

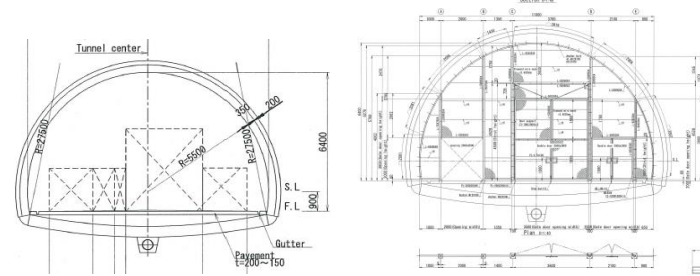


Package Title: Construction of Tunnelling Works including Testing and Commissioning for Double Line High Speed Railway using Tunnel Boring Machine (TBM) and New Austrian Tunnelling Method (NATM) between Mumbai Underground Station at Bandra-Kurla Complex (MAHSR Km. 0.773) and Shilphata (MAHSR Km. 21.150) in the State of Maharashtra for the Project for Construction of Mumbai-Ahmedabad High Speed Rail.

Package No: MAHSR-C-2

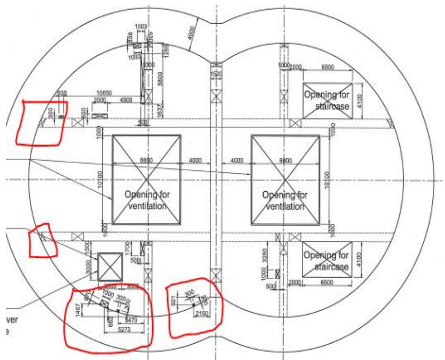
Date: 29 - July - 2019

Response to Bids Queries – 2

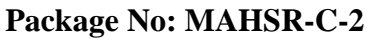
No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
1.	Section VI-2, Specifications (Technical),	Clause 2.2	Grouting	Being an item Rate Contract, it is requested to kindly provide the details of Grouting in terms of Rmt for Drilling, Drill Pattern, Spacing of Holes, Quantities of various grout materials, etc.	The cost of grouting in equipment rooms and niche is included in the respective item of excavation.
2.	Section VI-2, Specifications (Technical),	Clause 7.3, (2), (c), ii)	Coarse aggregate containing flat or flacky pieces or mica shall be rejected	Bidder understands that i) Limit of allowable Flakiness and Elongation index for coarse aggregate shall be as per clause 5.3 of IS Code 383 – 2016 ii) Limit of allowable Mica content for coarse aggregate shall be as per Note 3 of Table 2 of IS Code 383 – 2016 Request to kindly confirm	Bidder's understanding is correct.
3.	Section VI-2, Specifications (Technical),	Clause 4.25 & 5.16	Drainage System - 4.25 The drainage system in TBM Tunnel shall consist of central drain of 800mm diameter HDPE pipe with 4.5 mm wall thickness confirming to IS: 16098-2 5.16 Central drain shall consist of 450mm dia perforated HDPE pipe confirming to IS: 16098 - 2	Bidder requests the Employer to kindly confirm as to whether IS: 16098-2 will be the relevant IS code for HDPE Pipes or IS 4984. Further it is requested to provide details such as i) Grade of Pipe ii) Pressure rating iii) Dia of Perforated Holes iv) Spacing between Holes v) Thickness of Filter material	Refer Addendum No. 2 Item No. 1 and Addendum No. 3 Item No. 40 and 41.
4.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-23310000 & 2332000		Gate Detail at Adit Junction	In dwg no. 2331, 5 gates are shown whereas in dwg no. 2332 no. of gates shown are 3. Kindly clarify the no of gates and their sizes. 	Refer Addendum No. 2 Item No. 1 for the revised Drawing.
5.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-20010000		CA mortar	As there is no Item available in the Bill of Quantities, Bidder understands that CA Mortar is not in scope of C-2 Package Contractor. Request to kindly confirm	It is confirmed that CA mortar is not in the scope of C-2 Package.



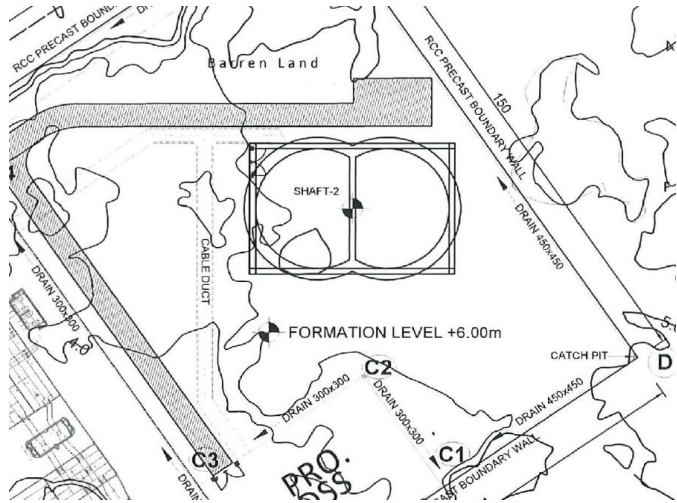
No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
6.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-20360000		Steel Segment	Bidder requests the Employer to kindly provide the details of Steel segments in Equipment rooms of NATM Tunnel Portion.	Refer Addendum No. 2 Item No. 1.
7.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-20170000		Support connection	Details of Connection arrangement like bolts etc. for Base Plate in Ribs not available in the tender drawings. Bidder requests the Employer to kindly provide.	The Contractor shall propose the connection details and submit the same for the Engineer's approval.
8.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-20390000		Waterproofing	Details like thickness and overlapping of water proofing membrane at the junction of tunnel and equipment room not available in the tender drawings. Bidder requests the Employer to kindly provide.	Refer Addendum No. 2 Item No. 1. The details of overlapping of water proofing membrane at the junction of tunnel and equipment room shall be proposed by the Contractor for approval of the Engineer.
9.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-41050000 to 41130000		Instrumentation & Monitoring - Main Tunnel	Bidder requests the Employer to kindly provide following details regarding Monitoring Instruments: - list of Instruments - Specifications - installation locations marked in drawings	Tentative locations have been shown in the Reference Information/Reports. The type of instrument to be used is to be proposed by the Contractor for the approval of the Engineer.
10.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-42050000 to 42060000		Instrumentation & Monitoring - Adit	Bidder requests the Employer to kindly provide following details regarding Monitoring Instruments: - list of Instruments - Specifications - installation locations marked in drawings	Tentative locations have been shown in the Reference Information/Reports. The type of instrument to be used is to be proposed by the Contractor for the approval of the Engineer.
11.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-23230000 & 20310000		Slope Protection measures	Slope Protection measures for Cut & Cover works at NATM Tunnel and Adit Tunnel is not available in the drawing. Bidder request the Employer to kindly provide.	Refer Addendum No. 2 Item No. 1.
12.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-10770000		Reinforcement drawing of Tunnel at Docking Zone	A 22.0m long cast-in-situ lining, starting from chainage 11Km 989m to chainage 12Km011m, of concrete (M35) lining is mentioned as tunnel in docking zone. However, the reinforcement details for the same is not available. Bidder requests the Employer to provide.	Refer Addendum No. 2 Item No. 1.
13.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-10310000 to 10330000		Details of steel girder at the openings	It is observed that a steel girder is to be provided inbuilt, in the steel segments at top and bottom of opening for equipment rooms. However, the details of girder are not available in the said drawings. Bidder requests the Employer to provide.	Refer Addendum No. 2 Item No. 1.
14.	General		Main Tunnel Portal; , Adit Tunnel Portal, Shaft 2 & Shaft 3-Permanent Reinstatement Work	Reinforcement detail of boundary wall, RCC Drains, Cable Duct, Box Culvert & RCC catch pit are not available. Bidder requests the Employer to provide.	Refer Addendum No. 2 Item No. 1.

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15.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-00190000 & TD-JIC-IC1-TDC-B01-UST-NTU-23360000 to 23370000		Adit Tunnel Portal-Permanent Reinstatement Work	Details of Slope Protection & stabilization measures like shotcrete, rock bolts, concrete etc not provided in tender drawings. Bidder requests the Employer to kindly provide.	Refer Addendum No. 2 Item No. 1 and Addendum No 3 Item No. 86.
16.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-15020000		Block out details	<p>Bidder requests the Employer to provide the detail of Block out shown in the extract below.</p> 	Refer Drawings of Bidding Documents. & Addendum No. 2 Item No. 1.
17.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-15090000		2 ton moving chain	Bidder requests Employer to confirm as to whether the installation of 2 Ton Moving chain is in scope of C-2 Contractor or not. If yes, request to please provide the details and specifications.	Refer Addendum No. 2 Item No. 1 and Addendum No. 3 Item No. 84 & 85.
18.	General		Reinforcement	Bidder requests the Employer to provide drawings for shaft structure including lining, slabs etc.	Refer Addendum No. 2 Item No. 1.
19.	Instrumentation drawings		Instrumentation & Monitoring for Shafts	<p>Bidder requests the Employer to kindly provide following details regarding Monitoring Instruments:</p> <ul style="list-style-type: none"> - list of Instruments - Specifications - installation locations msrked in drawings 	These are to be proposed by the Contractor for the approval of the Engineer.
20.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-15500000		Ventilation building for shaft - 2	Thickness of slab at RT and F1 level and thickness of parapet wall in ventilation building is not shown. Kindly provide the details.	Refer Addendum No. 2 Item No. 1.
21.	Drawing No TD-JIC-IC1-TDC-B01-UST-NTU-15490000		Ventilation building for shaft - 2	Bidder requests the Employer to confirm as to whether the 5 Ton hoist crane as mentioned in the drawing is in the scope of C-2 Contractor or not. If yes, request to provide the details and specifications.	Refer Addendum No.2 Item No. 1 and Addendum No. 3 Item No. 84 & 85.

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No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
26.	<p>Part 1 Section IV Bidding Forms</p> <p>&</p> <p>Part 2 Section V1-3 Drawings</p> <p>2. TBM Drawings</p> <p>TD-JIC-IC1-TDC-B01-UST-NTU-15500000 & 17360000</p>	<p>Bills of Quantities</p> <p>Bill Nos. 302B & 319B</p> <p>Pages 33 & 47 of 159</p> <p>Pages 142 & 180 of 182</p>	<p>Method of Measurement for Payment</p> <p>RC works for Ventilation Building at Shafts 2 & 3</p> <p><i>Request for additional drawings</i></p>	<p>The thickness of roof slab for Ventilation Building at Shafts 2 & 3 are not stated on the tender drawings. (Refer to part print of Ventilation Building at Shaft 2 below)</p> <p>Please provide the structural drawings for both Ventilation Buildings at Shafts 2 & 3 accordingly.</p>	Refer Addendum No.2 Item No. 1
27.	<p>Part 1 Section IV Bidding Forms</p> <p>&</p> <p>Part 2 Section V1-3 Drawings</p> <p>2. TBM Drawings</p> <p>TD-JIC-IC1-TDC-B01-UST-NTU-15010000 to 1516000 (Shaft 2) & 17010000 to 17130000 (Shaft 3)</p>	<p>Bills of Quantities</p> <p>Bill Nos. 302A (iii) & 319A (iii)</p> <p>Pages 33 & 47 of 159</p> <p>Pages 93 to 108 and 147 to 157 of 182</p>	<p>Method of Measurement for Payment</p> <p>Floor slabs & beams at Shafts 2 & 3</p> <p><i>Request for additional drawings</i></p>	<p>The details of floor slabs and beams at Shafts 2 & 3 are not stated clearly on the tender drawings. (Refer to part print at Shaft 2 below).</p> <p>Please provide the reinforcement drawings, including locations, of the floor slabs and beams at Shafts 2 & 3 accordingly.</p>	Refer Addendum No.2 Item No. 1

No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
28.	Part 1 Section IV Bidding Forms & Part 2 Section V1-3 Drawings 2. TBM Drawings TD-JIC-IC1-TDC-B01-UST-NTU-15510000 (Shaft 2) & 17370000 (Shaft 3)	Bills of Quantities Bill Nos. 307 & 324 Pages 38 & 53 of 159 Pages 143 & 181 of 182	Method of Measurement for Payment Excavation/Removal of unsuitable material at Shafts 2 & 3 <i>Request for additional drawings</i>	<p>The existing ground levels at Shafts 2 & 3 are not clear from the tender drawings. (Refer to part print of topography plan at Shaft 2 below).</p> <p>Please provide detailed drawings including cross sections so that the computation of excavation down to the formation levels of +6.00m at Shaft-2 and +10.00m at Shaft-3 can be properly verified.</p> 	<p>The Contractor shall carry out topographical survey before excavation/removal works.</p> <p>The Contractor shall submit a report confirming the existing ground levels at site for Engineer's Approval.</p>
29.	Part 1 Section IV Bidding Forms	Page 102 of 159	3.0 Technical Proposal 3.3 Works Execution Programme <i>Request for definition of "management program"</i>	<p>CL. 3.3 (1) stipulates that "The Contractor shall submit comprehensive Construction Programme, Quality assurance/Quality control management program, Safety management program and Environment management program in accordance with the General Specifications."</p> <p>CL. 3.3 (2) stipulates that "The Construction Programme may be in the form of a bar chart showing the relationship and timing of major operations required for Construction of the Works allowing due consideration for climatic and hydrological conditions pertaining to the Site."</p> <p>However;</p> <p>We are not able to locate the subjects "Quality assurance/Quality control management program", "Safety management program" and "Environment management program" in the General Specifications. Please provide the requirements during bidding stage.</p> <p>1) What does the term "management program" in "Quality assurance/Quality control management program, Safety management program and Environment management program" mean?</p> <p>If it means "schedule", can we submit it in the form of a bar chart which is similar to the format for Construction Programme as per CL. 3.3 (2).</p>	Refer Addendum No 3 Item No 97.



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				2) If otherwise in 1) above, please provide the details and format of “ management program ” for bid submission purpose.	
30.	Part 1 Section VIII Particular Conditions,	Part A Contract Data, Sub-Clause 1.1.3.3 Page 5 of 33	Time for Completion	<p>We have not received the Employer’s response to the query for the project schedule submitted, and queries for the project schedule raised in the Pre-Bid Meeting.</p> <p>The only information regarding the project schedule which we have is the JICA’s material which was distributed in the Bid Advisory Meeting on January 2018 held by JICA and Ministry of Land, Infrastructure, Transport and Tourism of Japan. In this material, total construction period is 47 months, but period for the construction of Shaft Structure and the Building on the Shaft after TBM disassembly is not considered. We understand that the construction period in the Bidding Document is shorter than 47 months even though the Contractor’s scope is larger than the scope included in the above project schedule.</p> <p>Please provide the detail information of the reason why the “Time for Completion: 1280 days” is shorter than the above 47 months even though the construction of Shaft Structure and the Building on the Shaft are included in the Contractor’s scope.</p>	Refer Addendum No. 3 Item No. 107.



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31.	Part 2 Section VI-3, 1. General Drawings, No. TD-JIC-IC1-TDC-B01-UST-NTU-00030000	Page 3 of 25	Schematic Diagram of Equipment Rooms <i>“Query for revised details when equipment rooms are located at both sides of the main tunnel”</i>	<ul style="list-style-type: none">At two locations (1km630m and 13km590m), equipment rooms are located at both sides of the tunnel.For the 2 locations where equipment rooms are located at both sides of the tunnel, in Japan (as in the case of Hokkaido Shinkansen Sasson Tunnel), the equipment rooms are not located at exactly same ring but offset by around 2 rings. Please confirm the location of the two rooms.	The condition(s) of Bidding Document shall remain unaltered.																												
32.	Part 2 Section VI-3, 1. General Drawings No. TD-JIC-IC1-TDC-B01-UST-NTU-00020000 No. TD-JIC-IC1-TDC-B01-UST-NTU-00040000 to 00130000 2. TBM Drawings, No. TD-JIC-IC1-TDC-B01-UST-NTU-10350000 to 10460000	Page 4 of 25 Page 6 to 15 of 25 Page 40 to 51 of 182	<i>“Clarification on Tunnel Length”</i> Schematic Diagram of Tunnel (Package C2) General Arrangement Drawing Plan and Profile Drainage Diagram	<ul style="list-style-type: none">There are discrepancies for the locations of Shaft2 and Shaft 3 depending on which drawing to refer to. Moreover, the number of segments calculated from drawings do not seem to match the number of segments in the Bill of Quantities. Please confirm which set of numbers are to be followed:<table><tr><th rowspan="2">No.</th><th rowspan="2">Drawing No.</th><th colspan="2">T1TM</th><th colspan="2">T2TA + T3TM</th></tr><tr><th>Shaft 1</th><th>Shaft 2</th><th>Shaft 2</th><th>Shaft 3</th></tr><tr><td>1</td><td>20000</td><td>0K772m869</td><td>6K565m358</td><td>6K614m642</td><td>16K232m500</td></tr><tr><td>2</td><td>00040000 to 00130000</td><td>0K772m869</td><td>6K567m</td><td>6K613m</td><td>16K284m</td></tr><tr><td>3</td><td>10350000</td><td>0K772m869</td><td>6K571m</td><td>6K609m</td><td>Unknown</td></tr></table>BQ Item 402<ul style="list-style-type: none">Standard and Tapered RC Segment Rings: 7,518RINGSSpecial type of Segments: 171RINGSSteel Segment Rings: 14RINGSTOTAL Rings; 7,703RINGSFrom Above Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-00020000 Standard and Tapered RC Segment Rings: 7,442RINGS Special type of Segments: 171RINGS Steel Segment Rings: 14RINGS Adjustment RC Segments: 56RINGS TOTAL Rings; 7,683RINGS	No.	Drawing No.	T1TM		T2TA + T3TM		Shaft 1	Shaft 2	Shaft 2	Shaft 3	1	20000	0K772m869	6K565m358	6K614m642	16K232m500	2	00040000 to 00130000	0K772m869	6K567m	6K613m	16K284m	3	10350000	0K772m869	6K571m	6K609m	Unknown	Drawings No 00020000 gives the schematic diagram of the tunnel and gives the centre line and inner face of walls of shaft. Drawing No. 00040000 to 00130000 refer to L-section of the tunnel. Drawing No 10350000 refers to location of drainage pits including shaft 2 and shaft 3. Refer Drawing no. 10780001 and 10790001 for calculation of number of segments in the tunnel.
No.	Drawing No.	T1TM		T2TA + T3TM																													
		Shaft 1	Shaft 2	Shaft 2	Shaft 3																												
1	20000	0K772m869	6K565m358	6K614m642	16K232m500																												
2	00040000 to 00130000	0K772m869	6K567m	6K613m	16K284m																												
3	10350000	0K772m869	6K571m	6K609m	Unknown																												



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33.	Part 2 Section VI-3, , 2. TBM Drawings, No. TD-JIC-IC1-TDC- B01-UST-NTU- 10310000	Page 36 of 182	Steel Segment for opening of equipment room (Type A) (1) <i>“Details at the Equipment Room openings”</i>	<ul style="list-style-type: none"> a) Type of joint connection and detail, for the built-in girder between steel segment rings for equipment room is not mentioned in the drawing. Are the joints to be welded or bolted up? What are the requirements for such connection details (number/size of bolts, welding details etc.)? Are there any waterproofing requirements? Please advise b) Concrete filling for the steel segment is very difficult, and in particular the 40mm gap at the bottom of opening area for equipment room is not achievable. Please amend details that are constructable. c) Paint and corrosion protection specification for steel segment is unclear. Please advise d) Method of lifting for the erection of steel segment is unclear. Are they going to be same as for RC segments? Please advise. 	<ul style="list-style-type: none"> a) Refer Addendum No. 2 Item No. 1. b) The method of concrete filling in the steel segment shall be proposed by the Contractor for the approval of Engineer. c) Refer Table 58 of Technical Specification. d) The steel segment shall be erected by TBM erector. The facility for the same shall be provided by the Contractor.
34.	Part 2 Section VI-3, 2. TBM Drawings, No. TD-JIC-IC1-TDC- B01-UST-NTU- 10310000, 103200000	Page 36, 37 of 182	Steel Segment for Opening of Equipment Room (Type A) (1), (2) <i>“Details for injection holes at the steel segments”</i>	<ul style="list-style-type: none"> ● Dimension and other details of injection holes for steel segment are not mentioned in the note. Please advise since we consider that they will not be same as those for RC segments. 	Refer Addendum No. 2 Item No. 1.
35.	Part 2 Section VI-3, 2. TBM Drawings, No.. TD-JIC-IC1-TDC- B01-UST-NTU- 10320000	Page 37 of 182	Steel Segment for opening of equipment room (Type A) (2) <i>“Details at the Equipment Room openings”</i>	<ul style="list-style-type: none"> ● The connection details (bolt size/numbers etc.) between RC segments and steel segments are not clear. The connection details between each steel segment pieces are also not clear. Please advise. ● The component specifications (size, thickness etc.) of the longitudinal rib are unclear. Please advise. ● The specification of main girder of B type segment ring for (R1, R2, R6, R7) are not mentioned in the drawing. Is it the same as A type segment ring (R3, R4, R5)? 	Refer Addendum No. 2 Item No. 1.
36.	Part 2 Section VI-3, 2. TBM Drawings, No. TD-JIC-IC1-TDC- B01-UST-NTU- 10330000	Page 38 of 182	Steel Segment for opening of equipment room (Type A) (3) <i>“Details at the Equipment Room openings”</i>	<ul style="list-style-type: none"> ● Type of joint connection and detail of water proofing between steel segment and RC segment is unclear. Please advise ● The ring joint connection between standard segment and steel segment is unclear for segments between R1 & RC and R7 and RC. 	Refer Addendum No. 2 Item No. 1.



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37.	Part 2 Section VI-3, 2. TBM Drawings, No. TD-JIC-IC1-TDC- B01-UST-NTU- 10540000 to 10580000	Page 59 to 63 of 182	Steel Segment for Equipment Room (Type A) (1) to (3), (Type B) (1)&(2) <i>“Request for clarification on Equipment Room steel segment design philosophy”</i>	<ul style="list-style-type: none">● Please provide the philosophy behind the steel segments for equipment rooms.i. Since the segment ribs are 430mm high and the segment thickness is 450mm there is very high risk of air pockets forming and/or honey combing. Please consider changing the details or omit the concrete castingii. The infill concrete grade is specified as M45 in the general arrangement drawings. Please confirm if spray concrete/mortar of 45MPa grade can be used since it may reduce the above risk.iii. Some drawings specify the coating by Zinc rich paint only, while drawing numbers 10550000 and 10560000 additionally require modified epoxy resin layer/ Please confirm which is correct.iv. It is mentioned that “Gasket shall be applied same as RC segment.” However, unlike the RC segment, it is does not seem practical to form a deep groove in the joint plate. Please provide a workable detail of such joint. Otherwise, please consider changing the detail to hydrophilic seal without gasket.	i) & ii) The method of concrete filling in the steel segment shall be proposed by the Contractor for the approval of Engineer. iii) Refer Addendum No 3 Item No 130 iv) The Condition(s) of the Bidding Documents shall remain unaltered.
38.	Part 2 Section V1-3 Drawings 2. TBM Drawings TD-JIC-IC1-TDC- B01-UST-NTU- 15520000 (Shaft 2) & 17380000 (Shaft 3) & 4. NATM ADIT Drawings TD-JIC-IC1-TDC- B01-UST-NTU- 23370000	Pages 144 & 182 of 182 Page 39 of 39	RCC Cable Duct (3500 x 3500) <i>Request for additional drawings and clarification of supply</i>	The cable duct is shown on the tender drawing; but details are missing. (Refer to part print at NATM ADIT below) Please provide & clarify the following: 1) Please provide the reinforcement and other structural details. 2) Please confirm whether the works under C-2 Project is limited to the RC works only or to include the bracket works. If the latter: i. Please provide the spacing for each bracket along the cable duct ii. Please provide the fixing details iii. Please clarify whether cable brackets are supplied by C-2 contractor. If so, please provide the material details for the bracket	Refer Addendum No. 2 Item No. 1 and Addendum No. 3 Item No. 130.

No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
				<p>CABLE DUCT (3500x3500mm) SCALE 1:100</p>	
39.	Part 2 Section V1-3 Drawings 4. NATM ADIT Drawings TD-JIC-IC1-TDC-B01-UST-NTU-23370000	Page 39 of 39	<p>Metaled Road</p> <p><i>Request for missing details</i></p>	<p>The thickness of "Good Quality Murum to be backfilled and compacted" is not indicated on the tender drawing. (Refer to part print below).</p> <p>Please provide accordingly.</p> <p>TYPICAL SECTION OF ACCESS METALED ROAD SCALE 1:50</p>	Refer Addendum No. 3 Item No. 130.



No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
40.	Part 2 Section VI-4 Works Requirements (Reference Information/Reports) Drawing No. TD-JIC-IC1-TDC-B01-UST-UST-NTU-40080000		General Arrangement of Arriving Entrance <i>“Clarification on details and methodology of Arriving Entrance”</i>	<ul style="list-style-type: none">● Please clarify the below issues related to the arriving entrance:<ul style="list-style-type: none">i. If we calculate from the starting end of the tunnel, the first segment at the Launching Shaft shall be at 0km772m669. Please confirm.ii. The “RC transitions Segment” shown implies that the TBM can advance fully into the arriving entrance structure. Please confirm.iii. Please confirm the status of structural works during the TBM arrival. The drawing implies that the structure will only be completed after TBM arrival. However, detailed sequencing is not known.iv. Please provide your requirements to the C1 contractor such as the handover period and condition of the shaft, availability of temporary yard for arrival preparation/ TBM dismantling/ removal and transportation.v. Please provide your assumptions for the arrival works such as temporary earth retaining wall details, bulkhead erection, water-stopping responsibility demarcation etc.	<ul style="list-style-type: none">i. The location of the 1st segment is to be proposed by the Contractor for the Engineer’s approval.ii. It is confirmed.iii. iv. v. Refer Appendix-1, Division 04000 of General Specifications.
41.	Bidding Document Section VI-2.	Specification (Technical Specifications) Clause 4.33,		the water leakage criteria defined in Table 21 does not include shafts, please provide the criteria for shafts	Refer Addendum No. 3 Item No. 79.
42.	Bidding Document Section VI-2.	Specification (Technical Specifications) Clause 4.1.4		please provide the allowable thrust force of RC segment for the TBM driving	Refer Addendum No. 3 Item No. 110.
43.	Bidding Document Section VI-4.			Works Requirement Table showing Details of All building Falling on HSR Alignment of Att. 5A_Bulding Survey Report, please clarify the properties with the Chainages on HSR alignment of SN 229-A, 229, and 230 since the indicated chainages in the table are different from the other document and drawings	Refer Addendum No. 3 Item No. 114.
44.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-00030000 and Bidding Document – Part 2 Section VI-I.	Specification (General Specifications) 01010 2 (d),		there is a discrepancy in these documents about the equipment rooms at chainage 13km590, please clarify which is correct.	Addendum No. 3 Item No. 5.
45.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-1050000, 10510000 and 10520000,			please provide the details of end wall for equipment rooms both Type-A and Type-B.	Refer Addendum No. 2 Item No. 1.



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46.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-15510000 and 17370000			please provide further information about finishing level of site formation. Only one formation level has been given in the current drawings for Shaft 2 and Shaft 3 which are +6.0m and +10.0m respectively, even though there are drainage system with gradient and the transition to existing ground level outside of works area.	Refer Addendum No. 2 Item No. 1.
47.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-10320000 and 10330000			We understand the Girder pieces will be installed above and under opening, please provide the detail of the Girder. Also, if the Girder pieces will be installed after cutting of steel segments, please provide the connection details between the steel segments and the girders	Refer Addendum No. 2 Item No. 1.
48.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-10310000 10320000and 10330000			There are drawings for steel segment for opening of equipment room (Type A), however, no similar drawing for Type-B. Please provide the drawings for steel segment for opening of equipment room (Type B).	Refer Addendum No. 2 Item No. 1.
49.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-1010000			There are drawings for M24 Bolt Socket for drop arms. Please provide the details like length of anchorage and method of fixing bolts, etc	Only M24 bolt sockets are to be provided by C-2 Contractor as shown in the Drawings.
50.				The drawing of shaft 1 has not been shown. Please provide this for the planning of TBM 1 dismantlement	Refer to Part 2 Section VI-4 Works Requirements (Reference Information/Reports)
51.				Please provide door schedule for ventilation building shaft-2 and ventilation building shaft-3	Refer Addendum No. 2 Item No. 1.
52.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-10320000			please provide the welding details of steel segments. Also, we would like to confirm that these steel segments are designed against shield thrust force	Refer Addendum No. 2 Item No. 1 and Addendum No 3 Item No 77.
53.				There are 14 nos of steel segment rings under the BQ item 402C, please advise the relevant drawings related to the BQ item 402C	Refer Addendum No. 2 Item No. 1.
54.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-10550000			the space for filling concrete in the steel segments are divided in small rooms by main girder plates and support ribs without holes, i.e. 396x438x444, therefore, the filling concrete for walls and roofs should be poured to each small room, one pour in the small space will be around 0.08 m3 only. We think it is not realistic and feasible design unless the filling is done by shotcrete. Please advise us how to fill the concrete to steel segment.	The method of concrete filling in the steel segment shall be proposed by the Contractor for the approval of Engineer.
55.	Drawing No. TD-JIC-C16-TDC-B01-TRW-NTU-30280000			it shown that the rebar details for concrete track bed for straight (Ø520 type 1-3). How about the rebar details for others type? Please provide.	It will be provided after award of Contract.



No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
56.	Bidding Document Section III	Evaluation and Qualification Criteria, Clause 4.2.5		table of Major Plant & Equipment S.No.4 “Single Boomer for NATM tunnel works”, we are planning to use “Triple boomer for NATM tunnel works” and not use “Single Boomer for NATM tunnel works”. In such case, do we still have to provide the detail of “Single Boomer for NATM tunnel works” in the Form EQU? Or do we have to use “Single Boomer for NATM tunnel works” in this project? Please clarify	Minimum requirement for each face of NATM working is one triple boomer and one single boomer. However, Contractor can use 2 triple boomers also.
57.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-23360000			there is no details of longitudinal section drawing of cable duct at Adit Portal. Please provide the detail.	Refer Addendum No. 2 Item No. 1.
58.				Can we use the access from NH-4 to the tunnel after the area has been handed over to the C3 contractor in accordance with the Milestone No.4 as described in drawing No.TD-JIC-IC1-TDC-B01-UST-NTU-00220000? Please clarify	The areas to be handed-over to C-3 Contractor and to be kept with C-2 Contractor has been shown in the Drawing. Access to NH4 may be interfaced by C-2 Contractor with C-3 Contractor.
59.				Based on current study of construction programme, total duration is very tight. Specially, design and manufacture of 3nos of TBMs will be taken a time almost half of construction period.	Refer Addendum No 3 Item No 107.
60.	"Part 1, Section 111. Evaluation and Qualification Criteria;"	Page 25 of 31: Notes for the Bidder	(ii) Similar work would mean a contract/contracts comprising the following activities (all following activities need not to be In the same contract): <ul style="list-style-type: none">● Construction of tunnel by TBM (closed mode) method of minimum 5.5 m finished Internal diameter.● Construction of tunnel by NATM method of minimum 40 sqm finished internal area."	Bidder Understand that Hydro power project tunnels, constructed by drill and blast method, will also be considered as similar to tunnels constructed by NATM. Request to confirm. <ul style="list-style-type: none">● Employer will appreciate the fact that the tunnels constructed by drill and blast method are similar to NATM, as they involve:● Excavation by Drill & Blast / Mechanized Excavation● Temp. Rock Support by:<ul style="list-style-type: none">○ Rock bolts● Shotcrete<ul style="list-style-type: none">○ Structural Steel● Permanent Rock Support by:<ul style="list-style-type: none">○ Inner Concrete Lining (Plain/RCC)"	The condition(s) of Bidding Document shall remain unaltered.
61.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-10520000 and 10530000			please provide the details of the cover for cable trough and cable pit. It is not clear whether a grating type or a precast type are used.	Refer Addendum No 2 Item No 1.



No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
62.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-15170000			we understand that nonwoven fabric and ultra-fast curing urethane resin spray waterproof shall be installed on rock face or shotcrete face before casting side wall concrete. Please confirm that it is necessary to install synthetic resin emulsion based adhesive on the ultra-fast curing urethane resin spray waterproof before casting wall concrete.	Refer Addendum No 3 Item No 79.
63.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-15500000 and 17360000			please provide the details of reinforcement bars, roof top, hatched wall and waterproofing if necessary for ventilation building Shaft-2 and Shaft-3	Refer Addendum No 2 Item No 1.
64.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-15240000 and 17200000			the pipes for pump out system is installed from the pumps to shaft roof slab and there is no horizontal pipe layout on the ground surface. According to Section VI-2. Specification (Technical Specification) 6.4, "The drainage pipes shall be provided up to the point of connection with the drainage of relevant authorities." Please advise the location of the connection point	Refer Addendum No. 3 Item No. 45 & Item No. 131.
65.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-15490000, 15500000, 17350000 and 17360000			the four columns at the corner of ventilation building are located outside of shaft structure. Please provide the details of foundation for these columns	Refer Addendum No 2 Item No 1.
66.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-15490000, 15500000, 17350000 and 17360000			please provide the details for the MS Doors and Louvers	Refer Addendum No 2 Item No 1.
67.	Bidding Document, item no 307, 324,	506(b) and 513(b)		the volume of unsuitable material has been quantified. However, there is no indication to determine the corresponding area in the drawing. Please clarify	This is the estimated quantity and the work shall be executed as per the site requirement.
68.	Bidding Document, item no 206, 207, 217, 218, 315, 316, 332 and 333			the laying area of top soil and turfing has not been shown in the drawing. Please advise these areas required	This is the estimated quantity and the work shall be executed as per the site requirement.
69.				Please provide reinforcement bars details for Shaft-2 and Shaft-3 base slab, track floor slab, floor slabs & beams, side walls and partition walls including sump	Refer Addendum No 2 Item No 1
70.	Bidding Document, item no 304(d) and 321(d)			precast RCC removable covers with 2 nos each lifting hook on opening maintenance at every slab level. There are 3 nos removable covers per opening at each level, please clarify the quantity of 1 set	Refer Addendum No. 3 Item No. 116.
71.	Bidding Document, item no 304(e) and 321(e)			1.0m high galvanized steel pipe fencing/railing around the openings at every slab level. Please clarify the quantity of 1 set	Addendum No. 3 Item No. 92.
72.	Bidding Document, item no 310(a) and 327(a)			please advise the excavation area of cable duct	Refer Addendum No. 3 Item No. 131.



No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
73.	Bidding Document, item no 311 and 328,			please advise the location of retaining wall and reinforcement bar details.	Refer Addendum No 2 Item No 1
74.	drawing ref: TD-JIC-C16-TDC-B01-TRW-NTU-30120000			please advise the expansion joint is either on every 5m slab interval or 10m?	Expansion Joint shall be provided at every 10m.
75.	drawing ref: TD-JIC-C16-TDC-B01-TRW-NTU-30120000			which party to provide the reference box unpacking material which shown on every concrete anchor? What is the material type for the reference box unpacking?	Only the grove for the reference pin box shall be provided by C-2 Contractor as shown in the Drawing.
76.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-20240000 and 23220000			there is no details of longitudinal section for providing 1.0m thick Backfill concrete. Please clarify the range of applying backfilling concrete in "Section A" of each drawing respectively	Refer Addendum No. 2 Item No. 1.
77.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-23220000 and 23230000			the backfill concrete class is M-10. The BOQ item 514 e) shows "PCC of Grade 20 over arch lining for 1.0m thickness". Please clarify which is correct	Refer Addendum No. 2 Item No. 1.
78.				The 450mm under drain at slab below of Cut & Cover Tunnel is showed in drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-41140000. But it is not showed in drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-20240000. Please clarify which is correct	Refer Addendum No 2 Item No 1 and Addendum No 3 Item No 71.
79.	Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-23360000			there is no connection details of Cable duct to Cut & Cover Tunnel. Please provide detail drawing.	Contractor shall prepare the detail drawing and submit to the Engineer for approval.
80.	Bidding Document Section VI-1, Specification (General Specifications) 04100			Milestones, 2. Milestone Schedules Note 4, there is the description of No. TD-JIC-IC1-TDC-B01-UST-NTU-00240000. However there is not included such drawing. Please provide it	Refer Addendum No. 3 Item No. 21.
81.	BOQ Items 203/204/211/212/213/214/215			for RCC Drain, Boundary Wall, Cable Duct, Box Culvert, MS Gate and Chain Link Fence, there is no details of reinforcement steels in the drawings. Please provide the details.	Refer Addendum No 2 Item No 1
82.	BOQ Items 209a), b) and c)			for Slope Protection - Shotcrete, Rock Bolt and PPC in berm, there is no details of slope protection in the drawings. Please provide the details	Refer Addendum No 2 Item No 1
83.	BOQ Items 213			for RCC Box Culvert, there is no details of wing walls and RC precast railing in the drawings. Please provide the details	Refer Addendum No 2 Item No 1
84.				There are two circles on both sides of the "MIDC Pipe line Road" at Section A of the Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-20240000. Are those circles utilities? If they are utilities, please clarify the detail of them.	The 2 circles shown in the drawings are utility. For details refer Addendum No 3 Item No 69.
85.				Are all utilities shown in the Drawing No. TD-JIC-IC1-TDC-B01-UST-NTU-20240000 object to support described at the Bill No.5, Item No. 501 "Summary of Specified Provisional Sums" ? Please clarify.	The description of Bill No. 5, Item No. 501 is self-explanatory.
86.	Part 1 Section IV. Bidding	Clause 2.1.3 Page 13 of 159	GST	"The rates and prices bid in the priced Bill of Quantities are for complete and finished items of the work in all respects. The rates	The condition(s) of Bidding Document shall remain unaltered.



No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
	Forms 2.0. Bills of Quantities			and prices shall, except insofar as it is otherwise provided under the Contract, shall include all, all taxes, insurance, royalties, duties, cess, Octroi, GST and other levies and other charges together with all general risks, liabilities and obligations set out or implied in the Contract. The Contractor is free to avail input tax credits under GST as per prevailing rules." Please confirm that if the accumulated input GST credit balance exceeds the output GST liability, any reimbursement shall be made by the Employer.	
87.	Part 1 Section IV. Bidding Forms	Page 96 of 159	Taxes and Duties	"The above Bid Price is inclusive of all taxes, royalties and duties. The successful bidder shall be required to give details of all taxes and duties incorporated in the Bid Price." Please confirm how we put the detail of taxes and duties since there is no specific template in the bidding form for the breakdown of taxes and duties.	The condition(s) of Bidding Document are self-explanatory.
88.	Part 3 Section VII. General Conditions (GC)	Clause 14.1	Exemptions to Taxes and Duties	"(b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 " "Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts therefor, imported by the Contractor for the sole purpose of executing the Contract shall be exempt from the payment of import duties and taxes upon importation." As there is no Particular Condition overriding the aforementioned, please clarify what are the specific exemptions relating to import duties and tax stated above. And if such applicable import duties have to be paid by the Contractor, would it be reimbursed by the Employer?	Refer Addendum No. 3 Item No. 94.
89.	Part 3Section VIII. Particular Conditions (PC)14.2 Advance Payment, 14.4 Schedule of Payments		Currency for payment	Please confirm that each portion of currency for advance payment can be requested by the Contractor as far as total payment amount is equivalent to the specified percentage of advance payment stated in the Contract.	Refer to Sub-Clause 14.2, Part A, Particular Conditions, Section VIII, Part 3 of Bidding Documents.
90.	Part 3Section VIII. Particular Conditions (PC)14.2 Advance Payment, 14.4 Schedule of Payments		Remittance Bank Account	Please confirm that each payment of foreign currency portion can be remitted to the designated bank account outside of India.	Refer to Sub-Clause 14.7, Part B, Particular Conditions, Section VIII, Part 3 of Bidding Documents.
91.	tender document VI-4 Works Requirements (Reference Information/Reports) ATTACHMENT 5			A. Building Survey Report, S/N61 Premier Residencies(CH 2,050m to 2,200m) has four floor underground basement parking. Please clarify this building is not affected tunnel alignment. And please provide as built drawing	Refer General Specifications 06000 Subdivision 06030 sub Clause 3.1.4 and 3.1.5.



No	Part & Section reference	Page no / Clause No .	Provisions as Per-Bidding Documents	Bidder Query	Employer's Reply
	FIELD SURVEY REPORT				
92.	tender document VI-4 Works Requirements (Reference Information/Reports) ATTACHMENT 5 FIELD SURVEY REPORT			A. Building Survey Report, S/N64 Dheevaj Realty(CH 2,200m to 2,365m) has 3 basements (16-20meter). Please clarify this building is not affected tunnel alignment. And please provide as built drawing.	Refer General Specifications 06000 Subdivision 06030 sub Clause 3.1.4 and 3.1.5.
93.				We have not received any replies of tender queries and additional information. We would like to request the Employer to allow the Bidder to raise pre-bid queries up to either 35 days prior to the latest date of submission of bid or 14 days after received the latest answers and addendum whichever latest date	Refer Addendum No 2 and Addendum No 3 for reply of Bidders Query and additional information. Refer Addendum No 3 Item No 106 for time schedule of raising pre bid queries.
94.	Part 2 Section VI-2 Technical Specifications CL 4.16 Backfill Grouting Page 44 of 199		Strength of Grout Mix	CL. 4.16 (3) (a) stipulates that “Strength - 1.5 N/mm2 at 24 hours on100 mm cubes” However, the specifications for our similar projects in Mumbai and in Singapore typically specify 2.0 N/mm2 at 28 days Please clarify if the specified 1.5 N/mm2 at 24 hours for the current specifications is correct or not.	The condition(s) of Bidding Document shall remain unaltered.