



CHENNAI METRO RAIL LIMITED

CHENNAI METRO RAIL PROJECT PHASE - 1 EXTENSION

ADDENDUM - 1

TO BIDDING DOCUMENTS

for

CONTRACT ATW-07/RT-01

Installation, Testing and Commissioning of Ballastless Track of Standard Gauge in Elevated, Underground Sections and Wimco Nagar Depot along with supply and installation of Buffer stops for Chennai Metro Phase-1 Extension Project

Employer: Chennai Metro Rail Limited

Country: India

Project: Chennai Metro Rail Project Phase 1 – Extension

Loan Agreement No.: ID-P258

The following clauses to be changed in the ATW-07 Tender.

S. No	Page reference No.	Tender Clause	Description	Addendum/Amendments to the Tender document
1	76 of 795	Clause No.1.6 of Section IV Bidding Forms-Bill of Quantities	Explanatory Notes to BOQ	Replace existing tender clause with Appendix A: Explanatory Notes to BoQ as stated below.
2	757 of 795	Section VIII, Particular condition, Part-A-Contract Data.	Table: Summary of Delay Damages as per clause 8.7 of GC	Replace existing tender clause with Appendix B.

Appendix A: Explanatory Notes to BOQ

The item description is intended to briefly describe the work to be performed under that item and to identify associated work. It is not a full and complete description of the work to be performed and the Contractor shall carry out all the work necessary to meet the requirements of the Specification.

These explanatory notes are to be read in conjunction with the Bill of Quantities, Employer's Requirement and Tender Drawings.

Section A: General Requirements

Item No.	BOQ Description	Explanation
A – 1(a)	Quality System Assurance Plan (QSAP)	<p>This item shall cover the QSAP as specified in the Employer's Requirements. It shall essentially include, but not limited to:</p> <ul style="list-style-type: none"> • Quality manual • Work instructions • Method statement for construction and installation, quality inspection • Inspection and test plans • Test procedures • FAT plans <p>The price shall also include the QSAP development, maintenance and implementation as well as cost of document originals, 2 copies, and electronic files.</p>
A – 1(b)	Health and Safety Management Plan (HSMP)	<p>This item shall cover the HSMP as specified in the Employer's Requirements. It shall essentially include, but not limited to the following.</p>

		<ul style="list-style-type: none"> • Occupational Health and Safety manual; • Site safety plan; • Risks assessments; • Method statements • Site accommodation proposals and provisions. <p>The price shall also include the HSMP development, maintenance and implementation as well as cost of documents originals, 2 copies, and electronic files.</p>
A – 1(c)	Environmental Management Plan	<p>This item shall cover the Environmental Plan as specified in the Employer’s Requirements. It shall essentially include, but not limited to:</p> <ul style="list-style-type: none"> • Environmental Management plan; • Detailed spoil management plan; • Dust control plan • Diesel emission mitigation plan <p>The price shall also include plan development, maintenance and implementation as well as cost of documents originals, 2 copies, and electronic files</p>
A – 1(d)	Project Implementation Plan	<p>This item shall cover the Project Implementation plan as specified in the Employer’s Requirements. It shall essentially include but not limited to:</p> <ul style="list-style-type: none"> • Project implementation plan including initial works program, three months rolling program, detailed works program, monthly progress report etc., • Software support plan, backup copies of the software submission, • interface management plan, interface matrix and specific contract interface sheets, all interfacing works within the project and other interfacing contractors • Project management information system • Contractors staff organization plan • Procurement and manufacturing plan; • Installation plan; • Temporary traffic and control plan • Maintenance support plans <p>The price shall also include plan development, maintenance and implementation as well as cost of document originals, 2 copies, and electronic files.</p>

A – 1(e)	Testing Procedure Plan	<p>This item shall cover the Testing Procedure Plan including integrated testing and commissioning as specified in the Employer’s Requirements</p> <p>It shall essentially include but not limited to the details of tests to be carried out and the procedures and acceptable values to perform them. The price shall also include the plan development, maintenance and implementation as well as cost of documents originals, 2 copies, and electronic files.</p>
A – 2(a)	As Built Drawings	<p>The price under this item shall include the cost of supplying as-built drawings, as specified in the Particular Specification of Employer’s Requirements including preparation, submission and all subsequent revisions, changes required and re-submittals as required until accepted by the Engineer. The as-built drawings shall be submitted in original, 2 copies and electronic files.</p>
A – 3(a)	Office accommodation for Engineer	<p>This item shall cover provision of office accommodation and facilities as specified in the Employer’s Requirements. It shall essentially include but not be limited to:</p> <ul style="list-style-type: none"> • Provision and Maintenance of office accommodation and facilities; • Provision and Maintenance of all other deliverables.
A – 3(b)	Integrated Testing and Commissioning	<p>These items shall cover the Integrated Testing and Commissioning as specified in Employer’s Requirements. It shall essentially include but not limited to the following.</p> <ul style="list-style-type: none"> • Integrated Testing and Commissioning; • Tools, Instruments, Tackles and documents required; • Providing attendance to the employer’s representatives • Carrying out the appropriate integrated testing and commissioning functions.

Section B and C: Supply of Permanent Way Materials and Installation of Ballastless Track

Item No.	BOQ Description	Explanation
B – 1 and C – 4	Buffer Stop and Wheel Stop – supply and installation	<p>The price shall include the cost of supplying and installation of buffer/ wheel stop as per Employer’s Requirements, mainly consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Cost of developing, manufacturing and supplying of Buffer and Wheel Stop including cost of deployment of all plant and machinery required. • Cost of inspection and acceptance test. • Detailed documentation including drawings, technical details, calculations and procurement as per Employer’s Requirements • Shipping, handling, transportation, loading, unloading, stacking/ storing up to project site. • Cost of all material and labour including all fittings fastening and fixtures etc. complete and installation on track. <p>No additional payments shall be made for handling, re-handling, loading unloading, transportation or for any other activities.</p>
B – 2(a)	Joggled fishplate with Clamps for UIC 60 Rails	<p>The price shall include the cost of supplying and installation as per Employer’s Requirements, mainly consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Joggled fish plate as per railway’s latest drawing. • Clamp. • Joggled fish plate with clamps per joint means two clamps and two joggled fish plates
B – 2(b)	Point Clamps	<p>The price shall include the cost of procurement, supplying and installation of point clamps to clamp turnout for UIC 60 rails as per Employer’s Requirements. The clamps shall be suitable for the</p>

		plinth/ slab track assembly and should meet the RDSO requirements
B – 2(c) and C – 1(d)	Approved Mass Spring System (MSS) in tunnels – Supply and Installation	<p>The price of item includes mainly consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Providing an approved Mass Spring System between 1st and 2nd stage of concrete in tunnels. • Each section of MSS will be equipped with the transition zone of adequate length on both sides of such stretch of MSS consisting of half thickness approved MSS. • Cost of additional RCC and other resources over and above that for installation of track. • The contractor will be responsible for proper grading of the base for achieving uniform Rail level in main as well as transition zone • The cost includes procurement of MSS materials including shipping, handling, transportation to site inclusive of all duties and taxes and placing/ fixing to the correct location below track plinth/ slabs. • Inspection and acceptance test. • Experts for supervision and installation of the MSS.
B – 2(d)	Handling, loading and transportation of head hardened rails and unloading at site (Rails will be supplied by the Employer)	<p>The price shall include the cost as per the Employer’s Requirements, mainly consisting, but not limited to the following:</p> <ul style="list-style-type: none"> • Mechanized handling/ re-handling, loading, local transport, temporary storage (if required) of rails from storage yard as per RDSO handling instruction for handling of 110 UTS HH rails specified in Manual for Flash butt welding of rails 2012 with latest amendments, unloading and leading the rails to the site of work as per the method statement approved by the employer, coordination with road authorities, obtaining necessary permits for transportation etc. • Transit insurance and safe transportation without any damage to these rails including arrangement of special trailers duly taking proper care and precaution and following the methods statement approved by the employer • Mechanized unloading, stacking/ storage on firm and level base etc. complete. • All the cost and charges including all duties, taxes, levies, etc. if any shall be paid by the Contractor. Average lead length shall be

		25km.
B – 2(e)	Handling, loading, transportation and unloading of turnouts of all types, along with all fittings and fixtures (Supplied by the Employer)	<p>The price shall include the cost as per Employer’s requirement mainly consisting of, but not limited to the following:</p> <ul style="list-style-type: none"> • Handling, loading and transportation of turnouts, crossover, trap switches and any other type of switches with fittings and fastening, duly coordinating with road authorities, obtaining necessary permits for transportation etc. and unloading at site as per the method statement approved by the Employer. • Transit insurance and safe transportation without any damage to these turnouts including arrangement of special trailers duly taking proper care and precaution and following the method statement approved by the employer • Mechanized unloading and leading the turnouts/ crossover to the site of work, stacking/ storage on firm and level base etc. complete. • All the cost and charges including all duties, taxes, levies, etc. if any shall be paid by the Contractor. Average lead length shall be 25km.
B – 2(f)	Handling, loading, transportation and unloading of fasteners of all types, along with all fittings and fixtures (Supplied by the Employer)	<p>The price shall include the cost as per Employer’s requirement mainly consisting of, but not limited to the following:</p> <ul style="list-style-type: none"> • Handling, loading and transportation of fasteners with fittings, duly coordinating with road authorities, obtaining necessary permits for transportation etc. and unloading at site as per the method statement approved by the Employer. • Transit insurance and safe transportation without any damage to these fasteners including arrangement of special trailers duly taking proper care and precaution and following the method statement approved by the employer • Mechanized unloading the fasteners to the site of work, stacking/ storage on firm and level base etc. complete. • All the cost and charges including all duties, taxes, levies, etc. if any shall be paid by the Contractor. Average lead length shall be 25km

B – 2(g)	In-situ-fabrication of Insulated Glued Joints as per RDSO Manual for Glued Insulated Rail Joints 1998 with latest amendments	<p>The price shall include the cost of procurement of materials and in-situ manufacturing of glued Insulated Rail Joint (IRJ) as per Employer’s Requirements and drawings, and installation at site mainly consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Loading, handling/ re-handling, transportation and unloading of all materials including rails from stock area to site including cost of cutting, drilling, cost of deployment of plant, equipment and machineries, • In-situ-fabrication of IRJ as per RDSO specifications • Materials, materials specification and equipment for fabrication of IRJs should comply with RDSO specification and it shall be procured only from RDSO approved Vendors. • Price is inclusive of procurement of fish plates, bolts, glue, washers etc. • Fabrication of in-situ-IRJ has be carried out only by the RDSO approved vendors. • Inspection and acceptance tests by interfacing signalling contractor to satisfy the signalling requirement. • Detailed documentation and records as per Employers requirements • Rail for fabrication of in-situ-Glued Insulated Rail Joints will be supplied by the Employer.
C – 1 and C – 2	Laying RCC slab/ plinth over first stage concrete with design mix approved by the employer and installation of track work for plain track with UIC 60 head hardened rails with all fittings and fastenings etc. complete	<p>The Price shall include complete laying of track on reinforced concrete plinth / RCC Slab as per Employer’s Requirements and drawings mainly consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Cost of survey and setting out including cost of deployment of all survey equipment, pegging markers, reference markers etc. • Loading, handling/ re-handling, transportation and unloading of all materials (including the materials supplied by the Employer) from stock area to site including cost of deployment of plant, equipment and machinery. • Cost of handling/ re-handling, transportation/ placement of rail panels of all lengths. • Cost of all temporary works including service/ temporary track and permanent works etc. to carry out the work.

		<ul style="list-style-type: none"> • Setting up of formwork, false work including deployment of all equipment, plant and machinery and cost of track supporting work including jigs and fixtures. • Fixing of reinforcement for RCC slab as per the approved design, provision of Plastic Clips for Stray Current insulation. • Assembling the track as per the approved design co-ordinates with Track master device or any other approved method and laying of track with all fittings and fastenings including Glued Insulated Joints, etc. complete. • Cost of RCC, supply and welding of M.S. Plate to the slab reinforcement, supply and connecting copper cables with M.S. Plates for electrical continuity. • Installation of stray current collection mat including all welding work, installation of MS strip connecting (with welded connection) all nominated rebars, earth point (for connection to structure earth cable) • Cost of all PVC/ HDPE pipes required for track crossing as per requirements of S&T and Power Supply Contractor. • Anti-corrosive Painting of rails as per Employers requirement • De-stressing of the CWR and final fastening down of track including cost of deployment of necessary equipment to comply with the track tolerances. • Cost of all temporary/ permanent markers including paint markers on rail. • Cost of cutting, drilling, jointing, except rail welded joints • Cost of drilling, chamfering etc. (in the running rails) for cable connections, as required by S&T and Power Supply Contractors. • As built checking to comply with Employers requirement, rectifying the deviations if any by the approved method statements. • Mill grinding of the rails as per the specifications • Cost of all rail welding shall not be included as it is separately paid. • Provision of track drainage as per Employer's Requirements and drawings including provision of grating slab for the collection pits over second stage concrete. • Design, Procurement and Fixing of signs and markers
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		<ul style="list-style-type: none"> • Inspection, measurement and acceptance tests. • Detailed documentation and records. • The payment of this item shall be made to the contractor after completion of all works required for making the track to final form including compliance to laying tolerances.
C – 3	Laying RCC slab/ plinth over first stage concrete with design mix approved by the employer and installation of turnout/ scissors crossover with UIC 60 head hardened rails with all fittings and fastenings etc. complete	<p>The Price shall include complete laying of turnout on reinforced concrete as per Employer’s Requirements and drawings mainly consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Cost of survey and setting out including cost of deployment of all survey equipment, pegging markers, reference markers etc. • Loading, handling/re-handling, transportation and unloading of all materials (including the materials supplied by the Employer) from stock area to site including cost of deployment of plant, equipment and machinery. • Cost of handling/ re-handling, transportation/ placement of rail panels of all lengths. • Cost of all temporary works including service/ temporary track & permanent works etc. to carry out the work. • Setting up of formwork, false work including deployment of all equipment, plant and machinery and cost of track supporting work including jigs and fixtures. • Fixing of reinforcement for RCC slab as per the approved design, provision of Plastic Clips for Stray Current insulation. • Assembling and laying of turnout with all fittings and fastenings including glued insulated joints etc. complete. • Cost of RCC, supply & welding of MS Plates to the slab reinforcement, supply & connecting copper cables with MS Plates for electrical continuity. • Concreting under the base plates upto 25mm and carrying out Epoxy grouting under the base plates upto 25mm with contractor’s epoxy based grouting material approved by the Engineer duly ensuring correct alignment and level by grinding the top surface of epoxy. • Installation of stray current collection mat including all welding work (with the already

		<p>provided shear connectors and others), installation of MS strip connecting (with welded connection) all nominated rebars, earth point (for connection to structure earth cable).</p> <ul style="list-style-type: none"> • Cost of all PVC/ HDPE pipes required for track crossing as per requirements of S&T and Power Supply Contractor. • Incorporation of turnout in CWR including cost of deployment of necessary equipment. • Cost of all temporary/ permanent markers including paint markers on rail. • Design, Procurement and Fixing of signs and markers. • Cost of cutting, drilling, jointing, except rail welded joints • Cost of drilling, chamfering etc. (in the running rails) for cable connections, as required by S&T and Power Supply Contractors
<p>C – 5(a), C – 6(a)</p>	<p>Flash Butt Weld</p>	<p>The prices shall include carrying out of flash butt welding of UIC 60 1080 grade, Head hardened rails as per Employer’s Requirements and as per the Manual for Flash Butt Welding of Rails- Jan 2017(With latest amendments) consisting but not limited to the following:</p> <ul style="list-style-type: none"> • Cost of all arrangements including temporary arrangements, loading and unloading, deployment/ redeployment of mobile flash butt welding plant at the site of work. • Cost of operation, fuel, staffing, maintenance etc. complete for the plant. • Cost of cutting, straightening (pre-weld and post weld). • Carrying out welding as per RDSO approved specification and as per Employers Requirement with RDSO approved welding parameters. • Cost of post weld treatment. • Cost of carrying out all inspection and acceptance tests, test welds including USFD test for all welds. This shall include deployment of all necessary equipment, plant, machinery and staffing. • Cost of all labour, lead, lift, lifting tools, equipment and other related expenses. • Cost of re-testing and re-placement of defective weld and associated rail length. • Cost of handling/ re-handling, transportation, placement of rails for welding.

		The payment under this item shall be made to the contractor only for number of finished and accepted welds in the track
C – 5(b), C – 6(b)	Alumino-thermit weld	<p>The price shall include carrying out of alumino-thermic welding of UIC 60, 1080 grade, Head hardened rails as per Employer’s Requirements, manual for fusion welding of rails by the alumino-thermic process-rev 2012(with latest revision) and Indian Railway</p> <p>Standard Specification for Fusion Welding of Rails</p> <p>By Alumino – Thermic Process Serial No. IRST-19-2012(with latest correction slip), consisting but not limited to the following.</p> <ul style="list-style-type: none"> • Cost of welding material and equipment as per specifications including handling, transportation, loading, unloading, stacking/storing up to project site/ work site. • Cost of carrying out all inspection and acceptance tests, test welds including USFD test for all welds. This shall include deployment of all necessary equipment, plant and machinery and staffing. • Cost of carrying out welding as per RDSO approved methods, with RDSO approved materials and approved welder and welding supervisor. • Cost of post weld treatment • Cost of cutting of rails, cost of all labour, lead, lift, tools, equipment and other related expenses. • Cost of re-testing and re-placement of defective weld and associated rail length. <p>The payment under this item shall be made to the contractor only for number of finished and accepted welds in the track.</p>

Section E: Miscellaneous Work

Item No.	BOQ Description	Explanation
E – 1(a)	Development of covered shed for storage	<p>The rails, fasteners and turnouts shall be handed over to the installation contractor who shall be responsible for their safe custody. The installation contractor shall develop a covered shed for stacking the supplied materials as per Railway standards</p> <p>The price shall include but not limited to the</p>

		<p>following</p> <ul style="list-style-type: none"> • Surface dressing of the ground including removing vegetation and disposal of rubbish • Preparation and consolidation of sub grade • Providing and laying in position concrete floor, foundations of columns • Steel columns for supporting the steel roof truss • Steel truss including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer. • Providing corrugated G.S. sheet roofing • Supplying and fixing of rolling shutters of approved make • Dismantling and Disposal of the covered shed at the end of the project
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Annexure “B”

Table: Summary of Delay Damages as per clause 8.7 of GC:

Note: D – Date of Commencement

1. Washermanpet to Korukkupet (ch.111 to ch.2900)-Underground

Key Dates	Delay Damages for first 28 days	Delay Damages between Day 29 and Day 56	Delay Damages from Day 57
Key Date KD 1.1	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day
Key Date KD 1.2	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day
Key Date KD 1.3	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day
Key Date KD 1.4	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day
Key Date KD 1.5	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day
Key Date KD 1.6	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day
Key Date KD 1.7	Rs.10,000 per day	Rs.25,000 per day	Rs.1,00,000 per day

2. Tondiarpet to Thangal (P1 to P143)-Elevated

Key Dates	Delay Damages for first 28 days	Delay Damages between Day 29 and Day 56	Delay Damages from Day 57
Key Date KD 2.1	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 2.2	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 2.3	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 2.4	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 2.5	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 2.6	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 2.7	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day

3. Gowri ashram to Wimco Nagr (P144 to P168)-Elevated

Key Dates	Delay Damages for first 28 days	Delay Damages between Day 29 and Day 56	Delay Damages from Day 57
Key Date KD 3.1	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 3.2	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 3.3	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 3.4	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 3.5	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 3.6	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 3.7	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day

4. Depot at Wimco Nagar -Elevated

Key Dates	Delay Damages for first 28 days	Delay Damages between Day 29 and Day 56	Delay Damages from Day 57
Key Date KD 4.1	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 4.2	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day

Key Date KD 4.3	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 4.4	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 4.5	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 4.6	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day
Key Date KD 4.7	Rs.5,000 per day	Rs.10,000 per day	Rs.25,000 per day