Public Works (1897) Department.

G.O., No. 2267 W

Dated 18 August 1897

[Despatch Abstract.]

Rate List Class B - Engineers Plant (Excluding Petty Tools) for 1896: Circular from the Director General of Railways forwarding the same, Comptroller of Finance of the P.W.D.

2-C/1897

[P.W. 25. 5,000—30-11-96.]

Indexed. ✓

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Public Works (1897) Department.

CURRENT No. 6927

No. 2267 W. of 1897
Bd

Order

From The Director Gener. of Railways

Communicated to Cir: No. 4
Offices of the P. W. Depts.

Dated 24. 6. 97

Received 15. 7. 97

Enclosures 1

Spare copies .

22
19/7/97

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SUBJECT.

Rate list, class B. "Engineering Plant" for 18

Ch. E. for I. with 1 copy of list
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Supt Mysore do do
VE Holdsworth 1 copy list.

Forwarding a copy of:—
+ I Circle with 1 copy of list
II — do do do
III — with 14 copies of list
III Circle with 6 copies of list
IV — do do
VI — do do

D 19/8/97

[P. W. 29. 1,000—22-4-97.]

o.L.S. 293 R 21/7

BACK PAPERS.

No.	Date.
G.G. No 1742 W	10-6-96

FURTHER PAPERS.

No.	Date.

Enclosure to Director General of Railways' Circular No. 4 of 1897.

RATE LIST.

CLASS B.

"ENGINEERS' PLANT" (EXCLUDING PETTY TOOLS)

FOR 1896.

G. C. Press, Simla.—No. 165 P. W. D.—29-6-97.—50.

Enclosure to Director General of Railways' Circular No. 4, dated the 24th June 1897.

Statement showing the average rate per ton for entire sea-freight on Class B Stores imported from England to the several ports during 1896.

Class of Stores.	Kurrachee.		Bombay.		Coconada, Vizagapatam or Madras.		Calcutta.		Rangoon.		REMARKS.
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	
Class B.—"Engineers' Plant" (excluding Petty Tools).	25	9	26	3	29	7	26	3	24	8	For engines, boilers and other heavy machinery 55 shillings average to all ports.

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS).

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
57/328 — 18-4-96	Anchors ...	Martin's patent, improved admiralty pattern, complete with stocks, weighing 6 cwts each including the weight of the stocks ...	£ s. d. 2 6 0	Cwt.	Eastern Bengal.	
60/152 — 9-7-96	Anvils ...	Smith's, pike and arch, 2½ cwt. ...	1 3 0	Cwt.	Bezwada-Madras.	
57/170 — 9-4-96	Barrows, wheel ...	Steel, to hold 3½ cubic feet of ashes when filled level with top of sides. To have tyres not less than 3″ wide and to have bodies 14 gauge	2 0 6	Each	Eastern Bengal.	
57/280 — 14-4-96	Blocks, pulley ...	"Half chain," complete with chain; distance from hook to hook 12 ft. :—				
		Capable of lifting 1 ton	5 0 10	Set	Eastern Bengal.	
		" " 2 tons	7 8 6	"		
		" " 3 "	9 2 10	"		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS).—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Rate—Free on Board. Unit.	For what railway.	Remarks.
			£ s. d.			
58/73 5-5-96	Blowers ...	Root's patent, mounted on a cast iron base plate and capable of delivering 4,550 cubic feet of air in 350 revolutions:—				
		Improved rotary No. 4	119 15 9	Each	North Western.	
		" " " 5	143 15 9	"		
64/289 14-11-96	Briquette making machine.	Plant requisite for one set of Briquette making, coal washing and drying machinery, consisting of:—				
		1 Fuel Press, 20 tons	350 0 0	Each	North Western.	
		1 Travelling band for above	47 10 0	"		
		1 Disintigrator	55 0 0	"		
		One main elevator, one coal elevator, one meal elevator, one lime elevator, and one worm conveyor	110 0 0	"		
64/289 14-11-96	Briquette making machine—*concld.*	1 Long Drying Worm conveyor ...	102 0 0	Each	North Western.	
		1 Engine for washer	82 0 0	"		
		1 Pitch Mill	35 0 0	"		
		1 Washing Machine complete without Pump	470 0 0	"		
		One 14" engine, with locomotive type boiler and steam connection to Fuel and Washing plants	660 0 0	"		
		Total for one set plant	1,911 10 0	Set		
59/185 16-6-96 ...	Colliery Plant. Fan ...	Exhaust, Capell's 6' diar. × 3' wide, capable of giving a volume of 20,000 cubic feet of air per minute with a water gauge of 3".	126 0 0	Each	Dandot Colliery.	
60/288 18-7-96 ...	Glasses, gauge	Plain:—				
		Length 12" × 5/8" outside diar.	0 3 0	Doz.	Warora Colliery.	
		" 14" × 5/8" "	0 3 6	"		
		" 14" × 3/4" "	0 4 4½	"		
		" 4¼" × 3/4" "	0 2 8	"		
		" 3" × 3/4" "	0 2 3	"		
60/477 30-7-96 ...	Heapstead.	Spare parts of:— Volute springs for Omerod's patent safety hooks or links	0 10 0	Each	Umaria Colliery.	
		Bridle chain for cages	13 15 0	Set		
		Sling chain with hooks and rings 5/8" × 30' ...	3 0 0	Each		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
60/501 30-7-96	Colliery Plant—*contd.* — Injectors ...	For boilers	6 10 0	Each	Umaria Colliery.	*Details not shown in the contract.*
60/470 30-7-96	Pump, feed ...	For boilers	70 0 0	Each	.....	
		Duplicate parts— Comprising 4 sets of main shaft brasses for each pump, 4 sets bearing blocks for crank pins for each pump, 4 piston rings and 1 set of gun metal suction and delivery valves with seats for each pump.	29 0 0	Lot	Umaria Colliery.	
62/241 22-9-96	Ropes ...	Clips, for wire rope, Smallman' patent, No. G size with rams' horn hooks 12″ long.	0 12 9	Each	Dandot Colliery.	
60/500 30-7-96	Colliery Plant—*concld.* — Tubs, pit ...	Pedestals, self lubricating, Elliott's patent, complete with felt in wells, for— ...	0 5 6	Set	Warora Colliery.	
61/77 7-8-96		Wheels with axles for mining wagons. ...	0 7 6	Pair	Warora Colliery.	
62/238 21-9-96		Wheels, 10″ diameter on tread, cast steel, with axles for 1′ 6″ gauge tubs. ...	0 9 0	,,	North Western.	
55/150 11-2-96	Crane ...	Fixed, steam, for jetty, to lift 10 tons, jib to have a maximum radius of 18 feet, capable of raising to a height of 32 feet; minimum height from ground level to centre of jib pulley 20 ft.	685 0 0	Each	Estern Bengal.	Approximate weight—22 tons.
60/31/2 20-7-96	Diving apparatus	With fittings and pumps complete for a depth of 90 feet.	105 10 0	Set	Bezwada-Madras.	
		With fittings, &c., complete, for a depth of 80 feet of which 70 feet is water and 10 feet above water.	105 10 0	,,	Kotri-Rohri.	
60/471 30-7-96	Engines, Steam ...	Portable, double cylinder, 10 horse power, fire boxes arranged for burning wood fuel. Length of boiler barrel 6 ft. 8 ins. × 2 ft. 10 ins. external diameter.	220 0 0	Each	Mandalay-Kunlon	*£ 11-10 for one set of duplicate parts the same described as those for contract 4/54, dated 7th August 1896, page 6.*
61/54 7-8-96		Portable, double cylinder high pressure, 12 horse power nominal, with a locomotive type tubular boiler, mounted on wheels with all necessary mountings, pipes, valves, bolts, &c. Fire boxes 2′ 11 5/8″ × 3′ 9″ ...	247 10 0	,,	Bezwada-Madras	*1 set tracings £ 2-0-0 extra.*

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
61/54 — 7-8-96	Engines, steam—*concld.*	*Duplicate parts*— Comprising six sets piston rings and springs, six sets of gland and packing box bushes for piston rod and valve spindles. Six sets complete of connecting rod brasses, three complete sets crank shaft brasses. 36 gauge glasses and 72 india-rubber packing rings. Six sets fire-bars, thirty boiler tubes with steel ferrules, six pump plunger. Eighteen fusible plugs, six lengths of flexible suction hose for pumps, and six lengths of flexible return hose for pumps.	£ s. d. 49 0 0	The Lot	Bezwada-Madras.	
60/253 — 16-7-96	Forges	Portable, rectangular, with hearth plate, 20″ × 14″ and supplied with direct acting Root's blower	6 12 0	Each	Bezwada-Madras.	
61/72 — 7-8-96		Rivetter's, circular, 24″ diameter with hearth plate and direct acting Roots' blower ...	11 17 6	„		
62/114 — 8-9-96		Rivetter's, circular, 24″ diameter with hearth plate and direct acting Roots' blower ...	11 17 6	„	Mandalay-Kunlon.	
		Portable, with hearth plates 23″ diameter and direct acting blower	10 9 0	„	North Western.	
60/475 — 30-7-96	Hoists	Steam, portable, complete, for wire rope, mounted on wrought iron carriage, with travelling wheels and axles; to lift 5 tons with the test load 6¼ tons.	340 0 0	Each	Bezwada-Madras.	
57/433 — 24-4-96	Jacks ...	Screw, traversing, 20 tons, with ratchets, complete, Halley's pattern	12 17 6	Each	Eastern Bengal.	
58/36 — 1-5-96		Screw, lifting and traversing, 20 tons, with levers and ratchets, steel cylinder, screws and angles, and gunmetal nuts ...	6 10 0	„	North Western.	
60/463 — 29-7-96		Screw, lifting and traversing, 15 tons, to traverse 12″ and height 26″ when down ...	4 7 6	„	Bezwada-Madras.	
		Screw, lifting and traversing, 10 tons, to traverse 9″ and height 24″ when down ...	3 3 6	„		
61/132 — 12-8-96		Screw, lifting, and traversing 10 tons, with ratchets and levers, steel cylinders and gunmental nuts	4 10 0	„	Mandalay-Kunlon.	
60/322 — 21-7-96	Jimcrows ...	Screw, with crowbars 6′ × 1½″, for new standard flat footed steel rails (75 lb. per yard, 4·2″ across foot), span 24″ in the clear, diameter of screw 2¾″	3 10 0	„	Bezwada-Madras.	
61/195 — 17-8-96		Screw, with levers 6 feet long, for 50 lb. steel rails, span 24″, diameter of screw 2½″	3 0 0	„	Mandalay-Kunlon.	
62/64 — 3-9-96		Screw, withl evers, complete, for 75 lb. steel flat footed rails, span 24″, diameter of screw 3″	3 10 0	„	North Western.	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
57/320 — 17-4-96	Oars ...	Ashwood:—				
		12 feet long	0 5 3	Each	Eastern Bengal.	
		14 feet long	0 6 5	,,		
60/247 — 15-7-96	Pile-drivers ...	Steam, Sisson's and White's with endless chain, steam winch, vertical boiler fire-box and connections, etc., complete ...	380 0 0	Each	Kotri Rohri.	
		Spare winch, frames machined and ready for fitting into their places	15 0 0	Set		
59/77 — 9-6-96	Plant, air compressing.	*Consisting of* 4 silt ejectors, 4 pumps, and with Engines for same, 2 boilers, with donkey pumps; one *main air compressor* and one boiler for the same, with donkey pump; 2 *small air compressors*, with oil engines combined; 2 air receivers, 10 feet long × 4′ × 6″ diameter; one set of *Electric Light plant*; with all necessary steam, water, air, and other connections, also 4 workmen's and material locks, with the necessary cast steel door frames, 10 material skips, spring hooks, piping, bull's eyes with gunmetal glands, &c., and conical connections for same.	5,250 0 0	Set	Kotri Bridge.	The plant is sufficient to work two caissons simultaneously at a mean pressure of 40 lbs.
59/341 — 25-6-96.	Presses. ...	Rail straightening, for mounting on trolly, suitable for rails, steel, flat footed, 75 lbs. per yard with foot 4 2″	26 0 0	Each	Bezwada-Madras.	
60/482 — 30-7-96.		Rail straightening, with dies, complete, suitable for rails of Vignoles section, 50 lbs. per yard	23 8 0	,,	Mandalay-Kunlon.	
54/275 — 29-1-96	Pulverizers ...	Centrifugal, "Lucops," patent, size F. ...	300 0 0	Each	Mandalay-Kunlon.	
		Spare parts for above	125 4 0	Set		
57/386 — 23-4-96		All wearing parts complete for F. size pulverizer, supplied under contract No. $\frac{48}{107}$ ...	125 4 0	,,	Mari-Attock.	
		Rollers and rings in addition to the wearing parts of an F. size pulverizer ...	52 6 0	,,		
60/168 — 10-7-96	Pumps ...	Centrifugal, 8″ with single standard, pulley, foot valve and strainer, to lift 30 feet and to deliver 1,200 gallons per minute; to be supplied with 50 feet of W. I. piping and one quarter bend, suitable for either suction or discharge, also 200 feet of additional w. i. piping in 20—nine feet lengths and 4—five feet lengths.	60 12 6	Each	Bezwada-Madras.	
61/55 — 7-8-96		Steam, Gwynnes Invincible, centrifugal, double standard, with foot valve and strainer ...				
		4″	14 8 0	,,	Mandalay-Kunlon.	
		6″	22 5 6	,,		
		8″	32 12 6	,,		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
62/118 9-9-96		Double cylinder hand power with rams 3½″ diameter and 8″ stroke	26 0 0	Each	Burma.	
63/306 29-10-96		Steam, engine, 8 horse power, three throw, diameter of steam cylinders 9 inches, stroke 18″	504 10 0	,,	Rae-Bareli-Benares.	
64/186 10-11-96	Pumps—*contd.* ...	Double cylinder, hand power, complete, with 3½″ barrels, 8″ stroke, and 2 fly wheels and capable of delivering 1,000 gallons of water per hour, including 55 feet of 2¼″ galvanized iron piping	26 15 6	,,	Rae-Bareli-Benares.	
64/187 10-11-96		Steam, "Worthington," non-compound, duplex, mounted on a hollow *c.i.*, bed plate having two high pressure steam cylinders 5¼″ diameter, and two pumps of double action plunger type, capable of delivering 2,500 gallons of water per hour, 80 feet above the source of supply at a piston speed of not more than 75 feet per minute and a boiler pressure of 60 lbs. per square inch.	40 0 0	,,	East Coast.	
64/336 19-11-96		Horizontal, non-compound, duplex, of the "Worthington" regular pattern type, with 2 high pressure steam cylinders 7½″ diameter and 10″ stroke and 2 double action plunger pumps, 6″ cylinders capable of delivering 8,000 gallons of water per hour to a height of 60 feet through a pipe 2,400 feet long	261 10 0	Each	Eastern Bengal.	*Approximate net weight 6 tons.*
61/252 20-8-96 ...	Pumps—*concld.* ...	*Spare parts of*:— New valve seat, *gun metal* for the Denaby pumps supplied under contract No. 42/106 of 12th January 1895	33 0 0	,,	Umaria Colliery.	
		New valve seat, *steel* for the Denaby pumps supplied under contract No. 42/106 of 12th January 1895 ...	26 0 0	,,		
58/45 1-5-96 ...		Double sided, suitable for re-railing engines on new 100 lbs. flat-footed steel rails ...	*5 0 0	Pair	North Western.	*Approximate weight per pair =406 lbs.*
		Double sided, suitable for re-railing engines on 75 lbs. flat-footed steel rails ...	3 6 6	,,		*Approximate weight per pair = 286 lbs.*
60/503 30-7-96 ...	Ramps ...	Single, (Stroudely type), each set consisting of 2 right and 2 left hand ramps. For re-railing engines, &c., on 50 lb. rails. ...	4 0 0	Set	Mandalay-Kunlon.	
60/507 31-7-96 ...		"Double" Turtleback, (Russel's patent), suitable for re-railing locomotive carriages and wagons on 75 lb. rails of Vignoles section	3 6 6	Pair	Bezwada-Madras ...	*Approximate weight per pair = 286 lbs.*

* *Vide* also Contract No. 59/175, dated 13th June 1896.

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Rate—Free on board. Unit.	For what railway.	Remarks.
			£. s. d.			
57/45 2-4-96.	Ropes ...	Wire, steel, Lang's lay, 3⅛″ circumference in coils of 242 fathoms, for middle incline; breaking strain about 54 tons; working strain 5 tons; weight per fathom of rope 14⅝ lbs.	2 15 0	Cwt.		
57/45 2-4-96 ...		Wire, steel, Lang's lay, 3¼″ circumference, in coils of 6 00 fathoms for lower incline; breaking strain about 48 tons, working strain 4 tons; weight per fathom of rope 12¼ lbs.	2 15 0	,,	Dandot Colliery.	
59/281 23-6-96.		Wire, steel, "Bullivant's" flexible, circumference 4½″ galvanized for mooring caissons; in coils of 60 fathoms or multiples of 60 fathoms; breaking strain about 60 tons; weight per fathom of rope 19 lbs.	2 2 6	,,		*Packed on wooden reels to coil 120 fathoms, each reel £ 1-5-0.*
		Wire, steel, "Bullivant's" flexible, circumference 3½″ for working dredgers from steam hoists; in coils of 30 fathoms or multiples of 30 fathoms; breaking strain about 36 tons, weight per fathom of rope 11½ lbs.	2 0 0	,,	Kotri-Rohri for Kotri Bridge.	*Packed on wooden reels to coil 150 fathoms, each reel £ 1-5-0.*
60/502 30-7-96 ...		Wire, steel, Lang's patent, ⅞″ diameter; 400 feet in length, breaking strain about 21 tons; weight per fathom 7⅛ lbs.	2 10 3	,,	Umaria Colliery ...	*Pakced on wooden reel, each £ 0-12 6*

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Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Rate—Free on board. Unit.	For what railway.	Remarks.
61/67 7-8-96.	Ropes—concld. ...	Wire, ungalvanized, best steel, Lang's patent, 3½″ circumference, for use in well sinking to work at slow speed on drums about 2 feet in diameter; breaking strain about 24 tons; weight per fathom of rope 8¾ lbs.	2 0 0	Cwt.	Bezwada-Madras.	
61/69 7-8-96 ...		Wire, steel, winding, galvanized, 1″ diameter, in one length of 600 feet; breaking strain about 24 tons; weight per fathom 8 lbs. with eyes or thimbles at each end large enough to admit 28 ins. chain easily.	1 15 0	,,	Burma	*Packed on wooden reel, each £ 0-12-6.*
61/70 7-8-96 ...		Wire, steel, *plough*, Lang's patent, ⅝″ diameter, 1500 feet long. Breaking strain about 18 tons; weight per fathom 5½ lbs.	1 6 0	,,	Umaria Colliery.	
62/58 2-9-96 ...		Wire, steel, ungalvanized flexible, 2⅜″ circumference, in one length of 5,000 feet, weighing 43 cwts., for underground haulage.	1 13 0	,,	Warora Colliery.	
62/258 23-9-96		Wire, steel, Lang's lay, 3½″ circumference, in coils of 260 fathoms for upper and middle inclines; breaking strain about 42 tons, working strain 5 tons, weight per fathom of rope 11½ lbs.	2 0 0	,,	Dandot Colliery.	
		Wire, steel, Lang's lay, 3¼″ circumference, in coils of 1,240 fathoms; for lower incline; breaking strain about 36 tons, working strain 4 tons; weight per fathom of rope 10 lbs.	2 0 0	,,		
61/69 7-8-96 ...		Thimbles and splices for rope, wire, steel, galvanized, 1″ diameter; large enough to admit ⅞″ short link chain easily.	0 5 6	Each	Burma.	

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CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Rate—Free on Board. Unit.	For what railway.	Remarks.
			£ s. d.			
60/462 29-7-96 ...	Tools, earth boring	For trial borings, 50 feet deep, 4″ diameter complete; 1 set consisting of :—				
		4¼″ Clay auger with 1″ M screw No. 1 ...				
		4″ Shoe Nose shell 1″ M screw „ 1 ...				
		4″ Auger ditto 1″ M screw „ 1 ...				
		4¼″ Flat chisel 1″ M screw „ 1 ...				
		4¼″ Tee chisel 1″ M screw „ 1 ...				
		Worm auger ... ... „ 1 ...	39 5 0 ...	Set	Mandalay-Kunlon.	
		Bell Box ... ... „ 1 ...				
		Lifting dogs ... ... „ 2 ...				
		Hand dogs ... ... „ 2 ...				
		Tillers ... (*pair*) 1 ...				
		Rugger and carriage ... No. 1 ...				
		10 feet lens, 1″ boring rods 1″ M screw				
60/462 29-7-96	Tools, earth boring —*concld.*	Short swivel rod ... .. No. 1	Price given in above.	page 14	Mandalay-Kunlon.	
		Spring hook with 30 feet rope ... „ 1				
		Auger board ... ... „ 1				
		Auger clearer ... ... „ 1				
		Iron work for shear legs ... Set 1				
		Best iron bound well sinkers wind ... „ 1				
57/497 29-4-96	Wheels with axles.	Steel, for light trollies diameter of wheels 1′ 9″	2 5 0	Pair	Oudh and Rohilkhand	
61/66 7-8-96		Cast steel for trollies, diameter of wheels 1′ 7¼″	4 15 0	„	Burma.	
62/237 21-9-96		For permanent-way inspectors' heavy trollies	5 1 0	„	North-Western.	
62/237 21-9-96		For Engineer's light trollies	4 15 0	„	North-Western.	
60/140 8-7-96	Winches ...	Crab, single purchase, with wrought iron frames, to lift 2 tons direct from barrel ...	8 0 0	Each	Bezwada-Madras.	
		Crab, single purchase, with wrought iron frame, to lift 4 tons direct from barrel ...	12 10 0	„	Bezwada-Madras.	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*concluded.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Rate—Free on board. Unit.	For what railway.	Remarks.
			£ s. d			
61/123 — 12-8-96	Winches ..	Crab, for lowering caissons on the Kotri Bridge; suitable for lifting 15 tons; provided with smooth drum for wire rope 30″ long and 24″ diameter with cog wheel at one end not more than 40″ diameter; also one intermediate gearing consisting of an axle of the same length as the drum, having at one end a cog wheel about 8″ diameter and at the other a cog wheel about 24″ diameter, the pressure on teeth of the 24″ cog being thus $\frac{1}{6}$ of the pull on the rope or say $2\frac{1}{2}$ tons.	66 10 0	Each	Kotri-Rohri.	
60/381 — 24-7-96	Windlass ...	Steam and hand, with deck pipes and compressors complete, including bow stoppers, chain pipes, etc. The gearing is to have steel wheels, spurs and pinions of "Stone's Bronze." Required for use on a light draught river steamer.	110 0 0	Each	Mu Valley.	

[*For General distribution.*]

Circular No. 4.

FROM

THE DIRECTOR GENERAL OF RAILWAYS.

TO

THE MANAGER, NORTH WESTERN RAILWAY.
THE MANAGER, OUDH AND ROHILKHAND RAILWAY.
THE MANAGER, EASTERN BENGAL STATE RAILWAY.
THE MANAGER, EAST COAST STATE RAILWAY.
THE ENGINEER-IN-CHIEF, KOTRI-ROHRI RAILWAY.
THE ENGINEER-IN-CHIEF, MARI-ATTOCK RAILWAY.
THE ENGINEER-IN-CHIEF, BEZWADA-MADRAS RAILWAY.
THE ENGINEER-IN-CHIEF, RAI BARELI-BENARES RAILWAY.
THE ENGINEER-IN-CHIEF, GODAVERI BRIDGE WORKS.
THE ENGINEER-IN-CHIEF, HURDWAR-DEHRA RAILWAY SURVEY.
THE PORT STOREKEEPER, STATE RAILWAY DEPARTMENT, CALCUTTA.

Rate List, Class B.—"Engineer's Plant" (excluding Petty Tools) for 1896.

Simla, the 24th June 1897.

SIR,

I have the honour to forward, for information and guidance, a printed statement showing the actual English rates, *free on board* in England for class B Stores, "Engineers' Plant," (excluding Petty Tools), contracted for by the Stores Department of the India-Office during 1896.

2. A table giving the average rates of sea-freight, for class B Stores imported from England to the several ports in India for State Railways during 1896, is prefixed to the rate list.

3. In order to arrive at the total cost of the class B stores landed in India, an insurance charge of one-half per cent.* on the *free on board* cost *plus* entire sea-freight, should be added in addition to other incidental charges, and exchange, which latter should be calculated at the official rate for the year.

I have the honour to be,

SIR,

Your most obedient Servant,

F. R. UPCOTT,

Offg. Director General of Railways.

Documents accompanying.

1. Statement showing the average rate per ton for entire sea-freight on Class B Stores imported from England to the several ports during 1896.

2. Rate List, Class B.—"Engineers' Plant" (excluding petty tools), for 1896.

* For State Railway Stores and Irrigation Works only classed as Imperial. Stores for Provincial and Local funds, and for railways constructed by Native States are charged one per cent. as heretofore.

The Secretaries to the Governments of Madras, Bombay, Bengal, the North-Western Provinces and Oudh, the Punjab, and Burma Public Works Department.
The Secretaries to the Chief Commissioners of the Central Provinces, and Assam, Public Works Department.
The Secretaries to the Residents at Hyderabad and in Mysore, Public Works Department.
The Secretaries to the Agents to the Governor General, Rajputana and Central India and Baluchistan, Public Works Department.
The Superintendent of Port Blair and Chief Commissioner, Andaman and Nicobar Islands.
The Director General of Telegraphs.
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F. Mascott.

Offg. Director General of Railways.

No.

To

The Secretary to the Government of Madras,
Public Works Department.

G. C. Press, Simla.—No. 165 P. W. D.—29-6-96.—50.

The Secretaries to the Governments of Madras, Bombay, Bengal, the North-Western Provinces and Oudh, the Punjab, and Burma Public Works Department.
The Secretaries to the Chief Commissioners of the Central Provinces, and Assam, Public Works Department.
The Secretaries to the Residents at Hyderabad and in Mysore, Public Works Department.
The Secretaries to the Agents to the Governor General, Rajputana and Central India and Baluchistan, Public Works Department.
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F. R. UPCOTT,
Offg. Director General of Railways.

To

THE

No. 2267 W dy 18-8-97.

Communicated to officers of the P.W. Dept.

(Sd) D.M.C
W

C.E. for Irrigation
Subdiv Engineers
C.A. & Govt
Ex. P.W. Accounts.

G. C. Press, Simla.—No. 165 P. W. D.—12-7-96.—892.

[*For General distribution.*]

Circular No. 4.

FROM

THE DIRECTOR GENERAL OF RAILWAYS.

TO

THE MANAGER, NORTH WESTERN RAILWAY.
THE MANAGER, OUDH AND ROHILKHAND RAILWAY.
THE MANAGER, EASTERN BENGAL STATE RAILWAY.
THE MANAGER, EAST COAST STATE RAILWAY.
THE ENGINEER-IN-CHIEF, KOTRI-ROHRI RAILWAY.
THE ENGINEER-IN-CHIEF, MARI-ATTOCK RAILWAY.
THE ENGINEER-IN-CHIEF, BEZWADA-MADRAS RAILWAY.
THE ENGINEER-IN-CHIEF, RAI BARELI-BENARES RAILWAY.
THE ENGINEER-IN-CHIEF, GODAVERI BRIDGE WORKS.
THE ENGINEER-IN-CHIEF, HURDWAR-DEHRA RAILWAY SURVEY.
THE PORT STOREKEEPER, STATE RAILWAY DEPARTMENT, CALCUTTA.

Rate List, Class B.—"Engineer's Plant" (excluding Petty Tools) for 1896.

Simla, the 24th June 1897.

SIR,

I have the honour to forward, for information and guidance, a printed statement showing the actual English rates, *free on board* in England for class B Stores, "Engineers' Plant," (excluding Petty Tools), contracted for by the Stores Department of the India-Office during 1896.

2. A table giving the average rates of sea-freight, for class B Stores imported from England to the several ports in India for State Railways during 1896, is prefixed to the rate list.

3. In order to arrive at the total cost of the class B stores landed in India, an insurance charge of one-half per cent.* on the *free on board* cost *plus* entire sea-freight, should be added in addition to other incidental charges, and exchange, which latter should be calculated at the official rate for the year.

I have the honour to be,

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Your most obedient Servant,

F. R. UPCOTT,
Offg. Director General of Railways.

Documents accompanying.

1. Statement showing the average rate per ton for entire sea-freight on Class B Stores imported from England to the several ports during 1896.

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* For State Railway Stores and Irrigation Works only classed as Imperial. Stores for Provincial and Local funds, and for railways constructed by Native States are charged one per cent. as heretofore.

The Secretaries to the Governments of Madras, Bombay, Bengal, the North-Western Provinces and Oudh, the Punjab, and Burma Public Works Department.
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18-8-97

G. C. Press, Simla.—No. 165 P. W. D.—12-7-96.—892.

[*For General distribution.*]

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THE DIRECTOR GENERAL OF RAILWAYS.

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Offg. Director General of Railways.

To

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G. C. Press, Simla.—No. 165 P. W. D,—12-7-96.—892.

Enclosure to Director General of Railways' Circular No. 4 of 1897.

RATE LIST.

CLASS B.

"ENGINEERS' PLANT" (EXCLUDING PETTY TOOLS)

FOR 1896.

G. C. Press, Simla.—No. 165 P. W. D.—12-7-97.—892.

Enclosure to Director General of Railways' Circular No. 4, dated the 24th June 1897.

Statement showing the average rate per ton for entire sea-freight on Class B Stores imported from England to the several ports during 1896.

Class of Stores.	Kurrachee.		Bombay.		Coconada, Vizagapatam or Madras.		Calcutta.		Rangoon.		REMARKS.
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	
Class B.—"Engineers' Plant" (excluding Petty Tools).	25	9	26	3	29	7	26	3	24	8	For engines, boilers and other heavy machinery 55 shillings average to all ports.

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS).

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Rate—Free on Board. Unit.	For what railway.	Remarks.
			£ s. d.			
57/328 — 18-4-96	**Anchors** ...	Martin's patent, improved admiralty pattern, complete with stocks, weighing 6 cwts each including the weight of the stocks ...	2 6 0	Cwt.	Eastern Bengal.	
60/152 — 9-7-96	**Anvils** ...	Smith's, pike and arch, 2½ cwt. ...	1 3 0	Cwt.	Bezwada-Madras.	
57/170 — 9-4-96	**Barrows**, wheel ...	Steel, to hold 3½ cubic feet of ashes when filled level with top of sides. To have tyres not less than 3″ wide and to have bodies 14 gauge	2 0 6	Each	Eastern Bengal.	
57/280 — 14-4-96	**Blocks**, pulley ...	"Half chain," complete with chain; distance from hook to hook 12 ft. :—				
		Capable of lifting 1 ton	5 0 10	Set	Eastern Bengal.	
		,, ,, 2 tons	7 8 6	,,		
		,, ,, 3 ,, ...	9 2 10	,,		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS).—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
58/73 5-5-96	Blowers ...	Root's patent, mounted on a cast iron base plate and capable of delivering 4,550 cubic feet of air in 350 revolutions:—				
		Improved rotary No. 4	119 15 9	Each	North Western.	
		" " " 5	143 15 9	"		
64/289 14-11-96	Briquette making machine.	Plant requisite for one set of Briquette making, coal washing and drying machinery, consisting of:—				
		1 Fuel Press, 20 tons	350 0 0	Each	North-Western.	
		1 Travelling band for above	47 10 0	"		
		1 Disintigrator	55 0 0	"		
		One main elevator, one coal elevator, one meal elevator, one lime elevator, and one worm conveyor	110 0 0	"		
64/289 14-11-96	Briquette making machine—*concld.*	1 Long Drying Worm conveyor ...	102 0 0	Each	North Western.	
		1 Engine for washer	82 0 0	"		
		1 Pitch Mill	35 0 0	"		
		1 Washing Machine complete without Pump	470 0 0	"		
		One 14" engine, with locomotive type boiler and steam connection to Fuel and Washing plants	660 0 0	"		
		Total for one set plant	1,911 10 0	Set		
59/185 16-6-96 ...	Colliery Plant. Fan ...	Exhaust, Capell's 6' diar. × 3' wide, capable of giving a volume of 20,000 cubic feet of air per minute with a water gauge of 3".	126 0 0	Each	Dandot Colliery.	
60/288 18-7-96 ...	Glasses, gauge	Plain:—				
		Length 12" × $\frac{5}{8}$" outside diar.	0 3 0	Doz.	Warora Colliery.	
		" 14" × $\frac{5}{8}$" "	0 3 6	"		
		" 14" × $\frac{3}{4}$" "	0 4 $4\frac{1}{2}$	"		
		" $4\frac{1}{4}$" × $\frac{3}{4}$" "	0 2 8	"		
		" 3" × $\frac{3}{4}$" "	0 2 3	"		
60/477 30-7-96 ...	Heapstead.	Spare parts of:— Volute springs for Omerod's patent safety hooks or links	0 10 0	Each	Umaria Colliery.	
		Bridle chain for cages	13 15 0	Set		
		Sling chain with hooks and rings $\frac{5}{8}$" × 30' ...	3 0 0	Each		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
60/501 30-7-96	Colliery Plant—*contd.* — Injectors ...	For boilers	6 10 0	Each	Umaria Colliery.	*Details not shown in the contract.*
60/470 30-7-96	Pump, feed ...	For boilers	70 0 0	Each	.....	
		Duplicate parts— Comprising 4 sets of main shaft brasses for each pump, 4 sets bearing blocks for crank pins for each pump, 4 piston rings and 1 set of gun metal suction and delivery valves with seats for each pump.	29 0 0	Lot	Umaria Colliery.	
62/241 22-9-96	Ropes ...	Clips, for wire rope, Smallman' patent, No. G size with rams' horn hooks 12″ long.	0 12 9	Each	Dandot Colliery.	
60/500 30-7-96	Colliery Plant—*concld.* — Tubs, pit ...	Pedestals, self lubricating, Elliott's patent, complete with felt in wells, for— ...	0 5 6	Set	Warora Colliery.	
61/77 7-8-96		Wheels with axles for mining wagons. ...	0 7 6	Pair	Warora Colliery.	
62/238 21-9-96		Wheels, 10″ diameter on tread, cast steel, with axles for 1′ 6″ gauge tubs. ...	0 9 0	,,	North Western.	
55/150 11-2-96	Crane ...	Fixed, steam, for jetty, to lift 10 tons, jib to have a maximum radius of 18 feet, capable of raising to a height of 32 feet; minimum height from ground level to centre of jib pulley 20 ft.	685 0 0	Each	Estern Bengal.	Approximate weight—22 tons.
60/312 20-7-96	Diving apparatus	With fittings and pumps complete for a depth of 90 feet.	105 10 0	Set	Bezwada-Madras.	
		With fittings, &c., complete, for a depth of 80 feet of which 70 feet is water and 10 feet above water.	105 10 0	,,	Kotri-Rohri.	
60/471 30-7-96	Engines, Steam ...	Portable, double cylinder, 10 horse power, *fire boxes arranged for burning wood fuel. Length of boiler barrel 6 ft. 8 ins. × 2 ft. 10 ins. external diameter.*	220 0 0	Each	Mandalay-Kunlon	*£ 11-10 for one set of duplicate parts the same described as those for contract $\frac{61}{54}$, dated 7th August 1896, page 6.*
61/54 7-8-96		Portable, double cylinder high pressure, 12 horse power nominal, with a locomotive type tubular boiler, mounted on wheels with all necessary mountings, pipes, valves, bolts, &c. Fire boxes 2′ $11\frac{5}{8}$″ × 3′ 9″ ...	247 10 0	,,	Bezwada-Madras	*1 set tracings £ 2-0-0 extra.*

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
61/54 — 7-8-96	Engines, steam—*concld.*	*Duplicate parts*— Comprising six sets piston rings and springs, six sets of gland and packing box bushes for piston rod and valve spindles. Six sets complete of connecting rod brasses, three complete sets crank shaft brasses. 36 gauge glasses and 72 india-rubber packing rings. Six sets fire-bars, thirty boiler tubes with steel ferrules, six pump plunger. Eighteen fusible plugs, six lengths of flexible suction hose for pumps, and six lengths of flexible return hose for pumps.	£ s. d. 49 0 0	The Lot	Bezwada-Madras.	
60/253 — 16-7-96	Forges	Portable, rectangular, with hearth plate, 20″ × 14″ and supplied with direct acting Root's blower	6 12 0	Each	Bezwada-Madras.	
61/72 — 7-8-96		Rivetter's, circular, 24″ diameter with hearth plate and direct acting Roots' blower ...	11 17 6	,,		
62/114 — 8-9-96		Rivetter's, circular, 24″ diameter with hearth plate and direct acting Roots' blower ...	11 17 6	,,	Mandalay-Kunlon.	
		Portable, with hearth plates 23″ diameter and direct acting blower	10 9 0	,,	North Western.	
60/475 — 30-7-96	Hoists	Steam, portable, complete, for wire rope, mounted on wrought iron carriage, with travelling wheels and axles; to lift 5 tons with the test load 6¼ tons.	340 0 0	Each	Bezwada-Madras.	
57/433 — 24-4-96	Jacks ...	Screw, traversing, 20 tons, with ratchets, complete, Halley's pattern	12 17 6	Each	Eastern Bengal.	
58/36 — 1-5-96		Screw, lifting and traversing, 20 tons, with levers and ratchets, steel cylinder, screws and angles, and gunmetal nuts ...	6 10 0	,,	North Western.	
60/463 — 29-7-96		Screw, lifting and traversing, 15 tons, to traverse 12″ and height 26″ when down ...	4 7 6	,,	Bezwada-Madras.	
		Screw, lifting and traversing, 10 tons, to traverse 9″ and height 24″ when down ...	3 3 6	,,		
61/132 — 12-8-96		Screw, lifting, and traversing 10 tons, with ratchets and levers, steel cylinders and gunmental nuts	4 10 0	,,	Mandalay-Kunlon.	
60/322 — 21-7-96	Jimcrows ...	Screw, with crowbars 6′ × 1½″, for new standard flat footed steel rails (75 lb. per yard, 4·2″ across foot), span 24″ in the clear, diameter of screw 2¾″	3 10 0	,,	Bezwada-Madras.	
61/195 — 17-8-96		Screw, with levers 6 feet long, for 50 lb. steel rails, span 24″, diameter of screw 2½″	3 0 0	,,	Mandalay-Kunlon.	
62/64 — 3-9-96		Screw, withl evers, complete, for 75 lb. steel flat footed rails, span 24″, diameter of screw 3″	3 10 0	,,	North Western.	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Rate—Free on Board. Unit.	For what railway.	Remarks.
			£ s. d.			
57/320 — 17-4-96	Oars ...	Ashwood:—				
		12 feet long	0 5 3	Each	Eastern Bengal.	
		14 feet long	0 6 5	,,		
60/247 — 15-7-96	Pile-drivers ...	Steam, Sisson's and White's with endless chain, steam winch, vertical boiler fire-box and connections, etc., complete ...	380 0 0	Each	Kotri Rohri.	
		Spare winch, frames machined and ready for fitting into their places	15 0 0	Set		
59/77 — 9-6-96	Plant, air compressing.	*Consisting of* 4 silt ejectors, 4 pumps, and with Engines for same, 2 boilers, with donkey pumps; one *main air compressor* and one boiler for the same, with donkey pump; 2 *small air compressors*, with oil engines combined; 2 air receivers, 10 feet long × 4′ × 6″ diameter; one set of *Electric Light plant*; with all necessary steam, water, air, and other connections, also 4 workmen's and material locks, with the necessary cast steel door frames, 10 material skips, spring hooks, piping, bull's eyes with gunmetal glands, &c., and conical connections for same.	5,250 0 0	Set	Kotri Bridge.	The plant is sufficient to work two caissons simultaneously at a mean pressure of 40 lbs.
59/341 — 25-6-96.	Presses. ...	Rail straightening, for mounting on trolly, suitable for rails, steel, flat footed, 75 lbs. per yard with foot 4·2″	26 0 0	Each	Bezwada-Madras.	
60/482 — 30-7-96.		Rail straightening, with dies, complete, suitable for rails of Vignoles section, 50 lbs. per yard	23 8 0	,,	Mandalay-Kunlon.	
54/275 — 29-1-96	Pulverizers ...	Centrifugal, "Lucops," patent, size F. ...	300 0 0	Each	Mandalay-Kunlon.	
		Spare parts for above	125 4 0	Set		
57/386 — 23-4-96		All wearing parts complete for F. size pulverizer, supplied under contract No. $\frac{48}{107}$ ...	125 4 0	,,	Mari-Attock.	
		Rollers and rings in addition to the wearing parts of an F. size pulverizer ...	52 6 0	,,		
60/168 — 10-7-96	Pumps ...	Centrifugal, 8″ with single standard, pulley, foot valve and strainer, to lift 30 feet and to deliver 1,200 gallons per minute; to be supplied with 50 feet of W. I. piping and one quarter bend, suitable for either suction or discharge, also 200 feet of additional w. i. piping in 20—nine feet lengths and 4—five feet lengths.	60 12 6	Each	Bezwada-Madras.	
61/55 — 7-8-96		Steam, Gwynnes Invincible, centrifugal, double standard, with foot valve and strainer ...				
		4	14 8 0	,,	Mandalay-Kunlon.	
		6″	22 5 6	,,		
		8″	32 12 6	,,		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
62/118 9-9-96	Pumps—*contd.* ...	Double cylinder hand power with rams $3\frac{1}{2}$″ diameter and 8″ stroke	26 0 0	Each	Burma.	
63/306 29-10-96		Steam, engine, 8 horse power, three throw, diameter of steam cylinders 9 inches, stroke 18″	504 10 0	,,	Rae-Bareli-Benares.	
64/186 10-11-96		Double cylinder, hand power, complete, with $3\frac{1}{2}$″ barrels, 8″ stroke, and 2 fly wheels and capable of delivering 1,000 gallons of water per hour, including 55 feet of $2\frac{1}{4}$″ galvanized iron piping	26 15 6	,,	Rae-Bareli-Benares.	
64/187 10-11-96		Steam, "Worthington," non-compound, duplex, mounted on a hollow *c.i.*, bed plate having two high pressure steam cylinders $5\frac{1}{4}$″ diameter, and two pumps of double action plunger type, capable of delivering 2,500 gallons of water per hour, 80 feet above the source of supply at a piston speed of not more than 75 feet per minute and a boiler pressure of 60 lbs. per square inch.	40 0 0	,,	East Coast.	
64/336 19-11-96		Horizontal, non-compound, duplex, of the "Worthington" regular pattern type, with 2 high pressure steam cylinders $7\frac{1}{2}$″ diameter and 10″ stroke and 2 double action plunger pumps, 6″ cylinders capable of delivering 8,000 gallons of water per hour to a height of 60 feet through a pipe 2,400 feet long	261 10 0	Each	Eastern Bengal.	*Approximate net weight 6 tons.*
61/252 20-8-96 ...	Pumps—*concld.* ...	*Spare parts of*:— New valve seat, *gun metal* for the Denaby pumps supplied under contract No. $\frac{42}{106}$ of 12th January 1895	33 0 0	,,	Umaria Colliery.	
		New valve seat, *steel* for the Denaby pumps supplied under contract No. $\frac{42}{106}$ of 12th January 1895 ...	26 0 0	,,		
58/45 1-5-96 ...	Ramps ...	Double sided, suitable for re-railing engines on new 100 lbs. flat-footed steel rails ...	*5 0 0	Pair	North Western.	*Approximate weight per pair =406 lbs.*
		Double sided, suitable for re-railing engines on 75 lbs. flat-footed steel rails ...	3 6 6	,,		*Approximate weight per pair = 286 lbs.*
60/503 30-7-96 ...		Single, (Stroudely type), each set consisting of 2 right and 2 left hand ramps. For re-railing engines, &c., on 50 lb. rails. ...	4 0 0	Set	Mandalay-Kunlon.	
60/507 31-7-96 ...		"Double" Turtleback, (Russel's patent), suitable for re-railing locomotive carriages and wagons on 75 lb. rails of Vignoles section	3 6 6	Pair	Bezwada-Madras ...	*Approximate weight per pair = 286 lbs.*

* *Vide* also Contract No. $\frac{59}{156}$, dated 13th June 1896.

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£. s. d.			
57/45 2-4-96.	Ropes ...	Wire, steel, Lang's lay, 3½″ circumference in coils of 242 fathoms, for middle incline; breaking strain about 54 tons; working strain 5 tons; weight per fathom of rope 14½ lbs.	2 15 0	Cwt.	Dandot Colliery.	
57/45 2-4-96 ...		Wire, steel, Lang's lay, 3¼″ circumference, in coils of 6 00 fathoms for lower incline; breaking strain about 48 tons, working strain 4 tons; weight per fathom of rope 12¼ lbs.	2 15 0	,,		
59/281 23-6-96.		Wire, steel, "Bullivant's" flexible, circumference 4½″ galvanized for mooring caissons; in coils of 60 fathoms or multiples of 60 fathoms; breaking strain about 60 tons; weight per fathom of rope 19 lbs.	2 2 6	,,	Kotri-Rohri for Kotri Bridge.	*Packed on wooden reels to coil 120 fathoms, each reel £ 1-5-0.*
		Wire, steel, "Bullivant's" flexible, circumference 3½″ for working dredgers from steam hoists; in coils of 30 fathoms or multiples of 30 fathoms; breaking strain about 36 tons, weight per fathom of rope 11½ lbs.	2 0 0	,,		*Packed on wooden reels to coil 150 fathoms, each reel £ 1-5-0.*
60/502 30-7-96 ...		Wire, steel, Lang's patent, ⅞″ diameter; 400 feet in length, breaking strain about 21 tons; weight per fathom 7½ lbs.	2 10 3	,,	Umaria Colliery ...	*Pakced on wooden reel, each £ 0-12 6*

61/67 7-8-96.	Ropes—concld. ...	Wire, ungalvanized, best steel, Lang's patent, 3½ ″circumference, for use in well sinking to work at slow speed on drums about 2 feet in diameter; breaking strain about 24 tons; weight per fathom of rope 8¾ lbs.	2 0 0	Cwt.	Bezwada-Madras.	
61/69 7-8-96 ...		Wire, steel, winding, galvanized, 1″ diameter, in one length of 600 feet; breaking strain about 24 tons; weight per fathom 8 lbs. with eyes or thimbles at each end large enough to admit 28 ins. chain easily.	1 15 0	,,	Burma	*Packed on wooden reel, each £ 0-12-6.*
61/70 7-8-96 ...		Wire, steel, *plough*, Lang's patent, ¾″ diameter, 1500 feet long. Breaking strain about 18 tons; weight per fathom 5½ lbs.	1 6 0	,,	Umaria Colliery.	
62/58 2-9-96 ...		Wire, steel, ungalvanized flexible, 2⅜″ circumference, in one length of 5,000 feet, weighing 43 cwts., for underground haulage.	1 13 0	,,	Warora Colliery.	
62/258 23-9-96		Wire, steel, Lang's lay, 3½″ circumference, in coils of 260 fathoms for upper and middle inclines; breaking strain about 42 tons, working strain 5 tons, weight per fathom of rope 11½ lbs.	2 0 0	,,	Dandot Colliery.	
		Wire, steel, Lang's lay, 3¼″ circumference, in coils of 1,240 fathoms; for lower incline; breaking strain about 36 tons, working strain 4 tons; weight per fathom of rope 10 lbs.	2 0 0	,,		
61/69 7-8-96 ...		Thimbles and splices for rope, wire, steel, galvanized, 1″ diameter; large enough to admit ⅞″ short link chain easily.	0 5 6	Each	Burma.	

Contracted for in 1896.

Contract number and date.	Articles.	Details.	Rate—Free on Board. Amount.	Rate—Free on Board. Unit.	For what railway.	Remarks.
			£ s. d.			
60/462 29-7-96	Tools, earth boring	For trial borings, 50 feet deep, 4″ diameter complete; 1 set consisting of :—				
		4¼″ Clay auger with 1″ M screw No. 1 ...				
		4″ Shoe Nose shell 1″ M screw „ 1 ...				
		4″ Auger ditto 1″ M screw „ 1 ...				
		4¼″ Flat chisel 1″ M screw „ 1 ...				
		4¼″ Tee chisel 1″ M screw „ 1 ...				
		Worm auger ... ... „ 1 ...	39 5 0 ...	Set	Mandalay-Kunlon.	
		Bell Box ... ... „ 1 ...				
		Lifting dogs ... ... „ 2 ...				
		Hand dogs ... ... „ 2 ...				
		Tillers ... (*pair*) 1 ...				
		Rugger and carriage ... No. 1 ...				
		10 feet lens, 1″ boring rods 1″ M screw				
60/462 29-7-96	Tools, earth boring —*concld.*	Short swivel rod ... .. No. 1	Price given in above.	page 14	Mandalay-Kunlon.	
		Spring hook with 30 feet rope ... „ 1				
		Auger board ... ... „ 1				
		Auger clearer ... ... „ 1				
		Iron work for shear legs ... Set 1				
		Best iron bound well sinkers wind ... „ 1				
57/497 29-4-96	Wheels with axles.	Steel, for light trollies diameter of wheels 1′ 9″	2 5 0	Pair	Oudh and Rohilkhand	
61/66 7-8-96		Cast steel for trollies, diameter of wheels 1′ 7¼″	4 15 0	„	Burma.	
62/237 21-9-96		For permanent-way inspectors' heavy trollies	5 1 0	„	North-Western.	
62/237 21-9-96		For Engineer's light trollies	4 15 0	„		
60/140 8-7-96	Winches ...	Crab, single purchase, with wrought iron frames, to lift 2 tons direct from barrel ...	8 0 0	Each	Bezwada-Madras.	
		Crab, single purchase, with wrought iron frame, to lift 4 tons direct from barrel ...	12 10 0	„		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—concluded.

Contracted for in 1896.

Contract number and date.	*Articles.*	*Details.*	*Rate—Free on board.*		*For what railway.*	*Remarks.*
			Amount.	*Unit.*		
			£ s. d.			
61/123 12-8-96	Winches ..	Crab, for lowering caissons on the Kotri Bridge; suitable for lifting 15 tons; provided with smooth drum for wire rope 30″ long and 24″ diameter with cog wheel at one end not more than 40″ diameter; also one intermediate gearing consisting of an axle of the same length as the drum, having at one end a cog wheel about 8″ diameter and at the other a cog wheel about 24″ diameter, the pressure on teeth of the 24″ cog being thus $\frac{1}{6}$ of the pull on the rope or say $2\frac{1}{2}$ tons.	66 10 0	Each	Kotri-Rohri.	
60/381 24-7-96	Windlass ...	Steam and hand, with deck pipes and compressors complete, including bow stoppers, chain pipes, etc. The gearing is to have steel wheels, spurs and pinions of "Stone's Bronze." Required for use on a light draught river steamer.	110 0 0	Each	Mu Valley.	

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, and Assam, Public Works Department.
The Secretaries to the Residents at Hyderabad and in Mysore, Public Works Department.
The Secretaries to the Agents to the Governor General, Rajputana and 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 Director General of Military Works.
The Chief Engineer, Kashmir.
The Accountant General, Bengal.
The Consulting Engineers for Railways, Madras and Bombay.
The Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, and Assam.

Copy forwarded to the Local Governments and Administrations and to the Officers noted in the margin for information, with the intimation that all Railway Administrations have been supplied with copies direct.

T. GRACEY, Colonel, R.E.,
Director General of Railways.

To

THE

No 1742 W, dt 10-June 896.

Communicated to
Officers of the P.W. Dept.
Sd/ D. Gr. C.
W

Cr for S.
S. Es.
C. A. to Govt,
Rlys P.W.a.

G. C. Press, Simla.—No. 1536 P. W. D.—19-5-96.—885.

Rly. 3
8363/97

[*For General Distribution.*]

Circular No. 5.

FROM

THE DIRECTOR GENERAL OF RAILWAYS,

To

THE MANAGER, NORTH WESTERN RAILWAY.
THE MANAGER, OUDH AND ROHILKHAND RAILWAY.
THE MANAGER, EASTERN BENGAL STATE RAILWAY.
THE MANAGER, EAST COAST STATE RAILWAY.
THE ENGINEER-IN-CHIEF, MARI-ATTOCK RAILWAY AND GRADIENT IMPROVEMENT WORKS, (NORTH WESTERN RAILWAY).
THE ENGINEER-IN-CHIEF, MUSHKAF-BOLAN RAILWAY.
THE ENGINEER-IN-CHIEF, KOTRI-ROHRI RAILWAY.
THE ENGINEER-IN-CHIEF, BEZWADA-MADRAS RAILWAY.
THE ENGINEER-IN-CHIEF, RAI BARELI-BENARES EXTENSION RAILWAY SURVEY.
THE PORT STOREKEEPER, STATE RAILWAY DEPARTMENT, CALCUTTA.

Rate List, Class B.—"Engineers' Plant" (excluding Petty Tools) for 1895.

Simla, the 2nd May 1896.

SIR,

I have the honour to forward, for information and guidance, a printed statement showing the actual English rates, *free on board* in England for Class B Stores, "Engineers' Plant," (excluding Petty Tools), contracted for by the Stores Department of the India Office during 1895.

2. A table giving the average rates of sea-freight, for Class B Stores imported from England to the several ports in India for State Railways during 1895, is prefixed to the rate list.

3. In order to arrive at the total cost of the class B stores landed in India, an insurance charge of one-half per cent.* on the *free on board* cost *plus* entire sea-freight, should be added in addition to other incidental charges, and exchange, which latter should be calculated at the official rate for the year.

I have the honour to be,

SIR,

Your most obedient Servant,

T. GRACEY, Colonel, R.E.,
Director General of Railways.

Documents accompanying.

1. Statement showing the average rate per ton for entire sea-freight on Class B Stores imported from England to the several ports during 1895.
2. Rate List, Class B.—"Engineers' Plant" (excluding petty tools), for 1895.

* For State Railway Stores and Irrigation Works only classed as Imperial. Stores for Provincial and Local funds, and for railways constructed by Native States are charged one per cent. as heretofore.

Enclosure to Director General of Railways' Circular No. 5 of 1896.

RATE LIST.

CLASS B.

ENGINEERS' PLANT" (EXCLUDING PETTY TOOLS)

FOR 1895.

G. C. Press, Simla.—No. 1536 P. W. D.—21-5-96.—885.

Enclosure to Director General of Railways' Circular No. 5, dated the 2nd May 1896.

Statement showing the average rate per ton for entire sea-freight on Class B Stores imported from England to the several ports during 1895.

Class of Stores.	Kurrachee.	Bombay.	Coconada, Vizagapatam or Madras.	Calcutta.	Rangoon.	REMARKS.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	
Class B.—"Engineers' Plant" (excluding Petty Tools).	12 6	.....	26 3	21 3	22 6	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS).

Contracted for in 1895.

Contract number and date.		Articles.	Details.	Rate—Free on board.		For what railway.	Remarks.
				Amount.	Unit.		
				£ s. d.			
46/227	16-5-95	Buffers	Spring, complete, with holding down bolts, &c.	24 18 0	Each.	North-Western ...	For new colliery at Bhaganwala.
49/228	20-8-95	Cages	Pit, with chains, compensating spring, hinged gable roof, rails for tubes, catch bars and guide checks, &c., &c., complete ...	45 0 0	Each.	Umaria Colliery.	
49/228	20-8-95	Chucks	Guide, cast steel, for rail guides, with bolt holes drilled and ready for fixing to the pit cages	32 15 0	Set.	Umaria Colliery.	
47/18	6-6-95	Condensers ...	Floyd's patent, with connecting pipes and blow through valve for Floyds-Tangye's patent "special" pumps, 12" steam cylinder, 6" water cylinder.	11 5 0	Each.	Umaria Colliery.	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
51/175 — 17-10-95	**Dredgers** ...	Sand pump, "Invincible," vertical, direct acting, centrifugal.	981 17 0	Each.	Eastern Bengal State.	
	Drums ...	Clip, Fowler's patent, 8 ft. diar. complete with brakes, bed plates, pedestals, all holding down bolts and levers, &c., &c.	220 13 0	Each.	North-Western ...	(Bhaganwala Colliery.)
		Do. do. 4 ft. diar. with axle, pedestals, brake and a spare set of clips.	50 5 4	Each.		
46/227 — 16-5-95	**Drum**—spare parts of—	Pulleys, guide, 6 ft. diameter	17 8 6	Each.	North-Western ...	(Bhaganwala Colliery.)
		Pedestals, $4\frac{1}{2}'' \times 8\frac{1}{2}''$ complete for 6 ft. guide pulleys	7 13 $4\frac{1}{2}$	,,		
		Pedestals, $4\frac{1}{2}'' \times 7''$ complete for 6 ft. guide pulleys, ...	6 10 0	,,		
		Sheaves, friction, 16" diameter complete, with gun metal bearings in c. i. boxes ...	2 6 9	,,		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
50/6 — 10-9-95	**Fans** ...	"Capell's," 6 ft. diameter × 3′ 6″ wide capable of giving a volume of 3,000 cubic feet of air per minute with a water gauge of about 3".	125 0 0	Each.	North-Western ...	Khost Colliery.
		"Capell's" blast, hand power, for mines, capable of giving a volume of 1,400 cubic feet of air per minute	18 15 6	,,		
50/38 — 5-9-95	**Fire box** ...	For 30 horse power multitubular boilers ...	64 0 0	Each.	Umaria Colliery.	
		For 20 horse power multitubular boilers ...	55 0 0	,,		
42/254 — 30-1-95	**Injectors** ...	Gresham's patent, for pumping engine 4 M. M.	4 5 6	Each.	Eastern Bengal.	
		Gresham's patent, for pumping engine 3 M. M.	3 6 6	,,		
43/19 — 2-2-95	**Jacks** ...	Screw, traversing, each with ratchets, lever, steel cylinders and gun metal nuts, to lift 20 tons	7 9 0	Each.	Eastern Bengal.	
		Screw, traversing, each with ratchets, lever, steel cylinders and gun metal nuts, to lift 10 tons	4 5 0	,,		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
49/314 24-8-94	Pipes	W. I. lapwelded, black, for steam, in lengths of 12′, screwed at both ends but without sockets :—				
		2″ bore	0 6 3	Length.		
		1″ „	0 3 3	„		
		¾″ „	0 2 3	„		
		Flanges for above and for bends :—				
		2″	0 0 9	Each.	Umaria Colliery.	
		1″	0 0 4¾	„		
		¾″	0 0 4½	„		
		Flanges for bends 4″	0 3 6	„		
		In pieces for above flanged 4″	0 18 0	„		
		„ „ „ 2″	0 3 4	„		

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
49/314 24-8-94	Pipes ...	Quarter bends for steam pipes :—				
		4″	0 8 0	Each.	Umaria Colliery.	
		2″	0 1 3	„		
		1″	0 0 4½	„		
		¾″	0 0 3¼	„		
52/131 9-11-95	Pumps	Tangyes horizontal "special" steam direct acting, capable of delivering 4,500 gallons of water per hour 50 feet above source of supply from a depth of 20 feet below the pump cylinder at a pressure of 80 lbs. per square inch to have a steam cylinder 6 in. diameter and brass lined water cylinder 6 in. diameter × 12in. length of stroke, mounted on a cast iron base plate with a 4 N. H. P. steel vertical boiler.	420 0 0	Each.	Frontier Ry. reserve.	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£. s. d.			
42/107 — 11-1-95	Pumps—(*contd*).	"Denaby" sinking pumps 22" steam cylinder, capable of delivering 15,500 gallons of water per hour to 300 feet height with 50 lbs. steam pressure; boilers on the surface with the necessary length of delivery pipes, steam pipes suspending wire rope for shafts, also sliding suction, rise 10 feet lengths of "Splincter grip steam hose of diar. suitable for steam pipes, blocks to lower pumps, etc., etc.	546 0 0	Each.	Umaria Colliery.	
49/227 — 20-8-95	Pumps, feed ...	For multitubular boilers, similar to that supplied on contract 38—257 of 18th September 1894, and supplied with the following duplicate parts, *viz.* :—4 sets of main shaft brasses, 4 sets of bearing blocks for crank pins, 4 sets of piston rings, 1 set of gunmetal suction and delivery valves with seats.	84 10 0	Each.	Umaria Colliery.	
49/160 — 13-8-95	Pumps	*Spare parts of*— Seatings, guttapercha for pump valves ...	2 5 0	doz.	Umaria Colliery.	

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CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£. s. d.			
46/485 — 31-5-95	Ramps	Double, for 73 lbs. D. H. rails.—Each set to consist of 2 double ramps.	3 19 4½	Set.	Eastern Bengal.	
45/294 — 27-4-95	Ropes	Wire, steel, "Bullivant's" flexible, 2¼" circumference in one coil of 240 fathoms, suitable for working on a drum 2½' diar.	2 5 0	Cwt.	North-Western	Plus £ 10 for packing two coils.
42/10 — 2-1-95		Do. do. 4½" circumference in coils of 530 fathoms, 19 lbs. per fathom.				
49/274 — 23-8-95		Wire, steel plough, "Lang's" patent, ¾ in. diameter in 340 feet lengths, suitable for winding, diamefer of drum 4 feet, diameter of Pulleys 8 feet.	3 6 8	Length.	Umaria Colliery.	
		Ditto do. ⅝ in. in lengths of 1,500 feet, suitable for hauling, diameter of drum 3 feet.	11 0 0	,,		
49/275 — 23-8-95		Wire, steel, plough, Lang's patent, ⅞ in. diameter in 300 feet lengths, similar to that supplied on contract 15—263 of 25th October 1892. Each rope to be capped and socketed at both ends.	8 14 0	Length.	Umaria Colliery.	

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CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£. s. d.			
47/490 — 20-6-95	Ropes—*contd.*	Wire, "Cradock's" plough steel, Lang's patent, 2½" circumference, in lengths of 360 and 400 feet.	2 18 0	Cwt.	Warora Colliery.	
42/245 — 28-1-95	Shackles ...	Twilled for 4½ in. rope, complete with chains and hooks.	9 10 0	Each.	North-Western ...	(Bhaganwala Colliery.)
45/199 — 20-4-95	Screens ...	Revolving, circular, with shaft, bevel wheel and pinion complete, for Robinson's coal washing apparatus.	45 0 0	Each.	Umaria Colliery.	
43/68 — 7-2-95	Trollies ...	Light, 2' 6" gauge, with teak under frames	14 13 0	Each.	North-Western ...	(Bhaganwala Colliery.)
45/300 — 30-4-95	Taps ...	Taper, for water space stags of fire boxes ...	1 7 6	Each.	Umaria Colliery ...	(Approximately.)
		Do. do. 1" diameter ...				
52/149 — 12-11-95	Tubes ...	Brass in lengths of 6' 2½" bore ...	50 12 6	Ton.	North-Western ...	For condensers of steamers.

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*continued.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
45/253 — 24-4-95	Tubes—*contd.* ...	Iron, boiler, 7' 7" long × 2¾" outside diameter and 11 W. G., for portable engine 10 H. P.	0 2 6	Each.	Eastern Bengal.	
		Iron, boiler, 5' 10" long × 2¾" outside diameter and 11 W. G., for portable engine 5 H. P.	0 1 11	„		
45/300 — 30-4-95	Tubes and ferrules	Spare sets for 30 H. P. multitubular boilers	25 15 0	Set.	Umaria Colliery.	
		Do. for multitubular boilers ...	21 0 0	„		
45/300 — 30-4-95	Valves ...	Relief for feed pump for boilers ...	4 5 0	Each.	Umaria Colliery.	
43/68 — 7-2-95	Wagons ...	Steel, colliery, 2' 6" gauge, with wheels and axles, axle-boxes, pedestals and springs, complete	17 10 0	Each.	North-Western.	
	Wheels ...	9" diar. with plain axles, 2 wheels and 1 axle to the pair	0 10 0	Pair.	North-Western.	

CLASS OF STORES B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*concluded.*

Contracted for in 1895.

Contract number and date.	Articles.	Details.	Rate—Free on board. Amount.	Unit.	For what railway.	Remarks.
			£ s. d.			
43/68 7-2-95	Wheels and axles ...	With outside bearings, wheels 18″ diameter, each pair complete with axle boxes, pedestals and springs—2 wheels, 1 axle, 2 axle boxes, 2 bushes and 2 springs to the pair ...	3 0 0	Pair.	North-Western	(Bhaganwala Colliery.)
49/191 16-8-95		(4 spoke) for light trollies for Engineers, 5′ 6″ gauge	2 17 0	Pair.	North-Western	
		(6 spoke) for heavy trollies for permanent-way inspectors, 5′ 6″ gauge	3 4 6	,,		
48/155 9-7-95		For mining wagons	0 10 0	,,	Warora Colliery.	
50/110 12-9-95		For pit tubs	0 9 2	,,	Umaria Colliery.	
49/169 14-8-95	Wheel barrows ...	As supplied on contract 3—240 of 19th October 1891	1 16 6	Each.	Umaria Colliery.	