1. General Bid Bulletin No. 5

Annex "B"

<table>
<tr><td colspan="3">Volume I, Part 1 –Bidding Procedures</td></tr>
<tr><td>1.</td><td>Section II, Page BDS-2, ITB 7.4</td><td>Replace ITB 7.4 with the following:
<u>A site visit is planned to take place at the following date, time and place:</u>
<u>Date: 23 April 2020 (1st Batch) and 24 April 2020 (2nd Batch)</u>
<u>Time: 5:45 am both days</u>
<u>Venue: MMSP-GC Board Room, 14th Floor, Triumph Square Building, 1618 Quezon Avenue, Quezon City</u>
See Site Visit Guidelines and Form-A included in Annex "C" for more details and kindly fill-up the Form-A Confirmation Form to be submitted before Site Visit.</td></tr>
<tr><td colspan="3">Volume II, Part 2 –Employer's Requirements (ER)
b) General Requirements (ERG)</td></tr>
<tr><td>2.</td><td>Section 10.1 GENERAL</td><td>Revise item (3) of 5th paragraph with the following:
Inspection Hold Points
(3) No Railway System equipment ….. It is expected that three (3) Employer's Personnel and two (2) or (1) Engineer's Personnel shall attend t each inspection of the railway systems (<s>8</s> <u>9</u> systems) at three (3) times with <s>five</s> <u>seven</u> (7) days including travel time for each inspection. ……</td></tr>
<tr><td>3.</td><td>Table 10.1: Inspections</td><td>Revise row "Remarks: Railway Systems" with the following:
Table 10.1: Inspection
<table>
<tr><th>No.</th><th>User</th><th>Quantity</th><th>Remarks: Railway Systems</th></tr>
<tr><td>1</td><td>Employer</td><td>24 roundtrips * 7 days * 3 persons</td><td>Track works,
Signaling System,
Telecommunications System,</td></tr>
</table></td></tr>
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		Power Supply System, Overhead Contact System, Automatic Fare Collection System, Platform Screen Door System, Maintenance Vehicle and Depot Equipment, Maintenance Management System (MMS), Each system includes PRI & TC equipment.
4.	**APPENDIX 12, TEMPORARY SERVICES SEC 7 TEMPRORAY ACCESS SHAFT**	**Added new section 7 in ERG Appendix 12 with the following requirements;** **SEC 7 TEMPRORAY ACCESS SHAFT** Currently a temporary access shaft 26mtrs x 3.5mtrs for transferring rail and other equipment from the ground level to the underground Station shall be made available by the Civil contractor at Tandang Sora Station and North Avenue Station for the Partial Operability (PO) Section. The shaft at Tandang Sora Station shall remain open for a period of Three (3) months from the hand over date and North Avenue Station Six (6) months from the hand over date. Similar temporary access shaft shall be available for six (6) months at Katipunan Station, Ortigas South Station, Bonifacio Global City (BGC) Station and Lawton Station from the hand over date/s for the Remaining Operability (RO) Section. Note. *As per ERG Appendix 6 section 3.2 the Contractor shall also propose their own requirement for temporary shaft to deliver their equipment during construction, as part of the interface requirement.*
Volume II, Part 2 —Volume II, Part 2 —Employer's Requirements (ER) ***c) Technical Requirements (ERT)***		
5.	**ERT, 1) TRACK WORKS,**	**Revise item (3) c) with the following additional item:**

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<table>
<tr><td></td><td>Section 1.21.5
Rail Profile Grinding Car</td><td>(3) c) Vehicle Dimensions and Features:

xi) A vacuum system shall be supplied with the rail profile grinding car to fully collect rail grinding debris and deposit them in an on-board container. The container shall be removable from vehicle by fork-lift truck for discharging debris.</td></tr>
<tr><td>6.</td><td>ERT, 2) SIG,
Section 2.5.2 Speed Regulation</td><td>Revise first bullet with the following:

There shall be train speed regulation in train operation according to operation mode.

• ATO/ATP mode; Max. 120 km/h (Underground section: Max. ~~80~~ 85km/h);</td></tr>
<tr><td>7.</td><td>ERT, 2) SIG,
Table 2.5.3-Details of Signaling System</td><td>Revise item 2 with the following:

<table><tr><th>No.</th><th>Item</th><th>Content</th></tr><tr><td>2</td><td>Maximum operation speed</td><td>~~80~~ 85km/h (underground area), 120km/h (elevated area)</td></tr></table></td></tr>
<tr><td>8.</td><td>ERT, 2) SIG,
Appendix A.13 - Point machines within Depot and mainline</td><td>Item 2 of Interface Detail description to be deleted.

<table><tr><td>Interface Detail Description</td><td>1) The track work team shall convey the point machine type to be installed on the mainline and Depot area depending on the switch type used.
~~2) For the turnout of train speed 160km/h.~~
3) Point machine shall be installed on long sleepers by the Track team.
4) Signaling contractor shall provide an installation drawing with dimensions to the track team.</td></tr></table></td></tr>
<tr><td>9.</td><td>ERT, 8) MVDE,
Section 8.6.2 Service Life of</td><td>Revise item (1) with the following new item:</td></tr>
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	Major Equipment	➢ 26.08 Automatic Pantograph Inspection System
10.	**ERT, 8) MVDE, Section 8.9.1 Depot Layout**	**Revise item (5) with the following new item:** ➢ The design shall include flood prevention measures at the train inspection area from train wash plant.
11.	**ERT, 8) MVDE, Section 8.9.2 Workshop Layout**	**Revise this section with the following new items:** ➢ A canopy for weather protection shall be provided immediately outside the workshop entrance/exit to protect loading and unloading of equipment from rain. ➢ Truck access inside the workshop shall be required for pickup and delivery of goods within the crane coverage area for loading/unloading of major components i.e. trains, air conditioners, bogies etc.

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12.	**ERT, 8) MVDE,** **Section 8.9.3** **(New Section)**	**Add new section with the following requirement:** **8.9.3 Infrastructure Maintenance Depot** a) Trackwork and OCS Facilities The Infrastructure Maintenance buildings for trackwork and OCS maintenance shall be combined within one complex for efficiency while minimizing M&E requirements. The technical requirements related to workshops are included in sections 24.03, 24.04, 24.05, and 24.06 and in addition the following are to be included. ➢ Combined Workshop building with facilities including - Workshop with 2 tracks and maintenance pits. - Storage space for maintenance tools. - Office space, personnel facilities, one or two levels. - Secure storage for high-value materials (e.g. contact wire, turnout machines, etc.). - 5 tones Overhead cranes. - Storage space for train rescue equipment. ➢ Storage tracks (4) embedded, adjacent to workshop for trackwork and OCS vehicles. - Roof for weather protection - Solid surface for forklifts between tracks

		➢ Outdoor tracks with gate cranes for 25 m rail unloading/loading and space for long-welded rail production ➢ Fuel pump ➢ Manual wash area for vehicles b) Railway system workshops and material storage shall be integrated east of LRS workshop with adjacent road access ➢ Office, lab space and material storage. ➢ Approximate size of facilities with suitable environmental conditions. - Signaling, communications, 100 m^2. - PSD, 150 m^2. - AFC, 150 m^2. - Depot E&M services, 300 m^2 . All the above room sizes are to be confirmed during detail design.
13.	**ERT, 8) MVDE, APPENDIX 1.1, 1.05 (NOT USED)**	**Change "(NOT USED)" to "HIGH PRESSURE WASHER" and include with the following requirement:** **1.05 ~~(NOT USED)~~ HIGH PRESSURE WASHER** 1. Quantity: Six (6) sets Two (2) units shall be assigned to Light Repair Shop (LRS), two (2) units to Workshop (WKS), and two (2) units to Track Maintenance Car Shop. 2. Functional Requirements

		High pressure hot water/steam cleaner for washing railway components and machines operating in tunnels, including removal of residues, grease, wheel-rail lubricants and other deposits from trains and maintenance vehicles and equipment. 3. Design High pressure hot water cleaner unit shall be proven in a similar railway maintenance, and the units to be portable and completely equipped with following items but not limited to: a) Electrical power – 3 Ph, 400 V, 60 Hz b) Operation with cold and hot water, steam, as well as detergent c) Integrated detergent tank and detergent injector d) Flow rate 600 – 1,000 l/h e) Water pressure 10 – 20 MPa variable f) Hot water generation with heating oil – 80^0 to 120^0 C, fuel tank minimum 20 l g) High efficiency burner technology, automatic ignition h) The high-pressure water cleaner shall be supplied as portable unit mounted on four wheels for convenient manual handling i) The high-pressure water cleaner shall be equipped and supplied with: • Dual spray lances, rotatable type, approximately 1 m long • Trigger guns with servo control • LED nozzles shall be mounted with trigger guns/spray lances • High-pressure long-life hoses approximately 10 m long j) Water fine filter shall be provided for protection of pump against dirt particles from water.

		k) The high-pressure water cleaner shall be suitable for lifting with fork lift. l) Two (2) sets safety gear shall be provided with each unit. m) Storage compartment for tools, gloves and safety gear. n) Lances and hoses shall be provided with quick connect/disconnect fittings. o) Safety features shall include motor overload protection, flame failure detection, safety vale, etc.
14.	**ERT, 8) MVDE, APPENDIX 1.1, 02.01 CLEANING SET**	**Revise items 2 a) and new items in 2 b) with the following:** 2. Functional Requirements a) …… in the Washing shop at the LRS building. b) The cleaning set shall have the followings, but not limited to: ➢ Two (2) sets – Air-conditioner heat exchanger cleaning equipment to completely clean surfaces without abrasion. ➢ Operation modes with high flow-rate compressed air nozzle, and alternatively with compressed air and water.
15.	**ERT, 8) MVDE, APPENDIX 1.1, 04.01 UNDERFLOOR WHEEL RE-PROFILING LATHE**	**Revised item 2 i) and added new item 2 n) with the following:** 2. Functional Requirements i) Wheelset data of EMU is described below; ~~➢ Tread profile: EN tread(planning),~~ . .

		n) An air compressor to provide the necessary air supply for brake release of trains shall be supplied with air hose sufficient length (min. 25 m) and secured quick-connect fittings.
16.	**ERT, 8) MVDE, APPENDIX 1.1, 05.04 UNDERFLOOR EQUIPMENT LIFTER 2-T**	**Revised item 3 c) with the following:** 3. Design c) Battery charger installed on the lifter shall be provided~~, if possible~~.
17.	**ERT, 8) MVDE, APPENDIX 1.1, 06.01 UNDERFLOOR AIR BLOW MACHINE WITH DUST COLLECTOR**	**Revised item 2 to include the following new item f):** 2. Functional Requirements f) Supply of compressed air shall be provided from LRS building.
18.	**ERT, 8) MVDE, APPENDIX 1.1, 07.04 TEMPORARY BOGIE**	**Revise item 1 with the following;** 1. Quantity: Ten (10) sets (2 trailer bogies per set)
19.	**ERT, 8) MVDE, APPENDIX 1.1, 10.06 BOGIE WASHING MACHINE**	**Revise items 2 i), add new items 2 l) and 3 g) with the following:** 2. Functional Requirements i) The chemical fluid and washing water shall be separately stored in different tanks and ~~reused~~ reconditioned to reduce consumption. l) A boiler shall be supplied to provide steam for washing of bogies. 3. Design g) The bogie washer shall satisfactorily operate with wash solutions readily available in the Philippines.

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20.	**ERT, 8) MVDE,** **APPENDIX 1.1,** **10.12 BOGIE TEST STAND** **(New Section)**	**Add new section with the following requirements:** **10.12 BOGIE TEST STAND** 1. Quantity: One (1) Unit 2. Functional Requirement Contractor shall supply a bogie test (pre-load) stand for testing of bogies after overhaul with the following: a) PLC controlled machine with industrial PC b) Simulation of car body load, c) Measurement of individual wheel loads and distribution, d) Calculation of shim plates for primary and secondary suspension, e) Air suspension leakage test, f) Two (2) Hydraulic units to simulate maximum car body load. Hydraulic load shall be adjustable according to bogie tested, and g) Display of test process and data on computer, and recording of test results for downloading to maintenance management system on-line or via USB device.
21.	**ERT, 8) MVDE,** **APPENDIX 1.1,** **15.06 WHEEL LATHE**	**Revise item 2 f) with the following:** 2. Functional Requirements f) Chip crushing facility, with chip collection and transfer by conveyor(s) to container on workshop floor (next to machine) for removal by forklift. ~~The chip conveyor shall be integrated.~~ Two (2) chip bins shall be provided with the lathe.
22.	**ERT 8) Appendix 1.1** **18.04 AIR BRAKE SYSTEM**	**Revise item 3 with the following:**

	TEST STAND	3. Design Maintenance equipment, tools, and test equipment shall be provided for servicing, preventive maintenance, trouble-shooting, repairs and overhauls of brake systems, including brake test stand, and portable ~~33~~ brake test and diagnostic equipment for passenger rolling stock and infrastructure maintenance vehicles.
23.	**ERT, 8) MVDE, APPENDIX 1.1, 24.07 CATENARY MAINTENANCE VEHICLE**	**Revise last bullet of item 3 with the following;** 3. Design and Performance ➢ ~~Testing of Overhead Catenary System (OCS), Signalling and Communication systems with integrated test modules supplied separately.~~ ➢ Testing of Overhead Catenary System (OCS), Signalling and Communication system with integrated test modules with special tools shall be supplied separately.
24.	**ERT, 8) MVDE, APPENDIX 1.1, 24.10 EMERGENCY TRUCK (New Section)**	**Add new section with the following requirements;** **24.10 EMERGENCY TRUCK** Emergency truck to attend train derailment site (both Rail and Road drive Type) 1. Quantity: Two (2) sets 2. Functional Requirements a) The truck shall be able to be carry tools and standard accessories for re-railment. b) The truck shall be able to run city road, highway and rail track. c) The performance of the truck shall have the following but not limited to: ➢ Size: within Rolling Stock gauge, ➢ Type: diesel engine truck, both rail and road drive, ➢ Track gage: 1,435 mm, ➢ Coupler: coupler is not required, ➢ Driver cab: single cab, with air conditioner,

		➢ Diesel Driven Traction force: Approx. 200PS, ➢ Speed: max speed more than 80km/h in road. 3. Design a) The truck shall be able to operate by single driver both on rail at 3.5% gradient over 5km/h and road. b) The truck shall be equipped with the following features, but not limited to: ➢ All equipment in the Truck which need to be used on railway shall be able to run on road accordance with laws, ➢ The crane for load and unload items ➢ Open wagon type structure ➢ The truck length shall be considered to go inside track from railroad crossing. ➢ Parking brake, ➢ Short-circuit wheel and axle ➢ The siren with beacon light which comply with laws,
25.	**ERT, 8) MVDE, APPENDIX 1.1, 24.11 MAINTENANCE LOCOMOTIVE TRACTION (new item)**	**Add new section with the following requirements;** **24.11 MAINTENANCE LOCOMOTIVE FOR TRACTION** ➢ Quantity: Two (2) sets ➢ Functional Requirements ➢ The locomotive shall be provided for general maintenance work. ➢ The locomotive shall be able to pull wagons or a train. ➢ The locomotive shall be able to run on rail track. ➢ The locomotive shall be able to connect to all locomotives and wagon. ➢ One (1) locomotive is for back up, and it will be used by PRI (Philippine Railway Institute) for teachings. ➢ Major performance of the locomotive shall be as follows: ➢ Size: within Rolling Stock gauge,

		➢ Type: diesel engine locomotive, ➢ Track gage: 1,435 mm, ➢ Coupler: the coupler for MMSP trains and the coupler coordinated with other locomotives and wagons of MMSP (refer to sections 24). ➢ Driver cab to permit bi directional operation, with cab light and air conditioner. ➢ Traction force: For 350 tons load at 3.5% gradient over 5km/h ➢ Speed: max speed more than 20km/h with no load. (25 km/h speed limiter is required) ➢ Design ➢ The locomotive shall be able to operate by single driver ➢ The locomotive shall be equipped with the following features, but not limited to: ➢ Wide windows for wide and clear view from the cab for safe operation, ➢ Decks, hand rails and ladders for staffs, ➢ Spring powered failsafe parking brake, Air brake system for wagons and train with leakage detection, Electric co-working braking system between other locomotives which can connectable. ➢ Sanding device for wheel slip, ➢ 1 Horn, 4 or more flashing head lights for front and rear, ➢ Emergency stop buttons on the vehicle cabs. ➢ Torque converter and engine cut-off system, to be able to run by other locomotive power. ➢ The following accessories shall be included, but not limited to: ➢ Standard accessories, ➢ Maintenance tool kit. ➢ Interface Requirement Interface shall be taken with Rolling Stock Contractor at the appropriate timing.
26.	**ERT, 8) MVDE, APPENDIX 1.1, 26.05 RESCUE DEVICE**	**Revise item 3 e) with the following;** 3. Design e) Temporary rescue ~~truck~~ bogie This ~~truck~~ bogie shall be used for carrying heavy damaged wheel-set after being restored

		from the derailment. It shall consist of several components which can be lifted and handled by no more than two persons per item, and assembled into ~~truck~~ bogie on site.
27.	**ERT, 8) MVDE, APPENDIX 1.1, 26.08 AUTOMATIC PANTOGRAPH INSPECTION SYSTEM (New Section)**	**Add new section with the following requirements;** **26.08 AUTOMATIC PANTOGRAPH INSPECTION SYSTEM** 1. Quantity: 1 (One) Set 2. Functional requirements A pantograph inspection system shall be supplied and installed on a common structure across two depot tracks with trains operating at 5-25 km/h. The pantograph inspection equipment shall measure the condition of pantograph sliding plates of trains operating on each track. The measurement process shall use ultrasonic sensor technology and establish the thickness of sliding plates and unusual wear of each pantograph contact surface on a train, show the condition of wear and project the remaining service life of sliding plates. Measurements shall be displayed real-time on computer screens and stored on the server of the Maintenance Management System (MMS). The pantograph inspection system shall automatically identify and record train, car and pantograph identification related to measurements. Trains will permanently operate in same orientation. Out-of-tolerance conditions due to wear, penetration, damage, etc.; shall be displayed, recorded and graphically high-lighted with warning messages. a) Measurement conditions: Pantographs: i. Initial fleet, 30 trains – 4 Pantographs per 8-car train; ii. Ultimate fleet 58 trains – 5 Pantographs per 10-car train (after 20 years) iii. Shoes (85 mm width) x 2 rows (250 mm pitch) per pantograph Train operation

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		i. Running speed 5 – 25 km/h ii. Measurement in north-to-south direction iii. Traction voltage DC 1500 V 3. Design and performance a) The pantograph inspection system shall provide: i. Sense direction of train movements ii. Sliding plate base level distance measurement and thickness calculation iii. Sliding plate conditions shall be displayed three-dimensionally. iv. Projection of sliding plates service life v. Store measurement data of 58 trains operating daily for period of 30 days. b) Equipment composition i. 2 Sets – Air ultrasonic wave sensor ii. 2 Sets – Ultrasonic sensor maintenance mechanism (sensor head, sensor cable) iii. 1 Set – Measurement data-processing system iv. 1 Set – Computer for sliding plate measurement v. 1 Set – Optical-communications unit vi. 2 Sets – Warning display unit

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28.	**ERT, 8) MVDE,** **APPENDIX 1.1,** **27.02 GENERAL TOOLS**	**Revise item 2 b) with the following:** 2. Functional Requirements b) The following power tools shall be provided for general use, which shall be of AC 220V 60 Hz or AC ~~380~~ 400 V 3 Phase 60 Hz, durable and of high quality: