

Enclosure to Director General of Railways' Circular No. 6 of 1888.

RATE LIST.
CLASS B.
ENGINEER'S PLANT
(EXCLUDING PETTY TOOLS).
FOR 1886.

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Enclosure to Director General of Railways' Circular No. 6 of 1888.

INDIAN STATE RAILWAYS.

CLASS B—ENGINEER'S PLANT (EXCLUDING PETTY TOOLS).

CLASS B—ENGINEER'S PLANT (EXCLUDING PETTY TOOLS)

Statement showing rates free on Board in England, gross weight and rate of sea freight per ton of articles contracted for by the India Office from January to December 1886.

Contract.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		Quantity contracted for.	RATE F. O. B. IN ENGLAND AS PER CONTRACT.			GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number P.	Date.					Original	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.		
152	22nd April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Accumulator.	Hydraulic, 4" X 6", complete with fittings.	...	B.	No. 1	£ 130 0 0	0 0	Each	T. Not known	c. g.	s. d. 22 0	K.	
153	28th April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Blocks.	Differential, pulley, with chain complete to lift 4 tons. 4½" (single, double, treble and snatch) 6", one sheave ... 6", two " ... 6", three " ... 6", snatch ... 9", one sheave ... 9", two " ... 9", three " ... 9", snatch ...	...	B.	No. 4 Sets 4 " 4 " 1	9 2 0 9 10 0 15 10 0 23 10 0	6 0	Each Set "	Not known 6 0 1 3 2 Included in (a)	known (a)	16 6 20 0 20 0 20 0	K. K. K. K.	(a) Includes the gross weight of 9" blocks on this contract (see below).
164	7th September 1886...	69 of 1885	Northern Bengal	Boats, Cargo.	Built in steel, galvanised and of the following dimensions:— Length on main deck 130 0 Beam, moulded... 29 0 Depth at centre from top of beam to top of keel ... 4 8 Draught of water with all stores and general equipment on board ... about 0 11 The plating is of mild steel, Seimen's Martin.	169	...	No. 2	1,680 0 0	0 0	Each	116 14 2	2	20 0	C.	The total cost of each of these Boats ready for service was approximately Rs. 33,700.

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CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		Quantity contracted for.	RATE P. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number	Date.					Original	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
163	9th September 1886...	82 of 1885	Sind-Sagar	...	Boats, Cargo—contd.	170	200	No. 8	£ 309 0	Each	121 19 1	Total	35 0	K.	
143	23rd February 1886...	74 of 1885	Wardha Coal	...	Boilers, steam.	171	No. 2	470	0	Each	25 11	Total	35 17 8	B.	
						1—4	and photo.								

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Number	Date.					Original	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
157	3rd August 1886 ...	63 of 1881	Cawnpore-Kalpi	...	Boilers, steam; Fire-boxes for—	177	No. 2	31	0	Each	10 4 0	Total	21 0	C.	
175	24th December 1886	1 of 1886	Toungoo-Mandalay Railway.	Cranes.	Of Lowmoor iron with foundation ring for each fire-box, for boilers supplied with 5-ton steam hoist under Contract B116, dated 13th January 1885, <i>vide</i> Rate List, Class B, for 1886). The boilers for which these fire-boxes are required are vertical, and are each 3 feet 9 inches diameter, and 8 feet 6 inches high, with a fire-box 3 feet 5 inches diameter and 4 feet 8 inches high.	211	No. 2	105	0	Each	13 7 1	Total	40 0	B.	
						1-7									

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Number.	Date.					Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
153	28th April 1886	36 of 1883	Indus Valley (Sukkur Bridge).		Portable, 6 ton, handpower, on low lorries, 5' 6" gauge, with 16 feet radius, all in wrought iron.	...	...	No. 2.	£ 254	0 0	7. 19 0	Total	16 0	K.	Net weight.
175	24th December 1886.	1 of 1886	Tourcoo-Mandalay Railway.		Travelling, 5 ton, steam. The crane is mounted on a wrought iron carriage made to run on a metre gauge railway and made to hoist and lower through a distance of 60 feet, and revolve and traverse a weight of five tons at a maximum radius of 31b of 16 feet from the centre of the pillar to the centre of the load, and a maximum height at work of 14 feet from the rail level to the shavo in the jib-head. The crane is fitted with tension rods and links for lowering the jib to a total fixed height not exceeding 10 feet 6 inches from the rail level. A pair of engines of the most approved type are fitted to the crane with vertical boiler, tank and coal box on the working platform. The leading dimensions of the crane are as follows:—	1003	216	No. 1	730	0 0	27 11 0	Each.	38 6	R.	Net weight 20 12 1 27
Cranes—contd.															
						Feet. Inches.									
						Diameter of each cylinder 6									
						Length of piston 10									
						Diameter of crank shaft 2½									
						Length of boiler barrel 6									
						Diameter of boiler barrel 3									
						Length of fire-box 3									
						Mean diameter of fire-box 3									
						Size of chain 1½									

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Number.	Date.					Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
153	28th April 1886	36 of 1883	Indus Valley (Sukkur Bridge).		Iron work only for safety hand derricks to lift 6 tons with 35 feet radius for wire rope gear to lift from 40 feet below ground line.	...	...	Sets 2	£ 81	0 0	6 3 3	Total	16 0	K.	Net weight.
"	"	"	"		Special twin Derrick for erecting No. 3 Strut, Sukkur Bridge.	189	1-6	No. 1	315	0 0	9 15 3	Total	20 0	K.	
166	12th October 1886	30 of 1886	Sind-Sagar (Jhelum Bridge).		Portable with supporting clips (for the erection of Sullivan's staging, vide page 14).	...	...	" 2	12	0 0	Included in that of staging under this contract (vide page 14).		15 0	K.	
159	11th August 1886	41 of 1885	Wardha Coal	Differential Gear.	Dacey's patent, for Warora Colliery Works, as per ferro. No. B152.	...	...	Sets 2 (one right and one left).	400	0 0	1 12 0	Total	10 0	B.	
153	28th April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Drifts.	Parallel, steel { 6" X 1" ... { 5½" X 1" ... { 7½" X 1" ...	...	...	No. 7784 } " 1263 } " 130 } 2	18	0 0	5 11 0	Total	22 0	K.	Drifts are classified in the Nomenclature and Classification of State Railway Stores under Class G—Tools.

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Number.	B.						Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
B 1111		4th December 1886	1 of 1886	Toungoo-Mandalay Railway.	Earth-wagons.	Ironwork only for earth-wagons, end tip, metro gauge, to hold 2 yards, including complete set of bolts and nuts for each wagon with 20 per cent. extra. Ironwork only for earth-wagons, side tip, metro gauge, to hold 2 yards, including complete set of bolts and nuts for each wagon with 20 per cent. extra.	..	..	Sets 6	£ 18 15 0	Set	T. 58 3 2	Total	25 0	R.	
171		1st December 1886	1 of 1886	Toungoo-Mandalay Railway.	Engine, steam, portable.	12 H. P., double cylinder, not reversible.	..	202	No. 1.	299 0 0	Each	10 6 1	Each	30 0	R.	T. c. q. lbs. Net weight 8 16 0 25
153		28th April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Expanders, Struts.	Special as per drawing	..	193	No. 4.	6 0 0	Each	Not known	Not known	K.		
172		29th November 1886	1 of 1886	Toungoo-Mandalay Railway.	Forges, portable.	24 inches. All days' patent, similar to those supplied under Contract G 298, dated 21st December 1883, except that the blower is attached to the back of the forge without chain or belt driving gear. 6 photos and 8 tracings.	..	213	No. 6.	10 5 0	Each	2 13 2	Total	27 6	R.	Net weight of each cwt. 4 qr. 1 lbs. 23.
							..	..	..	2 2 6	Total					

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CONTRACT.		Date.	Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		Quantity contracted for.	RATE F. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number.	B.						Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
161		12th August 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Gauges, hydraulic.	In box, supplied by Messrs. West-wood & Co.	..	..	No. 1.	£ 2 12 6	Each	T. c. q. Not known	..	22 0	K	
175		24th December 1886	1 of 1886	Toungoo-Mandalay Railway.	Hoists, steam.	Each to lift 3 tons by direct pull from the barrel. The Steam Hoists are of the description known as "ships" and are each fitted with two steam cylinders and link-reversing gear, fixed to a vertical boiler. The lifting gear is double purchase. The barrel is fitted with two capstan ends, chain wheel for messenger chains and hand shaft. Each Hoist and boiler is mounted on a wrought-iron carriage, part of which is fitted as a water-tank for feeding the boiler. The carriage is mounted on four cast-iron wheels. Each tested with a load of 25 per cent. more weight than they are specified to lift. The following are the leading dimensions of the hoists:— Feet. Inches. Diameter of each cylinder ... 0 6 Length of piston stroke ... 0 10 Diameter of crank shaft ... 0 2½ Length of boiler barrel ... 7 0 Diameter of ditto ... 3 2 Length of fire-box ... 3 10 Mean diameter of fire-box ... 2 9	..	215	No. 2	340 0 0	Each	20 18 0	Total	38 6	R.	T. c. q. lbs. Net weight 13 10 3 4

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CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		Quantity contracted for.	RATE F. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		EXTERIOR SEA FREIGHT PER TON TO PORT.		Remarks.
Number	Date.					Original	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
162	18th August 1886	30 of 1883	Indus Valley (Sukkur Bridge).	Hoists, steam—	Each to lift 4 tons by direct pull from the barrel.	196	1-14	No. 2	£ 480	0 0	26	7 2	16 0	K.	
173	6th December 1886	32 of 1886	Bellary-Kistna		Hydraulic, lifting and traversing, with cast steel cylinders, to lift 60 tons each. The bases and screws of the traversing jacks are of forged steel or puddled iron bars.	...	...	No. 6	19	0 0	1 14	1	22 0	M.	
173	6th December 1886	33 of 1886	Bellary-Kistna		Hydraulic, ship, with cast steel cylinders and safety valves to lift 200 tons each.	...	...	" 4	19	10 0	1 4	1	22 0	M.	
169	9th August 1886	2 of 1886	North-Western	Jacks.	Screw, traversing, 10 tons, (Traversing-screw Bottle Jacks with levers, as per report on completion of contract).	...	...	" 40	160	0 0	2 17	0	12 6	K.	
165	22nd September 1886	3 of 1886	North-Western		Screw, traversing, 12 tons. The Jacks are of the pattern known as bottle-traversing, and each has a traverse of 12 inches by screw and ratchet lever.	172	...	" 90	3 16	6	7 14	0	14 8 16 0 16 6	K.	
149	26th March 1886	72 of 1883	Punjab Northern		Screw, traversing, to lift 30 tons ... Jacks, screw, traversing; spare ratchet handles for:—	...	...	" 2	5 17	6	0 5	3	12 0	K.	
G 1886	6th July 1886	3 of 1886	Eastern Bengal		With 1 inch square holes ... With 1 inch ditto ... With 1 inch ditto ... With 1 inch ditto	...	...	" 24 " 24 " 24 " 24	0 4 0 3 0 4 0 3	9 6 6 6	Not known Not known 0 3 0	0	21 0	C.	Net weight ... 0 1 0 8 " " " " 0 0 3 12 Z. a. g. lb.
165	22nd September 1886	5 of 1886	Eastern Bengal		With 1 inch ditto	...	...	" 24	0 3	6	0 3	0	21 0	C.	

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Number	Date.					Original	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
160	1st April 1886	72 and 79 of 1885.	Punjab Northern and Nagpur Chhattisgarh.		With levers for 41½ lb. rails	...	...	No. 4	£ 2 5	0 0	0	1 4*	16 6 15 0	K. B.	Net weight.
170	17th November 1886	1 of 1886.	Tongoo-Mandalay Railway.		With screws and levers for 50 lb. flat-footed rails.	...	...	" 4	2 10	6	0	5 3	15 0	R.	
150	1st April 1886	16 of 1885 (from Chief Store-keeper).	Sind, Punjab and Delhi.	Jimcrows.	With levers for 60 lb. rails	...	...	" 6	3 7	6	...	...	...	K.	Weight and rate of sea freight not known.
"	"	72 of 1885.	Punjab Northern		With levers for 62 lb. rails	...	...	" 6	3 7	6	...	1 2½*	16 6	K.	
168	27th October 1886	23 of 1886.	Sind-Sagar		With levers for bending 75 lb. steel flat-footed rails and strong enough to bend rails weighing up to 50 lbs. per yard.	...	...	" 23	2 18	6	3 12	1	18 6	K.	
153	28th April 1886	30 of 1883	Indus Valley (Sukkur Bridge).	Ladders.		...	...	L. ft. 500	0	1 0	Not known	...	16 6	K.	

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Number.	Date.					Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
152	22nd April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Lifts.	Hydraulic, 2 feet lift	...	...	No. 6	£ 20 0 0	Each	Not known	...	22 0	K.	
167	16th October 1886	6 of 1883	Indus Valley (Sukkur Bridge).		Belt driven compressor and receiver for 7 lights.	...	...	No. 2	94 10 0	Total					
					Small lamps, 2 angle and 1 straight	...	...	" 3	28 7 0	"					
					Large lamps, 2 angle and 1 straight	...	...	" 3	41 5 0	"					
					Main pipe to convey the first discharge of compressor 400 feet for distribution from the end including 7 feet 1 1/2" X 1/2"	...	...	L. ft. 400	7 19 6	"					
					Flexible pipe to each lamp, 3 ply	...	...	" 300	15 10 0	"					
					Unions to take off lamps where required with blank flanges when not in use including hand lamp and wire gauze filler for oil tank.	...	...	No. 7	2 2 6	"					
					Freight, Dock Dues, &c.	...	...	...	5 15 6	"					
					Total	...	...	...	195 9 6						
152	22nd April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Machines, rivetting (or Rivetters).	Hydraulic 18" X 24" (Tweddell's) having gaps of 18" and fitted with patent hanging gear.	...	210 1-6	No. 6	100 0 0	Each	Not known	...	22 0	K.	
152	22nd April 1886	36 of 1883	Indus Valley (Sukkur Bridge).		Rivet Carriers	...	...	No. 6	1 10 0	Each					
169	6th December 1886	"	Indus Valley (Sukkur Bridge).		Snaps, spare for 1" rivets for above machine.	...	...	Sets 6	12 0 0	Total	Not known	...	22 0	K	
"	"	"	Indus Valley (Sukkur Bridge).		Stop valves for ditto	...	...	No. 8	20 0 0	"					

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CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		Quantity contracted for.	RATE F. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number.	Date.					Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
152	22nd April 1886	36 of 1883	Indus Valley (Sukkur Bridge).	Mains.	Hydraulic, flexible, copper, with couplings by Tweddell.	...	...	...	£ 308 0 0	Total	Not known	...	22 0	K.	
160	9th August 1886	4 of 1885-86.	Wardha Coal		Fitted with self acting feed and delivery arrangements and supplied with 4 spate screens with meshes. This mill was preferred by Sir A. M. Rendel to Carr's Disintegrator No. 4 asked for on Wardha Coal State Railway indent No. 4 of 1885-86.	181 1-7	photo.	No. 1	313 0 0	Each	13 19 3	Each	15 0	B.	
G. 1539	12th July 1886	2 of 1886	Northern Bengal	Oars.	14 ft. long at G/d, per lineal ft.	...	...	No. 21	9 2 0	Total	0 9 2	Total	21 0	C.	
E. 1042	22nd July 1886	5 of 1886	Wardha Coal		Cast steel wheels and axles for pit tubs without pedestals, diameter of wheel over tread 10", gauge clear 1' 10", Hasfield's patent.	...	...	Pairs 100	0 12 6	Pair	1 17 2	Total	16 0	B.	Net weight ... 1 17 2 6
161	12th August 1886	36 of 1883	Indus Valley (Sukkur Bridge).		Netting, Manila, safety, 12 feet wide in convenient lengths.	...	...	L. ft. 300	30 0 0	Total	Not known	...	22 0	K.	
174	6th December 1886	36 of 1886	Indus Valley (Sukkur Bridge).		Netting wire, Galvanized 12' X 6', No. 16 gauge, 1" mesh.	...	...	Pieces 20	15 0 0	"			22 0	K.	
					Wire binding, galvanized 16 B.W.G.	...	...	Yards 200	0 5 0	"					
					Engine driving belt (cotton)	...	...	Ft. 120	0 1 9	Foot					
					Winch " "	...	...	" 300	0 0 6	"					
					Rope driving belt " "	...	...	" 2,400	0 0 0	"					
					W. I. Countershafts No. 4	...	...	T.c. q. lbs. 0 13 1 8	30 0 0	Ton					
					driving shafts " 2	...	...	" 0 7 1 6	0 0 0	"					
					Winch shafts " 2	...	...	" 0 3 1 2	0 0 0	"					
					Bolts and nuts for bearing blocks	...	...	" 0 1 1 4	0 0 0	"					
					Straps for guide pulleys " 16	...	...	" 0 0 2 4	0 0 0	"					
					Tuned pins for guide pulleys " 16	...	...	" 0 13 2 8	38 0 0	"					
					Collars and set screws " 28	...	...	" 0 0 3 12	50 0 0	"					
					C. I. bearing blocks counter shafts " 12	...	...	" 0 0 3 14	100 0 0	"					
					C. I. bearing blocks driving shafts " 6	...	...	" 0 2 2 8	80 0 0	"					
						...	...	" 0 1 3 26							

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Number	Date.					Original	Completion.		£	s.	d.	Amount.	Unit.	Weight.	Unit.	
174	6th December 1883...	36 of 1883	Indus Valley (Sukkur Bridge).		C. I. rope pulleys 4 ft. No. 6 " guide " 2 " " 16 " driving " 18 inch " 2 " counter " 15 " " 8 " Winch " 3 ft. " 24 Gun metal bearings for counter-shafts Sets 12 Gun metal bearings for driving shafts " 6 Gun metal bushes for guide pulleys No. 16 Needle lubricators " " Super fire tiles 30"X12"X2" "	...	...	T. c. g. lbs. 0 12 2 22 0 15 1 14 0 1 2 0 0 10 0 24 1 6 3 4 0 0 2 14 0 0 1 4 0 0 2 8 No. 18 ft. 400	£ 40 0 0 32 0 0 50 0 0 0 2 6 0 2 0 0 1 6	s. d. Ton. " " " " lb. Each Foot	Not known.	Not known.	Not known.	K		
161	12th August 1886.	36 of 1883	Indus Valley (Sukkur Bridge).	Plumbobs.	In boxes, 50 lbs. each with 400 feet patent flexible steel wire sash cord 3" with 2 wire clips.	...	...	No. 2	3 0 0	Total	Not known	...	...	22 0	K.	
153	28th April 1886.	36 of 1883	Indus Valley (Sukkur Bridge).	Pulleys.	Hydraulic, Tangye's 8 tons pull, 4 feet stroke.	...	...	No. 4	21 0 0	Each.	Not known.	...	...	Not known.		
152	22nd April 1886.	36 of 1883	Indus Valley (Sukkur Bridge).	Pump.	Hydraulic, 2"X5," driven by Belt-ing, with fast and loose pulleys.	...	...	No. 1	125 0 0	Each.	Not known	...	...	22 0	K.	

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Number B.	Date.					Original Completion.	B. D.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.
141	29th January 1886.	74 of 1885	Wardha Coal.	Articles for Pump, bucket, spare materials for —	Brass linings for bucket pump working barrels 12" diameter inside, 4 feet long, 12 1/2" outside diameter.	...	...	No. 4	£ 70	5 10 Total	2 11 0 Total	...	...	...
"	"	"	"	"	Brass linings for bucket pump working barrels 12" inside diameter, 5 feet long, turned outside.	...	...	No. 4	102	1 3 "	...	...	...	...
155	22nd July 1886	5 of 1886	Wardha Coal.	Rope, wire, steel.	Conductor, 3 1/2" circumference and each 275 feet long. These ropes are laced at one end only, and made of Siemens's Martin steel wire core 1/2" rod, round which six 3/16" rods are wound.	...	...	No. 10	57	0 0 Total	3 11 2* Total	...	...	...
151 & 156	15th April 1886, and 17th August 1886.	36 of 1883	Indus Valley (Sukkur Bridge).	Ropes, wire, steel, with special appliances.	To take 60 tons breaking strain each 225' with special fittings in each end of each. To take 60 tons breaking strain each 270' 3", with special fittings in each end of each. To take 36 tons breaking strain each 800' with fittings at each end. To take 36 tons breaking strain each 1,000' with fittings at each end. To take 36 tons breaking strain each 510' with fittings at each end. To take 36 tons breaking strain each 37' with fittings at each end. To take 36 tons breaking strain each 150' with fittings at each end.	...	...	No. 8	...	...	...	...	...	...

For cost, weight, &c., see page 14

Detailed cost is not known.

Statement showing rates free on Board in England, gross weight and rate of sea freight per ton of articles contracted for by the India Office from January to December 1886—contd.

CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE QUANTITIES (IF ANY).		Quantity contracted for.	RATE F. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number	Date.					Original	Completion.		Amount.	Unit.	Weight.	Unit.	Date.	Port.	
151 & 156	15th April 1886 and 17th August 1886.	36 of 1883.	Indus Valley (Sukkur Bridge).		To take 30 tons breaking strain, sling 12". To take 7 tons breaking strain each 210' long fitted with thimble and hook in one end and thimble in the other. Hawfers, steel wire, Bullivant's patent, flexible, each 180 fathoms, 4½", with an improved patent Automatic Nipper for each. Strops ... Hawfers, each 80 fms., 4" circumference. Hawfers, each 60 fms., 4" circumference. Clamps special for main ties ... Clamps special for suspension ties ... Couplings, screw, special Tongs special for Hydraulics Head pulleys for 8 tons Travellers for 5½ tons Sling pulley for 10½ tons	...	...	No. 1 " 10 " 4 " 4 " 2 " 2 Sets 8 " 8 No. 8 " 4 No. 10 " 6 " 1	£ 1,537 0 0	s. d. Total 31 10 3	g. Total 22 4	s. d. K.		The figures shown here include the cost and weight of the ropes on page 13. Detailed cost is not known.	
156	17th August 1886 ...	36 of 1883.	Indus Valley (Sukkur Bridge).			...	...		19 10 0	Each	Not known	Not known.		Sets of 3 blocks. Sets of 3 blocks for tails.	
153	28th April 1886 ...	36 of 1883	Indus Valley (Sukkur Bridge).		1½" diameter	...	...	No. 6	2 0 0	Each	Not known	Not known.			
156	12th October 1886 ...	30 of 1886	Sind-Sagar (Jhelum Bridge).		Wrought iron, for erection of girders 150 feet span, complete in all respects with necessary fittings and spare parts and with one extra base. (For schedule of quantities required, vide appendix A.)	...	183 1-5	Groups 8	1,262 0 0	Total	63 13 0*	Total	15 0	K	* Includes the weight of two Derricks—(vide page 5). Detailed cost not known.

INDIAN STATE RAILWAYS.

Statement showing rates free on Board in England, gross weight and rate of sea freight per ton of articles contracted for by the India Office from January to December 1886.

Contract.		Number of Indent.	For what Railway.	Articles.	Details.	India Office Drawings (if any).		Quantity contracted for	Rate F. O. B. in England as per contract.			Gross Weight.			Entire Sea Freight per ton to Port.		Remarks.
Number	Date.					Original	Com- pletion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.			
154	6th July 1886	92 of 1885	Sind-Sagar	...	With surface high pressure non-condensing engines and boilers and fittings complete. The vessels are not to exceed 150 feet in length exclusive of the wheel, or 30 feet in breadth, and it is essential that they shall be capable of steaming at least 12 statute miles per hour, and that their draught with boilers full and with 60 tons of cargo on board shall be as little above 1 foot 6 inches as possible, having regard to the requisite speed and strength of the boats. The fuel used with these boats will be wood, and a sufficient quantity for 12 hours will have to be carried at this draught. Steamer to be able to steam ahead or a stern with two flats alongside against a current of 10 miles an hour. All fittings of every kind except wood work are to be supplied.	...	203 204 & 205	No. 4	£ 4,800	0	0	Each	T. 125 c. 9 q. 3	Each	s. 18 d. 6	K.	In addition to £ 4,800, £ 200 was paid for increased size of boiler and £ 133-11-2 for additional weight of steel used for each steamer.
154	6th July 1886	69 of 1885	Northern-Bengal	Steamers, stern wheel paddle.	With compound surface condensing engines and boilers and fittings complete. The vessel is to be about 137 feet over all, 120 feet between the perpendiculars, 24 feet breadth moulded, and 29 feet breadth extreme. It is essential that her draught, light with waters in boilers and coal for 12 hours steaming on board and generally in complete working order, but without paying load shall be as little in excess of 15 inches as the requisite strength of the vessel and a speed of not less than 12 statute miles per hour when loaded for a depth of 9 inches below her light load line will	...	206 207 & 208	No. 1	4,800	0	0	Each	115 2 2	Each	42 6	C.	Cost f. o. b. of the steamer including a model as per Invoice was £4,531-7-2 and the total cost ready for service was approximately Rs. 85,400.

INDIAN STATE RAILWAYS.

CLASS B—ENGINEER'S PLANT (EXCLUDING PETTY TOOLS).

CLASS B—ENGINEER'S PLANT (EXCLUDING PETTY TOOLS).

Statement showing rates free on Board in England, gross weight and rate of sea freight per ton of articles contracted for by the India Office from January to December 1886—contd.

CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		RATE, F. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number	Date.					Original	Completion.	Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
154	6th July 1886	69 of 1885	Northern Bengal	Steamer, stern paddle-wheel	permit. The fuel used with this boat will be coal. The paddle wheel of the vessel must be radial, and the vessel is to be supplied with a hurricane deck and sun awning.	...	...	£ 5,000	d. 0	...	...	s. d.	...	
147	27th February 1886	Bengal Marine Indent No. 121 of 1885.	Eastern Bengal State Railway (for despatch service between Goalundo and Narain-ganj).	Steamers, paddle wheel, materials for—	Engines, paddle wheel, compound diagonal direct acting, fitted with surface condensers and feathering wheels with independent centrifugal pumps for circulating water in condensers—cylinders to be two in number for each pair of engine, the high pressure cylinder to be 28 inches in diameter and the low pressure cylinder 53 inches in diameter, both cylinders arranged for a 45 inches stroke. The diameter of paddle wheel to centre of motion to be 14 feet. The working pressure on boiler to be 90 lbs. per square inch. For a list of spare gear and spare tools sufficient in quantity for two pairs of Engines supplied under this contract, see Appendix B.	...	...	...	...	...	...	...	...	
145	3rd March 1886	Ditto	Ditto	...	Iron bars, half-round, segmental ...	...	...	563	3	6	Total	...	...	Not known.
144	1st April 1886	Ditto	Ditto	...	Iron bars, round ...	...	...	1,064	2	5	"	...	...	...
146	Ditto	Ditto	Ditto	...	Iron rivets ...	...	...	16	2	0	"	...	...	...

INDIAN STATE RAILWAYS.

CLASS B—ENGINEER'S PLANT (EXCLUDING PETTY TOOLS.)

CLASS B—ENGINEER'S PLANT (EXCLUDING PETTY TOOLS).

Statement showing rates free on Board in England, gross weight and rate of sea freight per ton of articles contracted for by the India Office from January to December 1886—contd.

CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		RATE, F. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.		ENTIRE SEA FREIGHT PER TON TO PORT.		Remarks.
Number	Date.					Original	Completion.	Amount.	Unit.	Weight.	Unit.	Rate.	Port.	
148	6th March 1886	Bengal Marine Indent No. 121 of 1885.	Eastern Bengal State Railway (for despatch service between Goalundo and Narain-ganj).	Steamers, paddle wheel, materials for—contd.	Steel plates, mild, assorted " angles " Tees The size and capacity for both passengers and goods on board the two steamers for which the above materials are required are given below. The two steamers were built at the Kidderpore Dockyard.	...	...	£ 1,354 " 1,661 " 16	d. 5 7	...	...	...	...	Not known.
					Lower deck saloon	...	...	...	...	...	...	...	...	...
					Upper ditto	...	...	...	...	...	...	...	...	...
					Lower deck cabin...	...	...	...	...	...	...	...	...	...
					Lower deck	...	...	...	...	...	...	...	...	...
					Upper deck	...	...	...	...	...	...	...	...	...
					Capacity for hold	...	...	...	...	...	...	...	...	...
					Ditto for fore hold	...	...	...	...	...	...	...	...	...

CONTRACT.		Number of Indent.	For what Railway.	Articles.	Details.	INDIA OFFICE DRAWINGS (IF ANY).		Quantity contracted for.	RATE P. O. B. IN ENGLAND AS PER CONTRACT.		GROSS WEIGHT.			ENTIRE SEA-FREIGHT PER TON TO PORT.		Remarks.	
Number B.	Date.					Original.	Completion.		Amount.	Unit.	Weight.	Unit.	Rate.	Port.			
B 142	23th February 1886	59 of 1885	Wardha Coal		As per list vide appendix C. Extra cost of thicker pipes.	157	"	As per list.	835	0	d.	Z.	c.	q.	\$.	d.	
B142 Extension.	15th April 1886	Ditto	Ditto	Tools, well boring.	" " " " " "	"	"	"	57	0	"	"	"	"	"	"	"
					" " " " " "	"	"	"	1	8	0	"	"	"	"	"	"
					" " " " " "	"	"	"	1	12	0	"	"	"	"	"	"
					" " " " " "	"	"	"	2	0	0	"	"	"	"	"	"
					" " " " " "	"	"	"	2	10	0	"	"	"	"	"	"
					" " " " " "	"	"	"	3	0	0	"	"	"	"	"	"
E1113	6th December 1886..	1 of 1886	Toungoo-Mandalay Extension (Metre Gauge).		Sets of ironwork complete for Platelayers' trollies, with heavy wheels with cast steel bearings, exactly to drawing E 439.	E 439	"	Sets 36(a)	6	9	8	Set.	35	9	2	Total	27 6 R.
E1103	22nd November 1886	4 of 1886	Northern Bengal	Trollies.	Ditto ditto with light wheels with cast steel bearings, exactly to drawing E 439. Wheels, steel, on axles for Platelayers' night trollies. Diameter on tread 15 1/2" Width of tread 2 1/2" Depth of flange 1" Width of flange 3"	E 439	"	" 12(b)	6	5	0	"	11	16	2	"	27 6 R
						"	"	Sets 10 (c) (or Pairs 20).	4	13	3	Set	9	17	0	"	21 0 C.
B153	28th April 1886	36 of 1883	Indus valley (Sukkur Bridge).	Winches.	To lift 6 tons as per drawing (2 for 400 feet wire rope and 6 for 200 feet wire rope). For materials for the winches under contracts B 153 and B 174, see Appendix D.	186 and 187	No.	8	90	0	Each	Not known	known	...	Not known.		

The wheels are of cast steel.
T. c. q. lbs.
(a) Net weight 5-5-1-20
(b) " " 1-13-1-8
(c) " " 0-18-2-18.

For trollies see also E class rate list for 1886.

Note.—B. Bombay, C. Calcutta, K. Kurrachee, M. Madras, R. Rangoon, F. O. B. Free on board. For rates for landing State Railway Stores at the different ports in India *vide* Director General of Railways' Circular No. 20, 21, &c.

G. F. WILSON, Captain, R.E.,
for Director General of Railways.

Rate List, Class B., Engineers' Plant (excluding Petty Tools), for 1886.

Appendix A.

*Schedule of quantities required for Sullivan's Staging for the erection of
Jhelum Bridge girders 150-feet span (Contract B 166).*

Tubes 5" outside diameter, $\frac{7}{16}$ " thick, each 5' 2" long, wrought-iron. Tubes thickened up at ends and bored out to instructions with collar $2\frac{1}{2}" \times \frac{5}{8}"$ shrunk on each end. ...	144 in No.
Tubes $2\frac{1}{2}"$ outside diameter, 2" bore, each 9-feet long, wrought-iron, faced at ends ...	124 " "
Malleable 2 way castings ...	72 " "
Do. 3 " " ...	36 " "
Do. bottom " ...	58 " "
Do. top " ...	48 " "
Wrought-iron cleats, $\frac{1}{4}"$ hole, rivetted joints ...	96 " "
Do. " 5" " " " ...	96 " "
Do. rings ...	170 " "
Bottom plates ...	54 " "
Top " ...	48 " "
Bolts with 2 nuts. ...	140 " "
Do. head and nut ...	140 " "
Set eye bars for 6 feet stage, 5 feet long ...	384 " "
Straight " " " 5' $3\frac{1}{2}"$ " ...	192 " "
1" rods 14' 2" long, 2 nuts on each ...	72 " "
Joists $12" \times 5" \times 29' 6"$ for bases ...	36 " "
Do. $10" \times 4\frac{1}{2}" \times 9' 0"$ " " ...	27 " "
Do. $10" \times 5" \times 26' 0"$ " tops ...	16 " "
Do. $8" \times 4" \times 9' 5\frac{1}{2}"$ " " ...	24 " "
$\frac{3}{4}"$ bolts and nuts, $2\frac{3}{4}"$ long for tops and bottoms ...	425 " "
$\frac{3}{4}"$ " " $7\frac{1}{4}"$ " " bottom cleats ...	216 " "
$\frac{3}{4}"$ " " $6\frac{1}{2}"$ " " distance pieces... ..	216 " "
$\frac{3}{4}"$ " " $2\frac{1}{4}"$ " " top cleats ...	192 " "
$\frac{3}{4}"$ rivets, $2\frac{1}{2}"$ long, for bottom plates ...	648 " "
$\frac{3}{4}"$ " $2\frac{1}{2}"$ " " top " ...	385 " "
Cast-iron distance pieces ...	108 " "
$\frac{3}{4}"$ rivets, $2\frac{1}{2}"$ long, used in rivetting cleats to joists ...	270 " "

Rate List, Class B., Engineers' Plant (excluding Petty Tools), for 1886.

Appendix B.

List of spare gear and spare tools supplied with each pair of Paddle-wheel Engines for Steamers (Contract B. 147).

LIST OF SPARE GEAR.

1	Spare connecting rod, complete.
1	" piston rod, complete.
1	" slide rod, for each engine.
1	" set junk ring bolts.
$\frac{1}{2}$	" set of piston springs.
1	" paddle float with brackets, pins, &c., complete.
2	" paddle arms.
2	" wheel radius rods.
1	" air-pump plunger rod.
2	" quadrant blocks.

LIST OF SPARE TOOLS.

Ratchet braces	...	...	...	2	in No.
Drills, of sorts	...	...	...	12	" "
Iron bench, with two vices	...	...	...	1	" "
Small drilling post for bench	...	...	...	1	" "
Engine-room lamps	...	...	...	8	" "
Stoke-hole lamps	...	...	...	4	" "
Engine-room globe hanging lamps	...	...	...	2	" "
Hand-lamps, stoke-hole	...	...	...	6	" "
Hand oil-feeders	...	...	...	8	" "
Gallon measure, stamped	...	...	...	1	" "
Half gallon measure, stamped	...	...	...	1	" "
Filler, medium	...	...	...	1	" "
Do. small	...	...	...	1	" "
Oil-feeder pan, with loose perforated tray	...	...	...	2	" "
Hand vices	...	...	...	2	" "
Blocks, three and two, with 4 inch fall	...	...	...	1	pair.
Do. " " " 3 inch "	...	...	...	1	" "
Water Bucket, galvanized	...	...	...	8	in No.
Screw-drivers	...	...	...	2	" "
Copper hammers, 5 lbs. and 10 lbs. each	...	...	...	2	" "
Chipping hammers	...	...	...	4	" "
Sledge hammers, 14 lbs.	...	...	...	2	" "
Flogging hammers, 7 lbs.	...	...	...	2	" "
Coal hammers, 7 lbs.	...	...	...	4	" "
Chisels and cross cuts	...	...	...	12	" "
Crow bars	...	...	...	2	" "
Tommies, steel	...	...	...	2	" "
Mallets, wood	...	...	...	2	" "
Plane, jack	...	...	...	1	" "
Chisels, carpenters'	...	...	...	4	" "
Saw hand	...	...	...	1	" "

Rate List, Class B., Engineers' Plant (excluding Petty Tools), for 1886.

Appendix B.

List of spare gear and spare tools supplied with each pair of Paddle-wheel Engines for Steamers (Contract B. 147).

LIST OF SPARE GEAR.

1	Spare connecting rod, complete.
1	" piston rod, complete.
1	" slide rod, for each engine.
1	" set junk ring bolts.
$\frac{1}{2}$	" set of piston springs.
1	" paddle float with brackets, pins, &c., complete.
2	" paddle arms.
2	" wheel radius rods.
1	" air-pump plunger rod.
2	" quadrant blocks.

LIST OF SPARE TOOLS.

Ratchet braces	...	...	...	2	in No.
Drills, of sorts	...	...	...	12	" "
Iron bench, with two vices	...	...	...	1	" "
Small drilling post for bench	...	...	...	1	" "
Engine-room lamps	...	...	...	8	" "
Stoke-hole lamps	...	...	...	4	" "
Engine-room globe hanging lamps	...	...	...	2	" "
Hand-lamps, stoke-hole	...	...	...	6	" "
Hand oil-feeders	...	...	...	8	" "
Gallon measure, stamped	...	...	...	1	" "
Half gallon measure, stamped	...	...	...	1	" "
Filler, medium	...	...	...	1	" "
Do. small	...	...	...	1	" "
Oil-feeder pan, with loose perforated tray	...	...	...	2	" "
Hand vices	...	...	...	2	" "
Blocks, three and two, with 4 inch fall	...	...	...	1	pair.
Do. " " " 3 inch "	...	...	...	1	"
Water Bucket, galvanized	...	...	...	8	in No.
Screw-drivers	...	...	...	2	" "
Copper hammers, 5 lbs. and 10 lbs. each	...	...	...	2	" "
Chipping hammers	...	...	...	4	" "
Sledge hammers, 14 lbs.	...	...	...	2	" "
Flogging hammers, 7 lbs.	...	...	...	2	" "
Coal hammers, 7 lbs.	...	...	...	4	" "
Chisels and cross cuts	...	...	...	12	" "
Crow bars	...	...	...	2	" "
Tommyes, steel	...	...	...	2	" "
Mallets, wood	...	...	...	2	" "
Plane, jack	...	...	...	1	" "
Chisels, carpenters'	...	...	...	4	" "
Saw hand	...	...	...	1	" "

List of spare Tools—concl'd.

Hatchet	...	...	...	1 in	No.
Augers, of sorts	...	...	...	6 "	"
Brace and bits, carpenters', complete	...	...	...	1 "	"
Packing screws	...	...	...	2 sets.	
Do. Sticks	...	...	...	2 "	
Do. Knives	...	...	...	4 in	No.
Spanners, polished	...	...	...	1 set.	
Spanner racks, polished	...	...	...	1 in.	No.
Eye bolts to suit engines	...	...	...	2 sets.	
Thermometers	...	...	...	2 in.	No.
Lubricating pipes	...	...	...	2 sets.	
Taps and dies with box, complete, $\frac{1}{4}$ inch up to 1 inch	...	...	...	1 set	
English screw plate with taps	...	...	...	1 in	No.
Buckets, ash, small	...	...	...	4 "	"
Shovels, trimming	...	...	...	8 "	"
Do. firing	...	...	...	8 "	"
Differential blocks, 2 tons (Weston's)	...	...	...	1 "	"
Indicators, complete, with springs (6 in No.)	...	...	...	2 "	"
Engine counters and gear (6 figures)	...	...	...	2 "	"
Injectors No. 8, of the latest improved design	...	...	...	2 "	"
Bilge ejectors	...	...	...	2 "	"

Rate List, Class B., Engineers' Plant (excluding Petty Tools), for 1886.

Appendix C.

SCHEDULE OF WELL-BORING TOOLS SUPPLIED UNDER CONTRACT B. 142.

Description of Work.	No. required.
Augers, clay, 2 feet long, for 8-inch holes ...	3
" " " " " 7 " " ...	3
" " " " " 6 " " ...	3
" " " " " 5 " " ...	2
" " " " " 4 " " ...	1
" " " " " 3 " " ...	1
Augers, shell or wimple scoup, 2 feet long, for 8-inch hole...	3
" " 2 feet long, for 7-inch hole ...	3
" " " " " 6 " " ...	2
" " " " " 5 " " ...	1
" " " " " 4 " " ...	1
" " " " " 3 " " ...	2
Augers, shell, another type, 2 feet long, for 8-inch hole ...	2
" " 2 feet long, for 7-inch hole ...	2
" " " " " 6 " " ...	1
" " " " " 5 " " ...	1
" " " " " 4 " " ...	1
" " " " " 3 " " ...	2
Augers, worm, short, 2 feet long, for 8-inch hole ...	2
" " " " " 7 " " ...	2
" " " " " 6 " " ...	1
" " " " " 5 " " ...	1
" " " " " 4 " " ...	1
" " " " " 3 " " ...	2
Augers, worm, long, 2 feet long, for 8-inch hole ...	2
" " " " " 7 " " ...	2
" " " " " 6 " " ...	1
" " " " " 5 " " ...	1

II

Schedule of well boring Tools supplied under contract B 142—*contd.*

Description of Work.	No. required.
Augers, worm, long, 2 feet long, for 4-inch hole ...	1
" " " " " 3 " " ...	1
Ball valve sludger, 2 feet long, for 7½-inch hole ...	1
" " " " " 6½ " " ...	1
" " " " " 5½ " " ...	2
" " " " " 4½ " " ...	2
" " " " " 3½ " " ...	2
" " " " " 2½ " " ...	2
" " " auger, 2 feet long, for 7½-inch hole ...	3
" " " " " 6½ " " ...	3
" " " " " 5½ " " ...	2
" " " " " 4½ " " ...	2
" " " " " 3½ " " ...	2
" " " " " 2½ " " ...	2
Bell screw, or screw box, 2 feet long, for 7½-inch hole ...	1
" " " " " 6½ " " ...	1
" " " " " 5½ " " ...	1
" " " " " 4½ " " ...	1
" " " " " 3½ " " ...	1
" " " " " 2½ " " ...	1
Bottles for samples of stone from bore hole, capacity 4 oz., wide cork mouthed, 3½ inches high, about 2½ inches diameter ...	600
Chisels, flat or straight bits, 2 feet long, for 8-inch hole ...	1
" " " " " 7 " " ...	1
" " " " " 6 " " ...	2
" " " " " 5 " " ...	2
" " " " " 4 " " ...	4
" " " " " 3 " " ...	4
Chisels, T, 2 feet long, for 8-inch hole ...	1
" " " " 7 " " ...	1
" " " " 6 " " ...	2
" " " " 5 " " ...	2
" " " " 4 " " ...	3

III

Schedule of well-boring Tools supplied under contract B 142—*contd.*

Description of Work.	No. required.
Chisels, T, 2 feet long, for 3-inch hole ...	3
" double T, 2 feet long, for 6 " " ...	1
" " " 5 " " ...	1
" " " 4 " " ...	2
" " " 3 " " ...	2
" V, or diamond point drill, 2 feet long, for 6-inch holes.	2
" " " " 5 " " ...	2
" " " " 4 " " ...	4
" " " " 3 " " ...	4
Common clack sludger, 2 feet long, for 7½-inch holes ...	1
" " " " 6½ " " ...	1
" " " " 5½ " " ...	2
" " " " 4½ " " ...	2
" " " " 3½ " " ...	2
" " " " 2½ " " ...	2
Crow's feet, 2 feet long, for 7½-inch holes ...	1
" " " 6½ " " ...	1
" " " 5½ " " ...	1
" " " 4½ " " ...	1
" " " 3½ " " ...	1
" " " 2½ " " ...	1
Dogs, hand, to fit 1½-inch square rods ...	4
" lifting " " " ...	6
Frame broaching bit, 2 feet long, for 8-inch holes ...	1
" " " 7 " " ...	1
" " " 6 " " ...	1
" " " 5 " " ...	1
" " " 4 " " ...	1
" " " 3 " " ...	1
Kind's plug to raise tubes, 7-inch hole ...	1
" " " 6 " " ...	1
" " " 5 " " ...	1
" " " 4 " " ...	1
" " " 3 " " ...	1

IV

Schedule of well-boring Tools supplied under contract B 142—*contd.*

Description of Work.	No. required.
Lengthening pieces of 1½-inch square iron, with loop swivel top: one 1 ft., one 2 ft., one 4 ft., one 6 ft., and one 8 ft. long ...	5
Nipping forks or tigers, to fit 1½-inch square rods ...	4
Pipe clamps, 7½-inch ...	2
" " 6½ " ...	2
" " 5½ " ...	2
" " 4½ " ...	2
" " 3½ " ...	2
Pipes, swivel tops, with loop hook to hang on rope, 7½-inch	2
" " " " " " 6½ "	2
" " " " " " 5½ "	2
" " " " " " 4½ "	2
" " " " " " 3½ "	2
Rods, 1½-inch square, mild steel, each 10 ft. long ...	700 feet
Ropes, Craddock's, best plough steel, patent laid rope, ¾-inch circumference ...	800 "
Ropes, Craddock's, best plough steel, patent laid rope, 1½-inch circumference ...	300 "
Solid broaching bit, 2 ft. long, for 8-inch hole ...	1
" " " " " 7 " " ...	1
" " " " " 6 " " ...	1
" " " " " 5 " " ...	1
" " " " " 4 " " ...	1
" " " " " 3 " " ...	1
Stone breaker, 2 ft. long, for 8-inch hole ...	1
" " " " " 7 " " ...	1
" " " " " 6 " " ...	1
" " " " " 5 " " ...	1
" " " " " 4 " " ...	1
" " " " " 3 " " ...	1
* Steel shoes to fix in end of tubes, 7½-inch holes ...	2
" " " " " 6½ " " ...	2
" " " " " 5½ " " ...	2
" " " " " 4½ " " ...	2

* The shoes are required for the tubes, in order to pierce the strata when lining the bore hole.

V

Schedule of well-boring Tools supplied under contract B 142—*concl'd.*

Description of Work.	No. required.
Steel shoes to fix in end of tubes, 3½-inch holes ...	2
Sliding joint or free fall ...	2
Stirrups, with one foot of clear running screw... ..	2
Tillers or brace head, to fit 1½-inch square rods ...	2
Tube cutter, 7½-inch ...	1
" " 6½ " ...	1
" " 5½ " ...	1
" " 4½ " ...	1
" " 3½ " ...	1
Tubes, flush outside, screw joints, in 10-ft. lengths, 7½-inch external diameter ...	100 feet
Ditto ditto, 6½-inch external diameter ...	200 "
" " 5½ " " " ...	200 "
" " 4½ " " " ...	100 "
" " 3½ " " " ...	100 "
Wad coil, 2 ft. long, for 7½-inch holes ...	1
" " " 6½ " " ...	1
" " " 5½ " " ...	1
" " " 4½ " " ...	1
" " " 3½ " " ...	1
" " " 2½ " " ...	1
Wad coil, long, 2 ft. long, for 7½-inch holes ...	1
" " " 6½ " " ...	1
" " " 5½ " " ...	1
" " " 4½ " " ...	1
" " " 3½ " " ...	1
" " " 2½ " " ...	1
Wimble, with auger point, 2 ft. long, for 8-inch holes ...	3
" " " " " 7 " " ...	3
" " " " " 6 " " ...	3
" " " " " 5 " " ...	1
" " " " " 4 " " ...	1
" " " " " 3 " " ...	1

Note—All dimensions are outside diameters.

Rate List, Class B., Engineers' Plant (excluding Petty Tools), for 1886.

APPENDIX D.

Materials for the Winches for the Sukkur Bridge, under contracts B 153 and B 174, as per invoices of S. S. "Westborne" and "Kangra."

Description.	Quantity.	Cost f. o. b.	Remarks.
<i>Two Winches for 400 foot wire rope—</i>	Tons cwt. qrs. lbs.	£ s. d.	
Cast-iron at £32 per ton ...	6 11 3 10	210 18 10	Gross weight including that of the additional gearing for supplying steam-power (see below) is Tons 8, cwt. 1.
Wrought-iron shafts at £50 per ton ...	0 10 1 6	25 15 2	
Brass bearings at 2s. 6d. per lb. ...	0 1 0 22	16 15 0	
Extra cost of two new worms and turning, including new pattern ...		9 15 0	
<i>Spare gear—</i>			
Cast-iron ...	0 5 0 24	14 12 0	
Wrought-iron ...	0 1 1 22	4 6 9	
		282 2 9	
<i>Six Winches for 200 foot wire rope—</i>			
Cast-iron ...	17 2 3 24	548 14 10	
Wrought-iron shafts, &c. ...	1 5 0 20	62 18 11	
Brass bearings ...	0 3 2 10	50 5 0	
Extra for turning worms, including new casting and pattern ...		29 5 0	
<i>Spare gear—</i>			Gross weight:— Tons 22, cwt. 0, qr. 1.
Cast-iron ...	0 16 0 14	45 3 0	
Wrought-iron ...	0 3 2 22	11 1 9	
Best cotton driving rope, 2,400 feet, at 6d. per foot ...		60 0 0	
		807 8 6	
Additional gearing for supplying steam-power to Winches (Contract B 174) ...		218 8 5	

[General Distribution.]

Circular No 6.

FROM

THE DIRECTOR GENERAL OF RAILWAYS,

TO

THE DIRECTOR, NORTH-WESTERN RAILWAY.

THE ENGINEERS-IN-CHIEF, SIND-PISHIN STATE RAILWAY AND BANNU RAILWAY SURVEY.

THE SUPERINTENDENT OF WAY AND WORKS, CUDDAPAH-NELLORE STATE RAILWAY.

THE PORT STOREKEEPERS, STATE RAILWAY DEPARTMENT, CALCUTTA AND BOMBAY.

Simla, the 22nd June, 1888.

SIR,

I have the honour to forward, for information and guidance, a printed statement showing the rates free on board in England, the gross weight and the entire sea-freight per ton for B class State Railway Stores, "Engineer's Plant (excluding Petty Tools)" contracted for by the India Office from January to December 1886.

2. The rates for landing State Railway Stores from vessels at the several ports in India are given in Director General of Railways' Circular No. 22, dated 16th December 1885.

3. The official rate of exchange during the financial year 1886-87 was 1s. 6d. per rupee.

4. In order to arrive at the total cost of materials landed at Port, an Insurance charge of one per cent. on the original cost *plus* entire sea-freight should be added in addition to the other incidental charges.

5. In ordering stores only four-fifths of the entire sea-freight should be entered in Indents as payable in England.

I have the honour to be,

SIR,

Your most obedient Servant,

G. F. WILSON, Captain, R.E.,
for Director General.

Document accompanying.

Rate List, class B.—"Engineer's Plant (excluding Petty Tools)," for 1886.

The Secretaries to the Governments of Madras, Bombay, Bengal, the North-Western Provinces and Oudh, and the Punjab, Public Works Department.

The Secretaries to the Chief Commissioners of the Central Provinces, Burma, Assam, and Coorg, Public Works Department.

The Secretaries to the Residents, Hyderabad and Mysore, Public Works Department.

The Secretaries to the Agents to the Governor General, Rajputana, Central India, and Baluchistan, Public Works Department.

The Superintendent of Port Blair and Chief Commissioner, Andaman and Nicobar Islands.

The Director General of Telegraphs.

The Inspector General of Military Works.

The Superintendent of Works, Simla Imperial Circle.

The Accountant General, Public Works Department.

The Director, Persian Gulf Telegraph.

The Comptroller General.

The Accountant General, Bengal.

The Consulting Engineers for Railways, Madras and Bombay.

The Consulting Engineers to the Government of India for Railways, Calcutta and Lucknow.

The Consulting Engineer to the Government of India for Railways, Central Division, Jubbulpore.

The Agent and General Manager, Assam Railways and Trading Company, Limited.

Copy forwarded

to the Local Gov-

ernments, Adminis-

trations and Offi-

cers, noted on the

margin, for infor-

mation.

H. J. Miskin

Captain, R.E.,
for Director General.

To,
The Secretary to the
Government of Madras
Public Works Deptt.
10 copies sent separately.

Recd. 18/7/88

FROM

THE DIRECTOR GENERAL
OF RAILWAYS.

To

Circular No. 6.

Dated Simla, the 22nd June, 1888.

Received

402 R - 15-5-88

3072 W - 14-11-87

82 W - 10-1-18

2304 W - 26-8-87

INDIAN STATE RAILWAYS.

Rate List, class B.—"Engineer's Plant (excluding Petty Tools)," for 1886.

GOVERNMENT OF MADRAS.

MILITARY DEPARTMENT.

Indents and Estimates.
Copy of the above
to the Government
Excellency the Gove

No. 218.
Communicat

To the Commissary
 " Superintendent
 " Surgeon-General
 " Inspector-General
 " Controller
 " Public, &c.
 " Revenue Department
 " Public Works

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TCHARD,
Govt. of India.

guidance.

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to Government.

Furnished.
Frank Bird
 Ag First Assistant

Nily Dept.
 3^d August 1888.

7362

Co. S. C.

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(60-2)

Recd 26.7.88

N^o 2410. Waf^{er}. Kupfer.

John
4/8/86

*Softly Engro with 7 edges
Stiffly Engro Rorigar Pigeat
C. d. Tolgoot with 3 edges;
Engro Pigeat with 2 edges
Engro Pigeat - do - do - do
Conc. Engro Pigeat*

PLS. 100 / 111 / 88 / M 24.7.88
 2 / 1 / 88
 100 / 111 / 88