

REPUBLIC OF BOLIVIA
BOLIVIAN NATIONAL RAILWAYS
RAILWAY REHABILITATION PROJECT, EASTERN LINE
(IPIAS-ROBORE)

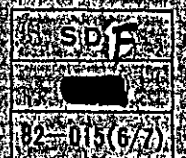
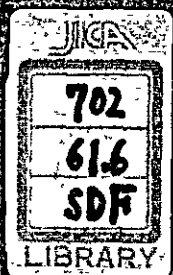
- Vol. 1. Instructions to Bidders
2. Conditions of Contract
3. General Specifications
4. Technical Specifications
5. Bill of Quantities
6. Basic Designs

Vol. 5, Bill of Quantities

January, 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

(JICA)



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Vol. 5. Bill of Quantities

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BILL OF QUANTITIES

| Item | Pay item No. | Description of work item | Unit | Quantity | Unit price | | Amount | | Total (b\$) | Escalation application formula | | Remarks |
|-------------------|--------------------|-------------------------------------------|-------------------------|----------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------|--------------------------------|------------------|---------|
| | | | | | Domestic currency (b\$) | Foreign currency (U.S.\$) | Domestic currency (b\$) | Foreign currency (U.S.\$) | | Domestic currency | Foreign currency | |
| Surveying | 1 | Surveying | Lump sum | 1 | | | | | | - | - | TS 1.09 |
| Geological survey | 2 | Geological survey | Lump sum | 1 | | | | | | - | - | TS 2.06 |
| Detailed design | 3 | Detailed design | Lump sum | 1 | | | | | | - | - | TS 3.10 |
| Earthwork | 4 | Main line cuttings (soil mixed sand) | m ³ | 26,000 | | | | | | 1 | 2 | TS 4.03 |
| | 5 | Main line cuttings (loose rock) | m ³ | 1,000 | | | | | | 1 | 2 | TS 4.03 |
| | 6 | Temporary line cuttings (soil mixed sand) | m ³ | 18,000 | | | | | | 1 | 2 | TS 4.04 |
| | 7 | Temporary line cuttings (loos rock) | m ³ | 2,000 | | | | | | 1 | 2 | TS 4.04 |
| | 8 | Main line embankments | m ³ | 140,000 | | | | | | 1 | 2 | TS 4.05 |
| | 9 | Temporary line embankments | m ³ | 31,000 | | | | | | 1 | 2 | TS 4.06 |
| | 10 | Clearing and grubbing of river-bed | m ³ | 109,000 | | | | | | 1 | 2 | TS 4.07 |
| | 13-1 | Boulder | m ³ | 100 | | | | | | 1 | 2 | TS 4.10 |
| | 14-1 | Leveling concrete | m ³ | 2 | | | | | | 1 | 2 | TS 5.06 |
| | Roadbed facilities | 15 | Retaining wall concrete | m ³ | 390 | | | | | | 1 | 2 |
| 16 | | Open drainage concrete | m ³ | 110 | | | | | | 1 | 2 | TS 5.06 |
| 19 | | Structure-demolishing | m ³ | 1,030 | | | | | | 1 | 2 | TS 4.09 |
| 25-1 | | Reinforcing bars | kg | 1,000 | | | | | | 1 | - | TS 5.07 |

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| | | | | | Domestic currency (b\$) | Foreign currency (U.S.\$) | Domestic currency (b\$) | Foreign currency (U.S.\$) | | Domestic currency | Foreign currency | |
| Roadbed facilities | 26-1 | Fabrication and placement of reinforcing bar | kg | 1,000 | | | | | | 1 | 2 | TS 6.07 |
| Box culvert | 11-1 | Excavation (soil mixed sand) | m³ | 8,860 | | | | | | 1 | 2 | TS 4.08 |
| | 12-1 | Excavation (loos rock) | m³ | 630 | | | | | | 1 | 2 | TS 4.08 |
| | 14-2 | Leveling concrete | m³ | 368 | | | | | | 1 | 2 | TS 5.06 |
| | 17 | Miscellaneous concrete | m³ | 40 | | | | | | 1 | 2 | TS 5.06 |
| | 18 | U-shaped retaining wall concrete | m³ | 1,430 | | | | | | 1 | 2 | TS 5.06 |
| | 24 | Box culvert concrete | m³ | 3,100 | | | | | | 1 | 2 | TS 5.06 |
| | 25-2 | Reinforcing bar | kg | 523,000 | | | | | | 1 | - | TS 5.07 |
| | 26-2 | Fabrication and placement of reinforcing bar | kg | 523,000 | | | | | | 1 | 2 | TS 5.07 |
| Bridge | 11-2 | Excavation (soil mixed sand) | m³ | 5,840 | | | | | | 1 | 2 | TS 4.08 |
| | 12-2 | Excavation (loose rock) | m³ | 3,470 | | | | | | 1 | 2 | TS 4.08 |
| | 13-2 | Boulder | m³ | 50 | | | | | | 1 | 2 | TS 4.10 |
| | 14-3 | Leveling concrete | m³ | 170 | | | | | | 1 | 2 | TS 5.06 |
| | 20 | Bridge abutment concrete | m³ | 6,200 | | | | | | 1 | 2 | TS 5.06 |
| | 21 | Bridge abutment foundation concrete | m³ | 2,080 | | | | | | 1 | 2 | TS 5.06 |
| | 22 | Bridge piers concrete | m³ | 250 | | | | | | 1 | 2 | TS 5.06 |
| | 23 | Bridge piers foundation concrete | m³ | 160 | | | | | | 1 | 2 | TS 5.06 |
| | 25-3 | Reinforcing bar | kg | 367,000 | | | | | | 1 | - | TS 5.07 |

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| | 26-3 | Fabrication and placement & reinforcing bar | kg | 267,000 | | | | | | 1 | 2 | TS 5.07 |
| | 27 | Steel deck girder bridge for tangent track (Span 15 m) Fabrication and delivery | Each | 1 | | | | | | 1 | - | TS 6.17 |
| | 28 | - DO - Erection | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 29 | - DO - Painting | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 30 | Steel deck girder bridge for curved track (Span 15 m) Fabrication and delivery | Each | 1 | | | | | | 1 | - | TS 6.17 |
| | 31 | - DO - Erection | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 32 | - DO - Painting | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 33 | Steel through girder bridge for tangent track (Span 15 m) Fabrication and delivery | Each | 3 | | | | | | 1 | - | TS 6.17 |
| | 34 | - DO - Erection | Each | 3 | | | | | | 1 | 2 | TS 6.17 |
| | 35 | - DO - Painting | Each | 3 | | | | | | 1 | 2 | TS 6.17 |
| | 36 | Steel through girder bridge for tangent track (Span 20 m) Fabrication and delivery | Each | 4 | | | | | | 1 | - | TS 6.17 |

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| | | | | | Domestic currency (b\$) | Foreign currency (U.S.\$) | Domestic currency (b\$) | Foreign currency (U.S.\$) | | Domestic currency | Foreign currency | |
| Bridge | 37 | - DO - Erection | Each | 4 | | | | | | 1 | 2 | TS 6.17 |
| | 38 | - DO - Painting | Each | 4 | | | | | | 1 | 2 | TS 6.17 |
| | 39 | Steel deck girder bridge for curved track (Span 40 m) Fabrication and delivery | Each | 1 | | | | | | 1 | - | TS 6.17 |
| | 40 | - DO - Erection | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 41 | - DO - Painting | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 42 | Steel deck truss bridge for curved track (Span 40 m) Fabrication and delivery | Each | 3 | | | | | | 1 | - | TS 6.17 |
| | 43 | - DO - Erection | Each | 3 | | | | | | 1 | 2 | TS 6.17 |
| | 44 | - DO - Painting | Each | 3 | | | | | | 1 | 2 | TS 6.17 |
| | 45 | Steel through truss bridge for tangent track (Span 65 m) Fabrication and delivery | Each | 1 | | | | | | 1 | - | TS 6.17 |
| | 46 | - DO - Erection | Each | 1 | | | | | | 1 | 2 | TS 6.17 |
| | 47 | - DO - Painting | Each | 1 | | | | | | 1 | 2 | TS 6.17 |

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| | | | | | Domestic currency (b\$) | Foreign currency (U.S.\$) | Domestic currency (b\$) | Foreign currency (U.S.\$) | | Domestic currency | Foreign currency | |
| Track material | 48 | Furnishing and delivery, Rail (37.2 kg/m, 18 m/one rail) | Each | 550 | | | | | | - | - | TS 7.07 |
| | 49 | Furnishing and delivering, join bar (for 37.2 kg/m rail) | Each | 600 | | | | | | - | - | TS 7.07 |
| | 50 | Furnishing and delivering, bolt, nut, washer (for 37.2 kg/m rail) | Each | 1,200 | | | | | | - | - | TS 7.07 |
| | 51 | Furnishing and delivery, screw spike (for 37.2 kg/m rail) | Each | 33,000 | | | | | | - | - | TS 7.07 |
| Track motor trolley | 52 | Furnishing and delivery 110 PS track motor trolleys | Units | 2 | | | | | | - | - | TS 8.04 |
| | 53 | Furnishing and delivery 30 PS track motor trolleys | Units | 5 | | | | | | - | - | TS 8.04 |
| | 54 | Furnishing and delivering 40t track flat trolleys | Units | 2 | | | | | | - | - | TS 8.04 |
| | 55 | Furnishing and delivering 20t track flat trolleys | Units | 5 | | | | | | - | - | TS 8.04 |
| | 56 | Furnishing and delivery 10t track flat trolleys | Units | 2 | | | | | | - | - | TS 8.04 |
| | 57 | Furnishing and delivery 5t track flat trolleys | Units | 2 | | | | | | - | - | TS 8.04 |
| Administration building | 58 | New construction of engineer's office | m ² | 260 | | | | | | - | - | TS 9.03 |
| | 59 | New construction of engineer's lodgings | m ² | 830 | | | | | | - | - | TS 9.03 |
| Communication facilities | 60 | Communication facilities | Lump sum | 1 | | | | | | - | - | TS 10.07 |



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