------------------------------------------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                                                         |                     |                                                                                                                                                                                                                                                              | GIS & AHU Room Building approx. area ranges 1000sqmt to 1800Sqm. However, areas of building may also be liable to change during detail Engineering. |
| 9     |                                                         |                     | Whether RMC is supplied by client free of cost for all concrete works under sub head 200                                                                                                                                                                     | RMC is the Free Issue material for all concreting works under sub head 200                                                                          |
| 10    |                                                         |                     | Some of the concrete work like Item no. A205/A206/A211/A212/213/214 says that providing & Laying design mix concrete. We understood that these concrete will be supplied by the contractor itself considering cement in clients scope. Please clarify        | Ready Mix Concrete (RMC) shall be issued by BHEL free of cost at Batching Plant of BHEL's RMC / Other Agency.                                       |
| 11    | Unit of BOQ Item A106 - Scaffolding Pipe (6m length...) | Unit of Item "No.s" | a. In our opinion BOQ Item No. A106 shall be "Rmt" instead of "No.s". Kindly confirm/correct the same. confirm/correct the same.<br>b. Also, we understand that after execution period, the scaffolding pipe shall be Contractor's property. Please confirm. | a. The BOQ item A106 UOM remains unchanged.<br>b. Bidder's understanding is correct                                                                 |

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| Sr.no | Description                                                                 | Existing          | Bidders Query /Modification requested                                                                                                                          | BHEL's Reply                   |
|-------|-----------------------------------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 12    | Unit of BOQ Item A 2425<br>- Bitumen impregnated<br>fiber board of 25mm.... | Unit of item "RM" | In our opinion the unit of BOQ item no. A2425 shall be "Sqm" instead of "RM". In line with similar BOQ item available at 601. Kindly confirm/correct the same. | Item is deleted in revised BOQ |

**Enclosure:**

1. Revised-ChapterXIBOQandPercentageWeightages2679 : This Chapter revised in totality.
2. Revised-ExcelSheetforCalculationPurposeOnly2679

All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing.

Bidders are requested to submit as a part of Technical Bid, a copy of this corrigendum duly countersigned by the authorized signatory and stamped with the Official seal as a token of Bidder's unqualified acceptance of this corrigendum/ digitally signed.

BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.

Thanking you,  
Yours Sincerely,

GM (Purchase)

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | UNIT | QTY   | Weightage  |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| 100   | EARTH WORK: Earth work In excavation, backfilling and disposal including all labour, material, equipments etc complete as per specification, drawing and as directed by engineer- in-charge for the following.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | -     |            |
| 101   | Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.                                                                                                                                                                          |      | -     |            |
| a     | Depth from ground level but not exceeding 2 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CUM  | 10049 | 0.61357169 |
| b     | Depth exceeding 2 m but not exceeding 4 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CUM  | 14865 | 1.13673667 |
| 103   | Earth work in excavation in soft rock (rock without any recovery of excavated materials in the form of hard stone/boulder) including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level. |      | -     |            |
| a     | Depth from ground level but not exceeding 2 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CUM  | 1240  | 0.11246525 |
| b     | Depth exceeding 2 m but not exceeding 4 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CUM  | 14560 | 1.58467168 |
| 104   | Earth work in excavation upto any depth below ground level in hard rock requiring blasting (but excluding controlled blasting) including wedging, line drilling, pre shearing etc as required for grading, setting out, levelling, dewatering (wherever required), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete as per specification, drawing and as directed by the engineer-in-charge.                                                                |      | -     |            |
| b     | Depth exceeding 2 m but not exceeding 4 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CUM  | 7000  | 1.48969628 |
| A106  | Providing scaffolding pipes (6m Length) with clamps and barricading the excavated pit of required height as per safety norms. The scaffolding pipes with clamps will be under control of BHEL and can be used any where by BHEL during entire duration of contract period.                                                                                                                                                                                                                                                                                                                                                                                                                       | Nos  | 1500  | 0.08980859 |
| A107  | Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.                                                                                                                                                                                                                          |      | -     |            |
| a     | Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 2756  | 0.15520584 |
| A108  | Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300mm compacted thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete.for the following.                                                                                                                                                                                                                                                   |      | -     |            |
| b     | Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 30180 | 0.87663854 |
| 109   | Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | -     |            |
| a     | Carriage for stacking/ backfilling of serviceable material/ earth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CUM  | 31078 | 0.18422913 |
| b     | Carriage for disposal of serviceable/unserviceable material/ earth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CUM  | 24560 | 0.14559069 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

**E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679**

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | UNIT | QTY   | Weightage  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| 110   | Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying boorowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, tesing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:                           |      | -     |            |
| 111   | Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.                                                                                                                                                                                                                                                                                                                                                      | CUM  | -     |            |
| A111  | Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300 mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.                                                                                                                                                                                                                                                                                                                                            | CUM  | 230   | 0.12079996 |
| 200   | <b>CONCRETE WORK: Placing concrete work including cost of labour, (unless otherwise specified in BOQ/contract specification) and transportation, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.<br/>(Ready Mix Concrete (RMC) shall be issued by BHEL free of cost at Batching Plant of BHEL's RMC / Other Agency)</b>                                                                                                                                                                   |      | -     |            |
| 201   | Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors, at any depth below finished floor level etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CUM  | 1544  | 1.21091145 |
| 203   | Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 385   | 0.30194359 |
| 204   | Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | CUM  | 65    | 0.05097748 |
| A205  | <del>Providing and</del> laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors, pipe encasement etc at all level below finished floor level, any shape, position or thickness etc complete including use with high performance PCE-based BIS approved water reducing admixture of Type-G as per ASTM-C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing for the following. |      | -     |            |
| a     | M 25 Grade                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | 11148 | 8.74303166 |
| c     | M 35 Grade                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | 225   | 0.17646054 |



## Revised- Chapter XI-BOQ and Percentage Weightage-2679

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| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | UNIT | QTY  | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| A206  | <del>Providing and</del> laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with coarse sand and graded hard stone aggregate of 20mm nominal size in superstructure at all level above finished floor level, any shape, position or thickness etc complete including use with high performance PCE-based BIS approved water reducing admixture of Type-G as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing for the following.                                                                                                                                                                                 |      | -    |            |
| a     | M 25 Grade                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | 1724 | 1.35207988 |
| c     | M 35 Grade                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CUM  | 120  | 0.09411228 |
| 211   | <del>Providing and</del> encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades. (Payment of welded wire mesh, chicken wire mesh shall be made separately).                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      | -    |            |
| a     | M 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CUM  | 20   | 0.01568538 |
| b     | M 25 -(Design mix)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CUM  | 3    | 0.00235280 |
| A212  | Screed concrete conforming to IS 456 with coarse sand and graded hard stone aggregate 12.5mm/6 mm nominal size (with maximum replacement of river sand up to 50% quantity by mass with coarse bottom ash) including preparation of surface, batching, mixing, leveling on roof / floor at all level or thickness, drains etc complete as per following.<br>(Cement shall be issued by BHEL free of cost as per TCC. Bottom Ash shall be obtained from TSTPP Kaniha at nominal charge of Rs. 1 per MT and its transportation from TSTPP Kaniha to NTPC Talcher project site shall be in the scope of bidder)                                                                                                                                                                                                                 |      | -    |            |
| a     | 01:02:04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CUM  | 109  | 0.08548532 |
| 213   | <del>Providing and</del> laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with following grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades. |      | -    |            |
| a     | M25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CUM  | 20   | 0.03793894 |
| b     | M30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CUM  | 205  | 0.38887416 |
| 214   | <del>Providing and</del> laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures 1 with high performance PCE-based water reducing admixture of Type-G as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% cum water proofing cement additives to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate for following grades. Watertightness is to be ensured including structural grouting if required.                                                                             |      | -    |            |
| b     | M30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CUM  | 30   | 0.02566213 |
| 215   | Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      | -    |            |
| a     | Plain cement concrete of all grades                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CUM  | 127  | 0.07852234 |
| b     | Reinforced cement concrete of all grades                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CUM  | 157  | 0.14304700 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | UNIT | QTY   | Weightage   |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|-------------|
| 216   | Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement .                                                                                                                                                                                          | CUDM | 20    | 0.00077063  |
| 217   | Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.                                                                                                                                                                                                                                                                              | SQCM | 2     | 0.00000592  |
| 218   | Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.                                                                                                                                                                                                                                                                                                                                                                                                | CUDM | 2     | 0.00033078  |
| 219   | Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SQM  | 2     | 0.00014345  |
| 222   | Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | RM   | 10    | 0.00033196  |
| 300   | <b>FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.</b>                                                                                                                                                                                                                                                                                                 |      | -     |             |
| 301   | Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge..                                                                                                                                                                                                                                         | SQM  | 38841 | 12.68665999 |
| 302   | Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing.for all heights as per specification, drawing and instruction of engineer in charge.                                                                                                                                                                                                            | SQM  | 8282  | 3.31393698  |
| A302  | Fairface form work with good quality water proof ply wood with film face of required thickness and smooth surface above finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams, mass concrete, trenches etc.                                                                                                                                                                                                                                                                                                                                 | SQM  | 7890  | 3.31610661  |
| B302  | One time payment shall be made for purchase and mobilization of ply wood of approx. size 2.4m x 1.2m x 12mm thick with required battens as per specification for execution of Item No. 301, A301, 302 & A302. The purchased materials shall be the property of contractor however, it shall be handed over to BHEL store for making payment. Issue of these materials shall be as per instruction of BHEL Site-in-Charge. Contractor shall arrange formwork material as per requirement for the complete scope of work however, payment in this BOQ shall be restricted to this quantity only. | Nos. | 2122  | 2.24411690  |
| 304   | Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.                                                                                                                                                                                                                                                                   |      | -     |             |
| a     | Upto 150 mm depth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Each | 50    | 0.00711355  |
| b     | Pockets of depths more than 150mm and upto 300 mm depth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Each | 100   | 0.02400823  |
| c     | Pockets of depths more than 300mm and upto 600 mm depth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Each | 80    | 0.03438216  |
| d     | Pockets of depths more than 600mm and upto 1000 mm depth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Each | 40    | 0.02700778  |
| 400   | <b>REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge for the following:</b>                                                                                                                                                                                                                                                                                                     |      | -     |             |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

**E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679**

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | UNIT | QTY  | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| 403   | Transportation, straightening, cutting, bending, placing in position at all level, binding in position of steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc. complete all as per specifications, drawings and as directed by Engineer.<br>(TMT steel shall be issued by BHEL free of cost)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MT   | 1225 | 7.30096416 |
| 405   | Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable. |      | -    |            |
| a     | 12mm Reinforcement bar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Nos. | 22   | 0.00529485 |
| b     | 16mm Reinforcement bar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Nos. | 22   | 0.00832048 |
| c     | 20mm Reinforcement bar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Nos. | 22   | 0.01165911 |
| d     | 25mm Reinforcement bar                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Nos. | 2    | 0.00143930 |
| 406   | Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR confirming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer.(Agency has to supply reinforcement bar couplers).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      | -    |            |
| a     | 12mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00008180 |
| b     | 16mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00011381 |
| c     | 20mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00014345 |
| d     | 25mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00020036 |
| e     | 28mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00030825 |
| f     | 32mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00035567 |
| g     | 36mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Nos. | 2    | 0.00046119 |
| 500   | <b>Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.(Material used for roof treatment shall be CFC &amp; HCFC free. The contractor shall submit documentary proof to GRIHA consultant in support of same).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |      | -    |            |
| 502   | Providing and laying underbed grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.<br>(Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 2073 | 0.16096592 |

| Revised- Chapter XI-BOQ and Percentage Weightage-2679                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |            |
| Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |            |
| ST NO                                                                                                                                                                                                                                               | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | UNIT | QTY  | Weightage  |
| A506                                                                                                                                                                                                                                                | Providing and applying PU based high solid content (minimum 90%) of approved make water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation.The coating shall have high viscosity, min. 400% elongation and forming a perfectly smooth permanently flexible seamless membrane which should have good adhesion to roof substrates.The cured film should have a very low water absorption rate (0.5% maximum at ambient temperature after 7 days), reinforcing layer of polyscrim cloth (non woven polyscrim cloth of 100% polyester with min. weight of 40gsm/sqm) or geo-textile non woven polyester (120-150 gsm), polymerised mast | SQM  | 2071 | 1.30379665 |
| A507                                                                                                                                                                                                                                                | Providing and laying wearing course consisting of 20 mm thick plain cement mortar 1:4 (1 cement : 4 sand)) cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete. (Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SQM  | 2071 | 0.42232208 |
| 510                                                                                                                                                                                                                                                 | Providing and laying cement concrete chequered flooring tiles of 22 mm thickness and size 300x300 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer ( already placed and paid in other item) during green stage of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making)                                                                                                                                                                                                                                                                                                                                                                                                                                                | SQM  | 150  | 0.04943918 |
| A510                                                                                                                                                                                                                                                | Providing and laying cement concrete chequered roof / floor tiles of 22 mm thickness and size min. 200x200 mm conforming to IS 13801 with 8 mm thick 1:4 cement mortar over the top most layer of roofing treatment in pathway or entire area with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed (as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere) (including cost of cement for tiles making).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SQM  | 220  | 0.11763754 |
| 511                                                                                                                                                                                                                                                 | Providing and applying two coats of bitumen grade 85/25 as per IS 702 ( @ 1.7kg/sqm)with 1% antistripping compound conforming to IS 6241 in foundation, wall, column etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SQM  | 1000 | 0.08951219 |
| 512                                                                                                                                                                                                                                                 | Providing and applying water proofing with blown bitumen bonding material conforming to IS:702 of 65/25 grade in Basements, ducts, pits, tunnels etc below the ground level on the concrete surfaces exposed to soil / ash and up to 150 mm above ground level on outside of walls and top of RCC slab including preparation of surface, brick lining single brick thick with 1:4 cement mortar etc. all complete with following number of layers of bitumen felts:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      | -    |            |
| 513                                                                                                                                                                                                                                                 | Providing and mixing water proofing compound conforming to IS:2645 in concrete or cement mortar all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | KG   | 6960 | 0.47034803 |
| 517                                                                                                                                                                                                                                                 | Providing and laying foam concrete blocks in the toilets/sunken slab etc. after water proofing complete as directed by engineer in charge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CUM  | 2    | 0.00262964 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | UNIT | QTY | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| A517  | Providing and laying Cinder / foam concrete blocks in the toilets/sunken slab etc. after water proofing complete as directed by engineer in charge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 2   | 0.00262964 |
| A518  | Providing and laying water proofing treatment for wet areas like toilets,kitchen,pantry of sunken slab etc. material like with three coats of Acrylic Polymer Modified Flexible Cementitious Waterproofing Coating material like Danocrete I-protect flex or equivalent make applied @ 0.70 to 0.8 0 Kg./m2 per coat, while embedding 34 gsm polyester scrim armor Armadura IP 34 or equivalent as reinforcing layer between first and second coat, the waterproofing coat applied by stiff bristle brush to build total thickness of 1.3 to 1.5 mm in three coats including reinforcing layer, while maintaining a gap of 4 to 8 hours between the coats all complete with water ponding test as per IS Code and as directed by engineer in charge | SQM  | 5   | 0.00201550 |
| A519  | Providing and laying an angular fillet around parapet wall junction at roof level of min.50mm x 50mm, shall be trowel applied in cement-sand mortar in 1:3 proportion. A latex based bonding agent should be added (10% by weight of cement) and also a glass cloth must be inserted while the angle fillet is being constructed.                                                                                                                                                                                                                                                                                                                                                                                                                   | RM   | 104 | 0.03871669 |
| 600   | <b>JOINTS AND FILLERS: Joints &amp; fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | -   |            |
| 601   | Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      | -   |            |
| a     | 12 mm wide joints.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 55  | 0.01897539 |
| b     | 20 mm wide joints.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 5   | 0.00255198 |
| c     | 25 mm wide joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SQM  | 215 | 0.13331388 |
| d     | 50 mm wide joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SQM  | 5   | 0.00596352 |
| A601  | Supplying & installation of engineering grade polystyrene foam backer rod (circular cross section) at 12 mm depth with minimum density of 22 kg/cum and compressive strength of 0.40 kg/sqm having dia. 25% more than the expansion joint width as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.                                                                                                                                                                                                                                                                                                                                                                       |      | -   |            |
| a     | 12 mm wide joints.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 5   | 0.00247788 |
| b     | 20 mm wide joints.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 5   | 0.00346192 |
| c     | 25 mm wide joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SQM  | 5   | 0.00456749 |
| Ad    | 50 mm wide joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SQM  | 5   | 0.00701870 |
| A602  | Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      | -   |            |
| a     | 12mm X 25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 5   | 0.00068171 |
| b     | 20mmX25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RM   | 5   | 0.00101960 |
| c     | 25mmX25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RM   | 5   | 0.00123005 |
| d     | 50mmX25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RM   | 5   | 0.00227633 |
| 603   | Providing and applying polysulphide based sealant conforming to IS:12118 in joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      | -   |            |
| a     | 25mmX25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RM   | 650 | 0.15990671 |
| A604  | Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.(The sealant should have VOC content limited to 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations ) to be provided by the contractor to green building consultant.                                                                                                                                                                                                                                                                 |      | -   |            |
| a     | 10mm X 40mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 5   | 0.00013634 |
| b     | 12mm X 25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 655 | 0.01630781 |
| c     | 25mmX25mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | RM   | 815 | 0.02463956 |
| A605  | Supply and installation of Polystyrene flexible board confirming to IS 4671 ( type-1), 20 Kg/ Cum. as joint filler at joint of concrete including nailing, coating of both faces with coal tar pitch /butimen etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      | -   |            |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                 | UNIT | QTY | Weightage  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| A610  | Providing and fixing ribbed PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)                                                                                                                                                                                                                                                                                    |      | -   |            |
| b     | 230 mm wide and 8 mm thick                                                                                                                                                                                                                                                                                                                                                                                                       | RM   | 30  | 0.00487278 |
| Ab    | 230 mm wide and 10 mm thick                                                                                                                                                                                                                                                                                                                                                                                                      | RM   | 20  | 0.00407843 |
| d     | 230 mm wide and 6 mm thick                                                                                                                                                                                                                                                                                                                                                                                                       | RM   | 220 | 0.02660468 |
| 700   | <b>MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                      |      | -   |            |
| 701   | Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.<br>Payment Terms:<br>a) On receipt of material site - 60%<br>b) Execution as per item description - 40%                                                                   | MT   | 11  | 0.66642775 |
| A701  | Extra over item no. 701 and 703A for preparation of Steel surfaces by Manual Cleaning and provided with Chlorinated Rubber based paint with Primer Coat of Zinc Phosphate of Minimum 50 Micron Dry Film Thickness (DFT). etc. all complete as per specification.                                                                                                                                                                 | SQM  | 1   | 0.00011559 |
| 702   | Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. | MT   | 1   | 0.07087468 |
| 703   | Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.                                                                                                                                                                                                                                                             | MT   | -   |            |
| A     | Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.                                                                                                                                                                                                                                                                                                    | MT   | 111 | 1.42628845 |
| B     | Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.                                                                                                                                                                                | MT   | 11  | 0.15202489 |
| AB    | Galvanized foundation bolt (GI coating of 0.80 Kg/m <sup>2</sup> ) l foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. This item also including providing of template if required for fixing of Foundation bolts.                           | MT   | 44  | 0.60809959 |
| 704   | Supplying, fabricating, erecting and installing following items in concrete / brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.                                                                                                                                                         |      | -   |            |
| a     | MS pipes of all diameters                                                                                                                                                                                                                                                                                                                                                                                                        | kg   | 20  | 0.00093661 |
| b     | PVC pipes / conduits of all diameters                                                                                                                                                                                                                                                                                                                                                                                            | kg   | 15  | 0.00334336 |
| d     | Expansion anchor fasteners (galvanised) of HILTI make(HRD Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:                                                                                                                                                                                                                                    |      | -   |            |
| i     | 8mm Dia                                                                                                                                                                                                                                                                                                                                                                                                                          | Nos  | 2   | 0.00006165 |
| ii    | 10mm Dia                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00006994 |
| iii   | 12mm Dia                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00007943 |
| e     | Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:                                                                                                                                                                                                                                                  |      | -   |            |
| i     | HST3 M8                                                                                                                                                                                                                                                                                                                                                                                                                          | Nos  | 2   | 0.00019799 |
| ii    | HST3 M10                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00028809 |
| iii   | HST3 M12                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00046356 |
| iv    | HST3 M16                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00082872 |
| v     | HST3 M20                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00168946 |
| vi    | HST3 M24                                                                                                                                                                                                                                                                                                                                                                                                                         | Nos  | 2   | 0.00280273 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | UNIT | QTY | Weightage  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| f     | Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod, nuts, washers, chemicals all complete, etc:                                                                                                                                                                                                                                                                                                                                                                           |      | -   |            |
| i     | HAS-E5.8 M8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Nos  | 2   | 0.00041258 |
| ii    | HAS-E5.8 M10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 2   | 0.00048253 |
| iii   | HAS-E5.8 M12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 2   | 0.00059753 |
| iv    | HAS-E5.8 M16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 2   | 0.00099826 |
| v     | HAS-E5.8 M20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 2   | 0.00165982 |
| vi    | HAS-E5.8 M24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 2   | 0.00223246 |
| 707   | Providing, laying and fixing rails (52kg/rm) and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete.<br>Payment Terms:<br>a) On receipt of material site - 60%<br>b) Execution as per item description - 40%                                                                                                                                                                                                                                                                                   | MT   | 17  | 0.92535392 |
| 800   | <b>GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                                                          |      | -   |            |
| 802   | Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand ) using non shrink admixture etc. all Complete. (Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                                      | CUM  | 1   | 0.01249969 |
| 803   | Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor). (Cement shall be issued by BHEL free of cost as per TCC) | CUM  | 31  | 0.37648294 |
| 804   | Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).                                                                                                                                       | CUM  | 1   | 0.02505807 |
| 805   | Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).                                                                                                                                     | CUM  | 30  | 0.82485188 |
| 806   | Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.                                                                                                                                                                                                                                                                                    | Kg   | 2   | 0.00192540 |
| 900   | <b>DOORS &amp; WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                 |      | -   |            |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

**E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679**

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UNIT | QTY | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| A903  | Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, particle board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings. godrej or equivalent make mortice lock with handles on both sides, approved ISI mark anodised fittings like door stopper, 300mm long tower bolts, 16x300mm long aldraps, 125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish flat oil paint conforming to IS: 137 over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately)                                                             | SQM  | 4   | 0.00983567 |
| 904   | Providing and fixing single or double steel door shutters with 45 thk flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, air tight, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.                                                                                                                                                                                                                                                                                                                                                                                                                   | SQM  | 9   | 0.04091003 |
| A904  | Providing and fixing single or double steel door shutters with 35mm (min) thk flush design shutter as per IS 4351 comprising of two outer sheets of 18 gauge (1.2mm min.) steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge (1.0 mm) stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.                                                                                                                                                                                                                                                                                                                                                                                 | SQM  | 50  | 0.23534000 |
| 905   | Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SQM  | 20  | 0.09832114 |
| 906   | Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners, SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) | KG   | 130 | 0.03352261 |
| 907   | Providing and fixing fire proof steel doors (single or double shutter) with panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, TAC requirements and as per specification. Minimum ratings shall be 2 Hrs.                                                                                                                                                                                                                                                                                                                | SQM  | 125 | 0.66689547 |



## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

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| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | UNIT | QTY  | Weightage  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| B907  | Providing and fixing automatically closing fire proof steel flush doors along with frame of minimum 44mm thk flush shutter design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm center to center of approved make conforming to IS : 3614 (part 1) & tested to IS/ISO 3008,satisfying LPA regulations and shall carry a unique label with certification/test report number,fire rating embossment, fixed at all elevations, with or without removable panels,with panic bar,panic trim with following fire rating using galvanised MS sheets for frames conforming to IS 277, made out of minimum 1.6mm (16 SWG) for both frame and shutter, G.I. sheet (min.zinc coating 120 gsm), and leaves, mineral wool / PUF/ any other fire retardant insulation material filled with required density, mastic caulking and grouting the frame, reinforcing and insulating the shutters with fire retardant material, with panic devices, including all fittings, fire rated vision glass, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (min.64 kg/cum density) complete and shall be fire proof as per IS:3614, LPA requirements and as per specification.Shop drawings shall be submitted by the fabricator/manufacturer for approval before execution Minimum ratings shall be 2 Hrs. All hardware fittings shall be fire rated. | SQM  | 149  | 1.58281267 |
| 908   | Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      | -    |            |
| b     | fixed type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SQM  | 60   | 0.06284822 |
| 909   | Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure.<br>Payment Terms:<br>a) On receipt of material site - 60%<br>b) Execution as per item description - 40%.                                                                                             | Kg   | 4635 | 1.50843753 |
| 911   | Providing and fixing of door closers as per specification ,of approved make & quality all complete of following type :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      | -    |            |
| a     | Over head hydraulic door closures as per IS 3564                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Each | 20   | 0.02432834 |
| b     | Floor mounted Hydraulic door closers as per IS 6315                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Each | 20   | 0.03517651 |
| 912   | Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Kg   | 50   | 0.00492020 |
| A912  | Providing and fixing pressed steel frames (complying general requirements of IS 4531) fabricated from 1.2 mm thick M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Kg   | 144  | 0.01417019 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

**E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679**

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | UNIT | QTY  | Weightage  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| B912  | Providing and fixing pressed steel door frames for fire proof doors. Door frame shall be double rebate profile of size 143 x 57 mm made out of 1.60 mm (16 gauge) minimum thick galvanized steel sheet reinforced, drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars, paintings etc all complete as per specifications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Kg   | 50   | 0.00492020 |
| A913  | Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides of 75mm wide and 3mm thick(min.) and arrangements for inside and outside locking with push and pull operation including wire springs, top/hood cover 0.9mm thick (min.), factory galvanized, primed & field painted, partly grilled (as required) with approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). |      | -    |            |
| b     | Mechanically Operated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | SQM  | 35   | 0.11952841 |
| c     | Electrically & Mechanically operated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SQM  | 58   | 0.22042407 |
| 915   | Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | -    |            |
| Ae    | 3mm thick Polycarbonate sheet with profile matching with metal sheeting shall be provided. The Polycarbonate sheets shall be fire and u/v resistant, and suitable for continuous use up to a temperature of 1000C. Suitable aluminium beading shall be used. The open ends of the sheet shall be sealed as per manufacturer's recommendations .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SQM  | -    |            |
| Ah    | 6 mm thick clear toughened glass conforming to IS 5437                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SQM  | 338  | 0.50491990 |
| AhB   | 8 mm thick clear toughened glass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | SQM  | 20   | 0.03642138 |
| i     | Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SQM  | 80   | 0.17224279 |
| 916   | Supplying and fixing weather stripping of approved make and quality to doors as per instructions of engineer in charge and specification complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RM   | 5    | 0.00061947 |
| 917   | Providing and fixing 12 mm thick BWP particle board, decorative veneer (prelaminated) on both sides, as panels in aluminium framed door shutter, fixed with necessary snap-on-beading etc. all complete (excluding aluminium works).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SQM  | 160  | 0.15754145 |
| 1000  | <b>BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.(Cement shall be issued by BHEL free of cost as per TCC)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      | -    |            |
| 1001  | Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints, curing, scaffolding etc. complete excluding plastering and painting.(Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      | -    |            |
| a     | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 110  | 0.36053258 |
| 1002  | Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm at all heights, places and position above plinth including raking out joints, curing, scaffolding etc complete excluding plastering and painting. (Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      | -    |            |
| a     | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 1194 | 4.90999746 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                            | UNIT | QTY  | Weightage  |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| 1003  | Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm at all heights, places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every third layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification.(Cement shall be issued by BHEL free of cost as per TCC) |      | -    |            |
| a     | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)                                                                                                                                                                                                                                                                                                             | SQM  | 89   | 0.04495053 |
| 1004  | Providing brick soling including spreading of earth, ramming, watering including 25mm thick cushion of sand complete but excluding excavation and disposal of surplus earth (excavation and disposal of surplus earth shall be measured under applicable item). Using brick on edge.                                                                                                                                                        |      | -    |            |
| a     | Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)                                                                                                                                                                                                                                                                                                             | SQM  | 140  | 0.05527229 |
| 1005  | Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.                                                                                                                                                                                                                              | CUM  | 20   | 0.02068857 |
| 1007  | Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.                                                                                                                                                                                                                             | SQM  | 80   | 0.00829914 |
| 1008  | Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.                                                                                                                                                                                                                                                                                               | CUM  | 80   | 0.09489477 |
| A1009 | Supply and placing in position GI of 0.9 mm welded wire mesh/ chicken wire mesh for encasing of steel sections in concrete/ brick/ plaster at the junction of RCC and brickworks including cutting, bending, fixing etc. complete.                                                                                                                                                                                                          | SQM  | 100  | 0.02347472 |
| 1010  | Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at all level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.(Cement shall be issued by BHEL free of cost as per TCC)                                            | SQM  | 50   | 0.02706113 |
| 1011  | Providing and filling brick bats in soak pits all complete.                                                                                                                                                                                                                                                                                                                                                                                 | CUM  | 30   | 0.02162519 |
| 1100  | <b>DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                        |      | -    |            |
| b     | 50mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 148  | 0.02825028 |
| 1200  | <b>PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                               |      | -    |            |
| A1201 | Providing 18mm thick plaster in two layers outside the building/boundary wall/rough surface of internal wall in cement mortar 1:6 on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete.                                                                                                                                                                     | SQM  | 5453 | 0.92773222 |
| 1202  | Providing 12mm thick plaster inside the building/boundary wall in cement mortar 1:6 on walls finished to a smooth finish as per specification all complete.                                                                                                                                                                                                                                                                                 | SQM  | 6933 | 0.95759609 |
| 1204  | Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.                                                                                                                                                                                                                                                                                                                                              | SQM  | 5371 | 0.64633315 |
| 1205  | Providing 12mm thick plaster in walls, drains/culverts with a paste of neat cement @ 1kg/sqm and rubbed smooth with trowel etc. all complete.                                                                                                                                                                                                                                                                                               | SQM  | 200  | 0.01742820 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

**E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679**

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| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                 | UNIT | QTY  | Weightage  |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| 1207  | Forming groove of uniform size from 12X12 mm upto 25X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.                                                              | RM   | 840  | 0.01892204 |
| A1207 | Providing drip coarse on plastered surface at all elevations for all type of work such as chajjas, parapet, projections etc. including scaffolding, finishing etc. complete with all labour, tools and plants as per specification, drawing and instructions of engineer in charge.                                                                                                                              | RM   | 600  | 0.04054724 |
| 1300  | <b>FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                          |      | -    |            |
| 1304  | Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.                                                                                                                                                                                                                                                          | SQM  | 6234 | 0.35587569 |
| 1305  | Providing and applying two or more coats of acrylic emulsion paint as per IS 5411, of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.                                                                                                                                                    | SQM  | 2210 | 0.17856378 |
| B1305 | Providing and applying two or more coats of waterproof Premium Acrylic Smooth exterior paint with silicon additives over suitable primer of Water Proof Cement Paint over plastered surface                                                                                                                                                                                                                      | SQM  | 5230 | 0.42257401 |
| 1306  | Providing and applying 2 or more coats of acid/alkali resistant paint of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying bitumen primer confirming to IS 158 complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.         | SQM  | 150  | 0.02888991 |
| A1306 | Providing and applying 2 or more coats of oil resistant paint (epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications. | SQM  | 20   | 0.00279799 |
| 1310  | Two or more coats of black anti-corrosive bitumastic painting of approved brand and manufacture to give an even shade complete.                                                                                                                                                                                                                                                                                  | SQM  | 1000 | 0.04327410 |
| A1314 | Providing and applying two coats of textured cement Point(Sandtax matt or Equivalent) of approved colour and shade as per specification/drawing/approval of engineer in charge.                                                                                                                                                                                                                                  | SQM  | 810  | 0.05185779 |
| 1316  | Providing and applying 2 mm thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.                                                                                                                                                                                              | SQM  | 5770 | 0.36051361 |
| 1317  | Providing and applying 2 mm thick white cement punning on walls including preparation of surface, staging, etc to achieve a smooth even surface all complete as per specification and as directed by engineer.                                                                                                                                                                                                   | SQM  | 6464 | 0.38318331 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UNIT | QTY  | Weightage  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| A1319 | Providing and applying two or more coats of Premium Acrylic Smooth Paint with Silicone additives weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellant and extremely durable with color fastness as per specification.(The sealant should have VOC content limit less than 250 grams per litre as prescribed by GRIHA. All necessary documentation (certificates, manufacturer declarations ) to be provided by the contractor for green building documentation ). | SQM  | 363  | 0.03765736 |
| 1320  | Providing and applying acid alkali and oil resistant high build, solvent free, self smoothing, seamless epoxy based amine cured floor finish 150 microns over primer on C.C. flooring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SQM  | 700  | 0.13004758 |
| 1400  | <b>FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge.(Cement shall be issued by BHEL free of cost as per TCC)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | -    |            |
| 1401  | Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand : 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound :2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):(Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                       | SQM  | 1950 | 0.65195701 |
| a     | Laid in floors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SQM  | 50   | 0.03275197 |
| A1403 | Providing and laying precast polished heavy duty cement concrete tiles (Carborundum/quartz chips topping pigment content is 3.5 kg per 50 Kg of white Cement) of size 300X300X25mm thick of approved shade as per IS 1237, including minimum 20mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm,labour,materials, etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc.(inclusive of cost of cement for tiles manufacturing) all complete for following:                                                                                                                                                                                                                                                                                                        |      | -    |            |
| a     | Laid in floors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SQM  | 473  | 0.30983370 |
| b     | Laid in skirting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SQM  | 16   | 0.01467288 |
| A1404 | Providing and laying interlocking M35 Grade concrete blocks in paving with approved specified colours, pattern, sample, different texture, and should be laid on the subbase and bedding of sand minimum 20mm thick as per specifications and recommendations of manufacturer.(inclusive of cost of cement for paver manufacturing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | -    |            |
| Ab    | 80mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SQM  | 100  | 0.05050621 |
| 1406  | Providing and laying polished Kota stone 18mm to 20mm thk in flooring. Under bed shall average 30mm thk of 1 cement : 2 sand : 4 stone aggregates by volume and brought to proper level. The kota stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including pigments, curing, grinding, granite polishing etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                 | SQM  | 600  | 0.56659439 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | UNIT | QTY | Weightage  |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| 1408  | Providing polished Kota stone 18mm to 20mm thk in skirting projecting 6mm from adjacent plaster minimum 12 mm thick cement mortar bedding of 1:3 (1 cement : 3 sand) with thick cement slurry @4.4kg/sqm spread over the surface with fine joint finished including cutting brickwall upto the required depth, edging, finishing etc. all complete.                                                                                                                                                                                                                                                                                | SQM  | 400 | 0.41709124 |
| E1416 | Providing and laying digitally glazed vitrified ceramic (with recycle content )tiles and matt finished of size 600x600/800x800/1000x1000 from reputed / approved manufacturer, complete including underbed of 40.5 mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5mm well graded) with 3mm groove joints as per approved pattern pointed neatly with 3X4mm stainless epoxy grout of 0.7kg of organic coated filler of desired shade (0.1 kg hardner and 0.3 kg resin per kg) or approved equivalent in approved colour to match colour of tile etc. all complete for following.                 |      | -   |            |
| a     | 9.00 mm (min.) thick tiles In flooring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SQM  | 970 | 0.99189586 |
| b     | 9.00 mm (min.) thick tiles In dado                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SQM  | 170 | 0.18129479 |
| A1417 | Providing and laying Digitally vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer Simpolo, varmora or equivalent complete including underbed of cement mortar 1:3 minimum 40mm thick underbed for flooring and 12mm thick underbed for dado / skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following                                                                                                                                                                                                                                                               |      | -   |            |
| b     | 9.00 mm (min.) thick tiles In flooring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | SQM  | 970 | 0.91081916 |
| d     | 9.00 mm (min.) thick tiles In skirting and dado upto specific height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | SQM  | 170 | 0.16910098 |
| 1418  | Providing and laying 10 mm thk non-skid fully vitrified tiles of make 'MARBONITE' or 'FERRASTONE of BOSS Profile limited' or equivalent in flooring and skirting over 30 mm thick underbed of 1 part cement and 3 parts coarse sand by weight mixed with sufficient water, cement slurry 3.3kg/sqm complete as per specification laid in pattern of following sizes                                                                                                                                                                                                                                                                | SQM  | -   |            |
| a     | 400X400 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | 60  | 0.04655819 |
| b     | 600X600 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | 170 | 0.13987613 |
| 1419  | Providing and laying granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners, moulding and opening etc. all complete.                                                                                                                                                                                                                                                                                                                                                                             | SQM  | 20  | 0.05109901 |
| 1422  | Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick ( to be laid in layers of 6mm each). The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.                                                                                                                                    |      | -   |            |
| a     | 20mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | 95  | 0.14180272 |
| b     | 38mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | 95  | 0.19411993 |
| 1423  | Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado beded and jointed with epoxy mortar all complete for following thicknesses. The tiles should be abrasion resistant & durable.                                                                                                                                                                                                                                                                                                                                                                                         |      | -   |            |
| a     | 20mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | 80  | 0.20102897 |
| b     | 38mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | SQM  | 80  | 0.26675818 |
| A1427 | Providing and fixing Designer digitally glazed ceramic tiles of approved color and design as per IS: 15622 of size 300x300mm / 300x450mm, 300X600 of reputed / approved manufacturer Simpolo,varmora or equivalent of approved finish,size in dado, projecting 6mm uniformly from adjacent plaster or wall finish. The mix for 20mm thick underbed plaster shall consist of 1part cement and 3 parts sand by weight. fairly moist but firm, tiles shall be pressed over under bed by applying cement slurry @ 3.3kg/sqm including pigments, curing etc all complete as instructed by engineer incharge for following thicknesses,. |      | -   |            |
| a     | 5mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SQM  | 10  | 0.00575604 |
| b     | 7mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | SQM  | 10  | 0.00564934 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | UNIT | QTY  | Weightage  |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| 1430  | Providing and fixing dividing strips in joints of cast in situ floorings at various elevations, finishing, all labour, material etc. complete as per drawing, specification and instructions of engineer in charge.                                                                                                                                                                                                                                                                                                                                                                                                        |      | -    |            |
| a     | Glass strips 40 mm wide and minimum 6 mm thick.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RM   | 160  | 0.00502690 |
| b     | Aluminium strips 40 mm wide and minimum 3 mm thick                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 10   | 0.00060465 |
| 1500  | <b>ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                  |      | -    |            |
| 1514  | Providing and installing under deck insulation with resin bonded rock wool 50 mm nominal thickness conforming to IS 8183 having a density of 48kg/cum using minimum 0.05 mm thick aluminium foil on exposed surface followed by 0.6 mm dia and 25 mm mesh GI wire netting, fixed at various elevations with rawl plugs including clips but excluding cost of insulation.                                                                                                                                                                                                                                                   | SQM  | 970  | 0.37088280 |
| 1600  | <b>FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                                                                           |      | -    |            |
| 1700  | <b>RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                 |      | -    |            |
| 1703  | Providing and fixing galvanised MS down take pipes of 100 mm dia- Medium quality as per IS:1239(part-I) / IS:3589 all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | RM   | 780  | 0.58444940 |
| 1704  | Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | RM   | 150  | 0.15854328 |
| A1704 | Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I)with welded joints and provided with roof drain heads and complete with shoes bends, junctions, sockets, adapters, brackets and finished with anti corrosive painting over acoat or primer all complete.Galvanising shall be as per IS: 4736. The minimum mass of zinc coating shall not be less than 360 gms/sq.m. as per IS:6745. The zinc coating shall be smooth and shall be subjected to testing as per IS: 2633, for uniformity of coating. The zinc coating shall be free from all defects as per IS: 2629. | RM   | 91   | 0.09618292 |
| 1705  | Providing and fixing UPVC down take pipes of 110mm diameter- Class 3 as per IS:4985 all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | RM   | 50   | 0.01997722 |
| 1800  | <b>MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                                                                                      |      | -    |            |
| A1801 | Providing and Filling in trenches, plinths, area paving, grade slab, other underground structures, etc. with graded stone aggregate of size range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected moorum and compacting to 85 % of original volume of stone stack for all lifts etc. all complete as per drawings/specifications. Payment shall be made for the measurement of the volume of the compacted fill.                                                                                                  | CUM  | 849  | 0.88980572 |
| 1802  | Supply and laying approved quality Stone aggregate 40mm size in transformer yards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CUM  | 302  | 0.58952729 |
| 1804  | Providing and fixing weep holes in Retaining wall, drains, etc consisting of 100 mm dia HDPE pipe sleeves with single side covering for the pipe mouth with galvanised welded wire fabric of 20 mm sq. opening all complete.                                                                                                                                                                                                                                                                                                                                                                                               | EACH | 2550 | 0.28418639 |

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### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

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| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | UNIT    | QTY   | Weightage  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|------------|
| 1807  | Anti termite chemical treatment of soil with Chlorpyrifos/Lindane E.C. 20% with 1% concentration conforming to IS:8944 and as per IS 6313 all complete. (Plinth area of building at ground floor only shall be measured for payment).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SQM     | 1560  | 0.14796187 |
| 1808  | Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MT      | 1     | 0.00643361 |
| 1809  | Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | each    | 2     | 0.01297037 |
| 1810  | Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | NO      | 2     | 0.01007041 |
| 1811  | Construction of below ground earthing system earth electrodes as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | NO      | 2     | 0.00086192 |
| 1812  | Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. ( Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | NO      | 2     | 0.00050031 |
| 1813  | Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EACH    | 2     | 0.03093446 |
| 1814  | Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, concreting, reinforcement, formwork, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EACH    | 2     | 0.02229742 |
| 1815  | Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Kg      | 2     | 0.00013041 |
| 1821  | Sprinkling of water by water tanker fitted with perforated GI pipe (portable tanker minimum 3000 litre capacity) for roads and miscellaneous area within plant boundary, for dust suppression and reduction of suspended material at site for day to day work, as directed by BHEL site engineer (water for this purpose shall be provided by BHEL free of cost and utilisation of machine will be in terms of Tank-hour put in actual use for water sprinkling).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TANK-HR | 10    | 0.00379982 |
| A1827 | <p>Antiweed treatment in switchyard area (Antiweed chemical shall be customer approved &amp; as per Technical specification) including surface dressing/preparation (surface dressing of earth to an extent of <math>\pm 200</math>mm) to the lines &amp; grades including removing vegetation/plant , dressing, micro-leveling ,cutting and filling earth, maintain slope to nearest drain ,water spinkal on surface ,compaction /consolidating with roller(Min. 1/2 ton roller with 4-5 passes ) ,shifting of excess earth/debris generated during the process to the designated point and all works complete as per instructions of the Engineer -in- Charge (The rate shall be inclusive of all materials &amp; all activities mentioned above including any other activity required for completion but not mentioned above etc all complete as per Technical Specification &amp; direction of Engineer-In-Charge.</p> <p>Note: 1. The anti-weed / soil sterilization chemical shall be procured from reputed manufacturer. The Bidder shall submit necessary details pertaining to the types of weeds found in the vicinity, anti-weed/soil sterilization such as manufacturer's name, their specification, test certificate etc. for Employer's approval.</p> <p>2. The Bidder shall be required to furnish a performance guarantee of three years for the anti-weed treatment.</p> | SQM     | 17436 | 0.05167995 |



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| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | UNIT | QTY   | Weightage  |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| B1827 | Providing and laying 75mm thick base layer of M5 grade PCC over the prepared sub grade in Switchyard . Adequate slope shall be provided for easy drainage of water. Over the PCC layer, 75mm thickness of stone aggregate of 40mm nominal size shall be spreaded uniformly as as per customer specification Clause No. 1.01.20 Subsection B-17 and as per direction of Engineer-In-Charge .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SQM  | 17416 | 4.57359168 |
| A1862 | Supplying, fabrication and installation of PVC pipes in concrete / Duct bank for all kind of works, including setting material in concrete, layout, cutting, forming, grinding, jointing etc. all complete as per specification and as guided by engineer-in-charge. (Concrete, Reinf. paid seprately)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      | -     |            |
| a     | 200 mm nominal diameter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 400   | 0.26486124 |
| 2000  | <b>FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | -     |            |
| A2003 | Supplying and erecting in position 2.4 m high PVC coated gavanised chain linked fencing of minimum 4 mm (including PVC coating ) of mesh size 75mm x 75mm. The diameter of the hot dip galvanised steel wire for chain link fencing excluding PVC coating shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertinal shall be from tensile serrated galvanised wire (HTSW) made with wire diameter of 2.5 mm which will be stretched to 6m and attached on two strands of galvanised HTSSW (high tensile spring steel wire) of 2.5mm dia by means of clips at 1m interval. These two HTSSW strands will be attached to the fence posts/ angles with 12 mm securit found in the vicinity, anti-weed/soil sterilization such as manufacturer's name, their specification, test certificate etc. for Employer's approval.<br>2. The Bidder shall be required to furnish a performance guarantee of t | RM   | 923   | 1.39195134 |
| 2007  | Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | MT   | 5     | 0.33278380 |
| A2008 | Supply, fabrication and fixing of mild steel posts for fencing, etc. including chlorinated rubber paint over a suitable primer etc all complete as per specification.<br>Payment Terms:<br>a) On receipt of material site - 60%<br>b) Execution as per item description - 40%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MT   | 21    | 1.31310295 |
| 2009  | Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete.<br>Payment Terms:<br>a) On receipt of material site - 60%<br>b) Execution as per item description - 40%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | MT   | 7     | 0.51122724 |
| 2100  | <b>WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      | -     |            |
| 2101  | Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | NOS  | 10    | 0.00468308 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                        | UNIT | QTY | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| A2101 | Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck bib cocks with flow rate less than 5 LPM (litres per minute) at 45 psi, including sockets, union, nuts etc all complete -15mm nominal bore.(Note: Flow rate of all faucets at 45 psi should be less than 5 lpm. The contractor should submit the cutsheets/ declaration from the manufacturers mentioning the same to Engineer in charge.) | NOS  | 2   | 0.00093661 |
| 2102  | Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.                                                                                                                                                                                                                                                                                            | NOS  | 7   | 0.00202084 |
| 2103  | Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:                                                                                                                                                                                                                                                                            |      | -   |            |
| a     | 25mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                      | NOS  | 7   | 0.00260593 |
| b     | 50mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                      | NOS  | 7   | 0.00546083 |
| 2104  | Providing and fixing GI pipes class B medium class conforming to IS:1239 pipes shall be concealed and painted with anticorrosive bituminous paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:                                                                                                          |      | -   |            |
| a     | 15 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 50  | 0.01381214 |
| b     | 20 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 70  | 0.02116281 |
| c     | 25 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 60  | 0.02030919 |
| d     | 50 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 50  | 0.02436391 |
| 2105  | Providing and fixing GI pipes class B complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:                                                                                                                                                                                                                         |      | -   |            |
| a     | 15 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 30  | 0.00649111 |
| b     | 20 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 55  | 0.01333494 |
| c     | 25 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 60  | 0.01671684 |
| d     | 32mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                      | RM   | 10  | 0.00329001 |
| e     | 50 mm nominal bore.                                                                                                                                                                                                                                                                                                                                                                                                                     | RM   | 55  | 0.02350732 |
| A2106 | Providing and fixing 600mm x 900mm x 6mm thk mirror from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws , edge mounting with teak beading and minimum 12 mm thick plywood backing etc all complete.                                                                                                                                                                    | EACH | 6   | 0.00843667 |
| 2107  | Providing and fixing 610mmx127mmx6mm thk clear glass with C.P Guard rails and mounted on C.P. brackets etc all complete.                                                                                                                                                                                                                                                                                                                | NOS  | 1   | 0.00046000 |
| 2108  | Providing and fixing 25 mm diameter stainless steel towel rails (600mm X 25mm) with C.P. mounting brackets all complete.                                                                                                                                                                                                                                                                                                                | NOS  | 11  | 0.00619471 |
| 2109  | Providing and fixing 20mm dia chromium plated M.S. pipes wall mounted towel rod with C.P. Brackets etc all complete.                                                                                                                                                                                                                                                                                                                    | NOS  | 1   | 0.00053470 |
| 2110  | Providing and fixing C.P. Soap holder mounted with C.P. screws etc all complete.                                                                                                                                                                                                                                                                                                                                                        | NOS  | 1   | 0.00040013 |
| 2111  | Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.                                                                                                                                                                                                                                          | NOS  | 11  | 0.00416024 |
| 2112  | Providing and fixing glazed vitreous wall mounted paper holder with suitable cover cum cutter fitted with CP screws etc. sll complete.                                                                                                                                                                                                                                                                                                  | NOS  | 11  | 0.00299954 |
| 2113  | Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia all complete.                                                                                                                                                                                                                                                                                                                               | NOS  | 1   | 0.00021933 |
| 2114  | Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent conforming to IS:12701 including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. GI pipes shall be paid separately under ST No. 2105.                                                                                                                                               |      | -   |            |
| a     | 500 litres capacity                                                                                                                                                                                                                                                                                                                                                                                                                     | NOS  | 1   | 0.00242512 |
| c     | 2000 litres capacity                                                                                                                                                                                                                                                                                                                                                                                                                    | NOS  | 5   | 0.04849960 |
| A2116 | Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.                                                                                                                                                                                                                                                                                                                                         | EACH | 1   | 0.00041495 |
| 2200  | <b>SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                         |      | -   |            |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | UNIT | QTY | Weightage  |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| 2201  | Supply and fixing glazed vitreous china Wash Basin of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.                        |      | -   |            |
| b     | Colored                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EACH | 10  | 0.06350623 |
| A2201 | Supply and fixing coloured glazed vitreous oval shape china wash basin 450x550mm conforming to IS: 2556 mounted over 20 mm thk granite beveled edge counter counter. The Basin shall be fitted with approved shape bib cock, photo-voltic control system for water control with flow rate less than 5 LPM (litres per minute) at 45 psi, CP brass chain with rubber plug, 40mm CP brass waste and bottle trap as per IS: 2556 with two taps, necessary union including cutting of notch in granite counter slab etc complete as per specification | EACH | 1   | 0.00462380 |
| 2203  | Providing and fixing stainless steel kitchen sink of size 610x510x200mm conforming to IS: 13983 including all fittings etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                         | EACH | 2   | 0.01179308 |
| A2204 | Providing and fixing colour glazed vitreous china European type water closet of approved make conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, necessary C.P connections, water faucet etc all complete.                                                                                                                                                                                                                |      | -   |            |
| b     | Wall mounted                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EACH | 7   | 0.03679010 |
| A2206 | Providing and fixing white/coloured water efficient flat black glazed vitreous china urinals of size 610x375x390mm with photo voltaic control flushing systems of approved manufacturer simpolo, varmora or equivalent per IS: 2556(pt 6 sec-1) with flush pipes, lead pipes, gratings, traps and necessary C.P fitting etc. all complete as per specification having flow rate of 2 LPF (litres per flush) or less at 45 psi.                                                                                                                    | EACH | 7   | 0.04996084 |
| 2207  | Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following.                                                                                                                                                                                                                                                                                              |      | -   |            |
| a     | 75mm dia pipes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | RM   | 40  | 0.00832285 |
| b     | 110mm dia pipes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RM   | 150 | 0.04179211 |
| c     | 160mm dia pipes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RM   | 10  | 0.00432148 |
| d     | 200mm dia pipes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RM   | 10  | 0.00532330 |
| 2208  | Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. (Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                   |      | -   |            |
| a     | 200mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 22  | 0.01042016 |
| b     | 300mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 50  | 0.04084364 |
| c     | 450mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 60  | 0.08187698 |
| d     | 600mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 10  | 0.01868492 |
| e     | 900mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 10  | 0.03288239 |
| 2209  | Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following.(Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                        |      | -   |            |
| a     | 150mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 2   | 0.00062717 |
| b     | 250mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 2   | 0.00081687 |
| c     | 300mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 2   | 0.00101486 |
| d     | 450mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 2   | 0.00150807 |
| 2210  | Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following:(Cement shall be issued by BHEL free of cost as per TCC)                                                                                                                                                                                                                                                                                                        |      | -   |            |
| a     | 450mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RM   | 10  | 0.01560831 |
| A2211 | Providing and fixing C.I Manhole heavy duty cover of size 600mmx600mm including frame from reputed manufacture conforming to IS:4111 etc all complete as per specification.                                                                                                                                                                                                                                                                                                                                                                       | EACH | 7   | 0.04479047 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO         | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | UNIT | QTY | Weightage  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|------------|
| 2212          | Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EACH | 8   | 0.05088560 |
| 2213          | Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber (Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      | -   |            |
| a             | 100x100mm P or S Type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EACH | 2   | 0.00214355 |
| b             | 150x100mm P or S Type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EACH | 2   | 0.00222535 |
| c             | 150x150mm P or S Type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EACH | 2   | 0.00232494 |
| 2214          | Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | EACH | 11  | 0.01048537 |
| A2215         | Providing and fixing C.I. floor traps with stainless steel grating etc all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | EACH | 1   | 0.00104865 |
| 2217          | Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EACH | 1   | 0.04820913 |
| 2218          | Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | EACH | 5   | 0.00742180 |
| 2221          | Providing, laying spun CI pipes with conforming to IS 1536 complete for following. (Excavation, backfilling, concrete to be paid separately)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      | -   |            |
| a             | 75mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | RM   | 2   | 0.00203803 |
| b             | 100mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RM   | 2   | 0.00273990 |
| 2222          | Providing and fixing HDPE pipes in concrete/ brick work of following sizes including cutting, fixing and levelling in position etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | -   |            |
| c             | 150 mm dia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | RM   | 50  | 0.02190381 |
| 2301          | Supply, Fabrication, erection and alignment of structural steel with mild steel rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, toe guard/kick plate, stringers, treads, landings, hand-rails etc including 2 coats of red oxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm & 660 C for welding over 40 mm and upto 63 mm & 1100 C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a separate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL (BHEL to supply steel free of cost). | MT   | 2   | 0.02853601 |
| Cont.<br>2301 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      | -   |            |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | UNIT | QTY  | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------|
| A2302 | Extra over ST NO. 2301 for blast cleaning of steel structures by shot blasting to near white metal finish conforming to Sa 2 ½ finish of Swedish standard ISO-8501 and shall have profile of 40 to 60 micron and applying two component self/moisture curing Inorganic Zinc ethyl Silicate Primer Coat (Solid by Volume Minimum 62+/- 2% and Zinc content %age on dry film minimum 80%), Zinc dust pigment conforming to ISO 3549 and Zinc dust pigment content determined in accordance with ASTM D 520, Minimum Dry Film Thickness (DFT) of primer coat of 70 Micron, instead of primer coat of red oxide zinc-chromate, including touch-up painting, using Airless spray technique in shop etc all complete.             | MT   | 2    | 0.00737319 |
| 2320  | Supply, fabrication and fixing of stainless steel polished pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete..                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | MT   | 5    | 1.10994229 |
| 2321  | Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading, painting etc. all complete as per specification. Payments terms - a) on receipt of materials at site - 65%; b) Erection & fixing - 35%;                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MT   | 5    | 0.31290735 |
| 2400  | <b>ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation etc. as per specification drawing, relevant IRC &amp; IS codes and as directed by the Engineer-in-charge for the following:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              |      | -    |            |
| 2401  | Preparation of sub grade by excavating earth to required depth for all types of soil/ rock, dressing to camber and consolidating the base including making good the undulation etc and disposal of surplus earth, debris etc. within a lead upto 1 km etc. all complete.                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CUM  | 2250 | 0.08803020 |
| 2402  | Supplying and filling with selected good earth of approved quality in layers not exceeding 300 mm loose thickness using borrowed soil (borrowed soil to be arranged by the bidder) and compacted so as to achieve at least 95 % maximum dry density as per IS-2720 (Part-VII) including royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing etc all complete.                                                                                                                                                                                                                   | CUM  | 500  | 0.22496607 |
| A2405 | Providing & Laying granular sub-base using close graded Material conforming to MORTH specification (Table 400-1, Grading-I) , mixing in a mechanical mix plant at OMC, carriage of mixed material to work site, for all leads & lifts, spreading in uniform layers of specified thickness on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications, drawings and directions of Engineer-in-Charge.                                                                                                                                                                                                                                                     | CUM  | 1750 | 2.74390437 |
| 2406  | Providing & Laying water bound macadam base course with stone aggregate 50mm to 20mm size stone(IRC 19 - grading -1) screening & binding material including screening, sorting, spreading to template & consolidation with road roller including carriage spreading & consolidation of blinding material moorum etc all complete.                                                                                                                                                                                                                                                                                                                                                                                           | CUM  | 100  | 0.15679453 |
| A2410 | Providing & laying 40mm bitumen mastic wearing course over concrete pavement with industrial bitumen of grade 85/25 conforming to IS : 702, prepared by using mastic cooker and laid to required level and slope, including providing antiskid surface with bitumen fine grained hard stone chipping of approved size at the rate of 0.005 precoated cum per 10 sqm and at approximate spacing of 10 cm centre to centre in both directions, pressed into surface protruding 1 mm to 4 mm over mastic surface, including cleaning the surface, removal of debris etc. all complete as per specification, drawings and as per direction of engineer-in-charge. (Considering bitumen using 10.2% as per MORTH specification). | SQM  | 6330 | 1.56099778 |
| A2414 | Supplying and laying 300mmx250mmx150mm deep PCC block of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.                                                                                                                                                                                                                                                                                                                                                                                                       | RM   | 133  | 0.02738539 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

### E- TENDER SPECIFICATION NUMBER: BHE/PW/PUR/TLRPT-SWITCHYARD-CVL/2679

**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | UNIT | QTY   | Weightage  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------|------------|
| B2415 | Supply and laying 100mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:3) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment terms - a) On receipt of materials at site - 50%; b) On completion of erection & fixing - 50%.                                                                                                                                                            | RM   | 70    | 0.01950298 |
|       | <b>Providing and placing concrete work in road including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following:</b>                     |      | -     |            |
| A2418 | Design Mix Concrete of grade M15 (with maximum replacement of river sand up to 50% quantity by mass with coarse bottom ash) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.<br>(Cement shall be issued by BHEL free of cost as per TCC. Bottom Ash shall be obtained from TSTPP Kaniha at nominal charge of Rs. 1 per MT and its transportation from TSTPP Kaniha to NTPC Talcher project site shall be in the scope of bidder)          | CUM  | 90    | 0.07058421 |
| A2419 | Providing and laying cement concrete of grade M35 using 20 mm nominal size stone aggregate with approved admixture (if required) with high performance PCE-based BIS approved water reducing admixture of Type-G as per ASTM C-494 of approved make FOSROC/SIKA/BASF or Equivalent having minimum water reduction capability of 30% to achieve required slump in concrete all complete as per specification & drawing for the following.<br>(Cement shall be issued by BHEL free of cost as per TCC)                  | CUM  | 1430  | 1.12150477 |
| A2421 | Design Mix Concrete of grade M10 (with maximum replacement of river sand up to 50% quantity by mass with coarse bottom ash) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc.<br>(Cement shall be issued by BHEL free of cost as per TCC. Bottom Ash shall be obtained from TSTPP Kaniha at nominal charge of Rs. 1 per MT and its transportation from TSTPP Kaniha to NTPC Talcher project site shall be in the scope of bidder)          | CUM  | 1090  | 0.85485329 |
|       | <b>REINFORCEMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      | -     |            |
| 2422  | Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.                                                                                                                                                                                                                                                                                         | MT   | 30    | 1.40449965 |
| 2600  | <b>LEVELING &amp; GRADING: Levelling &amp; grading works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.</b>                                                                                                                                                                                                                                                                      |      | -     |            |
| 2602  | Earth work in stripping of top soil upto a maximum depth of 0.30 m below ground level so as to exclude all debris, grass, vegetation, bushes, trees having girth upto 300mm including roots and organic materials etc for leveling and grading including dressing to specified levels & grades and compacting the graded/stripped surface by manual/mechanical means, disposal of stripped materials within a lead upto 1km etc all complete as per specification, drawing and as directed by the engineer-in-charge. | Sq.m | 17945 | 0.23402992 |
| 2700  | <b>RAIN WATER HARVESTING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      | -     |            |
| 2701  | Making 250mm dia bore hole up to a maximum depth of 20 m below ground level in all types of rocks including all equipments, tools & plants, lowering casing pipes, bentonite slurry, removal of casing pipes etc. complete in all types of soil.                                                                                                                                                                                                                                                                      | RM   | 20    | 0.01676427 |
| 2702  | Supply & fixing 150mm dia perforated PVC pipe ISI mark 6 Kg/ cm2 with air vent at top as per the drawing & specification complete.                                                                                                                                                                                                                                                                                                                                                                                    | RM   | 20    | 0.00514546 |
| 2703  | Providing & fixing 150 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.                                                                                                                                                                                                                                                                                                                                                                                                                                           | RM   | 5     | 0.00128636 |

## Revised- Chapter XI-BOQ and Percentage Weightage-2679

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**Job Description: Civil and Architecture Works of 400kV Switchyard, 33kV Switch Gear & Control Room, GIS Building, AHU Building, Leveling & Grading, Roads & Drains and Other Miscellaneous Foundations/ Structures etc at 2x660 MW NTPC Talcher TPS**

| ST NO | Item Description                                                                                                | UNIT | QTY | Weightage          |
|-------|-----------------------------------------------------------------------------------------------------------------|------|-----|--------------------|
| 2704  | Supply & packing uniformly 6mm to 3mm size gravel in the bore hole surrounding the perforated PVC pipe.         | CUM  | 1   | 0.00136046         |
| 2705  | Supply & packing uniformly downgraded 40mm size gravel at all depth in the well dug for rain water harvesting.  | CUM  | 1   | 0.00136046         |
| 2706  | Supply & packing uniformly downgraded 40mm size pebbles at all depth in the well dug for rain water harvesting. | CUM  | 1   | 0.00136046         |
| 2707  | Supply & laying 300mm thick coarse sand layer at all depth in the well dug for rain water harvesting.           | CUM  | 1   | 0.00132193         |
| 2708  | Supply & fixing Netlon jali/ PVT net in the well dug for rain water.                                            | SQM  | 5   | 0.00072321         |
|       | <b>Total</b>                                                                                                    |      |     | <b>100.0000000</b> |