

FROM

THE DIRECTOR GENERAL
OF RAILWAYS,

TO

Circular No. 16.

Dated Simla, the 30th July 1891

Received

No. 2474 Wd 15 Sept 1891

*Communicated
to officers of the P.W.
Dept for information.
(Ed) J. P.*

*Supdy. Engrs.
Supd. of Wks P. Prosser
C. A. to Govt.
Ch. Engr. Gordon
Secy. P. W. Dept.*

INDIAN STATE RAILWAYS.

RATE LIST, CLASS B.—“Engineers’ Plant”
(excluding Petty Tools) for 1890.

G. C. Press Simla,—No. 1565 P. W. D.—19-8-91—1,100.

Read—the following letter from W. J. H. LE FANU, Esq., Collector of North Arcot, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated Chittoor, 2nd August 1891, No. 3909-Rev. Gl. :—

With reference to Board's reference on Board's General Register No. 4214, dated 24th July 1891, I have the honour to return herewith the list of works with an abstract statement showing the estimated cost of the several classes of works in each taluk or division. The works proposed for execution by the District Boards and Municipalities have been clearly indicated in red ink.

Reference on the above, dated 10th August 1891.

In the Collector's detailed list of works items 1 and 2, as given below, are shown under Revenue Department works and items 3 to 15 under District Board's. The Collector will be requested to state whether this classification is correct and may be allowed to stand :—

<i>Chittoor taluk.</i>						Amount.
						RS.
1. Gazulapalli market	...	...	...	...	...	5,000
2. Markets, 6 in number	...	...	...	...	...	11,000
<i>Vellore taluk.</i>						
3. Supply channel of Oosur Singaneri tank	...	...	...	...	...	6,000
4. Palampakam tank	...	...	...	...	...	5,000
5. Alumdumangapuram tank	...	...	...	...	...	5,000
6. Kothalampet tank	...	...	...	...	...	5,500
7. Vallam tank	...	...	...	...	...	5,000
8. Thellore do.	...	...	...	...	...	5,500
9. Sembedu do.	...	...	...	...	...	5,000
10. Agaram do.	...	...	...	...	...	7,000
11. Agaram river channel	...	...	...	...	...	5,000
12. Thorapadi tank	...	...	...	...	...	8,000
13. Pallikonda do.	...	...	...	...	...	5,000
14. Arasambettu tank	...	...	...	...	...	5,000
15. Petty repairs, 77 in number	...	...	...	...	...	2,28,000

(Signed) R. V. SRINIVASIAR,
Acting Secretary.

To the Collector of North Arcot.

Read—the following letter from W. J. H. LE FANU, Esq., Collector of North Arcot, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated Chittoor, 21st August 1891, No. 4282-Rev. Gl. :—

With reference to your letter, Reference on General Register No. 4007, dated 10th August 1891, I have the honour to inform you that items 1 and 2 are District Board works and items 3 to 15 are Revenue Department works, and to request that the necessary corrections may be made in the detailed list of works submitted to the Board. The office copy has been corrected accordingly.

Resolution—dated 25th August 1891, No. 545.

The revised list of famine relief works for 1891-92 received from the Collector of North Arcot will be submitted for the information of Government.

2. The total estimated cost of the works is given in the following abstract statement :—

Taluks and Divisions.	WORKS PROPOSED FOR THE REVENUE DEPARTMENT.		WORKS PROPOSED FOR DISTRICT BOARDS.		WORKS PROPOSED FOR MUNICIPALITIES.		TOTAL AMOUNT OF WORKS.	
	Costing Rs. 5,000 and above.	Costing less than Rs. 5,000.	Costing Rs. 5,000 and above.	Costing less than Rs. 5,000.	Costing Rs. 5,000 and above.	Costing less than Rs. 5,000.	Costing Rs. 5,000 and above.	Costing less than Rs. 5,000.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1. Chittoor taluk	..	41,000	3,45,620	86,138	..	..	3,45,620	1,27,138
2. Chandragiri taluk	..	15,000	56,120	1,50,422	..	36,500	1,65,422	1,67,945
3. Palmanér do.	..	30,000	12,862	45,230	..	..	75,230	72,886
4. Vellore do.	..	67,000	2,33,000	60,235	..	79,000	1,27,235	3,58,517
5. Gudiyátam do.	..	5,000	1,18,800	44,670	2,05,142	65,000	1,14,670	3,28,942
6. Pólúr do.	..	..	3,400	2,13,407	..	..	2,13,407	99,000
7. Wandiwash do.	..	..	1,04,540	1,59,107	..	..	1,59,107	2,09,636
8. Arcot do.	..	64,500	39,196	2,14,121	..	..	2,78,621	1,39,793
9. Wálajápet do.	..	11,000	1,74,090	2,01,890	..	12,000	2,12,890	3,06,393
10. Punganúr division	..	..	..	1,96,250	..	..	1,96,250	27,400
11. Kangundi do.	..	..	300	84,000	..	..	84,000	32,903
12. Arni do.	..	5,000	..	60,310	..	..	65,310	1,01,650
13. Tirutani do.	..	..	..	35,000	..	..	35,000	22,500
14. Puthur do.	..	..	3,000	2,90,000	..	..	2,90,000	46,640
15. Kálahasti do.	..	..	2,650	76,500	..	..	76,500	58,150
16. Maderpauk do.	..	..	..	17,000	..	..	17,000	43,000
17. Roads proposed by the District Board which pass through more than one taluk or division	..	..	..	3,26,036	..	..	3,26,036	..
Total ..	1,97,500	7,88,958	25,19,798	12,21,035	65,000	1,32,500	27,82,298	21,42,493

3. This sum, viz., Rs. 49,24,791, at an average wage of As. 2 per diem, will provide employment for one year to 109,440 persons or 5 per cent. of the total population of the district, which is 2,178,226 according to the recent census.

4. It is observed that the proposals do not include any allotments for the repair of minor irrigation works in Pólúr, and that it is only in Wandiwash that provision for this class of works appears to be adequate. The Collector will be requested to prepare a supplemental list of works of this nature, with reference to Board's Proceedings, No. 450, dated 23rd July 1891.

It is also observed that the proposals of the Revenue Department include the following new works :—

	RS.
(1) Palmanér, 1 channel costs	30,000
(2) Gudiyátam, 24 tanks cost	38,300
(3) Arcot, 1 tank costs	34,500
(4) Wálajápet, 65 tanks cost	15,000

The first and the third are large projects ; it should be stated whether they have been professionally examined and estimates duly prepared.

5. Estimates appear to be ready for the repair of 25 fresh-water ponds in Wandiwash, but for no other works. The Collector should have estimates prepared for a number of works at an early date. Early steps should be taken to procure the completion of the estimates for Local Board's works in the affected taluks, and the Collector should at once call the attention of the District Board to the matter. The Government is entitled to expect at the present time the heartiest co-operation of all public officers in dealing with the present crisis. The utter unsuitability, according to the Collector, of the more important Local Fund works selected in the Kálahasti zemindari, and the entire inadequacy of the estimates for these works, is most discreditable.

(True Copies and Extract.)

(Signed) R. V. SRINIVASIAR,
Acting Secretary.

To the Secretary to Government, Revenue Department,
with detailed list.

Copy to the Collector of North Arcot.

ORDER—dated 9th September 1891, No. 849, Revenue.

Miscellaneous.

The Government concurs in the
Board's remarks.

(True Extract.)

(Signed) C. A. GALTON,
Secretary to Government.

To the Commissioner of Revenue Settlement, Land Records and Agriculture.

Copy to the Local and Municipal Department.

„ „ Public Works Department (W.)

Exd. S. J. Pereira.

75 Copies.

Enclosure to Director General of Railways' Circular No. 16, dated the 30th July 1891.

Statement showing the average rate per ton for entire sea freight on class B. Stores imported from England at the several ports during 1890-91.

Class of Stores.	Port of Bombay.	Port of Calcutta.	Port of Karachi.	Port of Rangoon.	REMARKS.
Class B.—“Engineers Plant” (excluding petty tools)	s. d. 20 0	s. d. 23 0	s. d. 20 0	s. d. 27 6	

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.			Unit.	REMARKS.
			Amount.				
			£	s.	d.		
3975 21-10-90	Apparatus, Diving.	Complete, with fittings for a depth of 90 feet, of which 80 feet is water and 10 feet above water, <i>vide</i> Appendix A.	112	0	0	Set.	
3391 28-3-90	Beaters	Platelayers, with solid steel ends, weight about 11 lbs.	0	2	3	Each.	
4034 25-10-90		" iron, with solid steel ends, 7 lbs. each	0	1	6½	"	
3898 9-10-90	Blocks.	Differential, pulley, Weston's, with chain, complete—				Each.	With 52 feet chain.
"		To lift 10 cwt.	1	11	6	"	With 55 feet chain.
4071 3-11-90		" 1 ton	2	8	0	Set.	
"		" 1 "	2	5	3	"	
3167 15-5-90		" 1½ "	3	19	0	"	
4074 3-11-90		" 2 "	3	17	6	"	
"		" 5 "	9	10	0	"	
"		" 8 "	18	15	6	"	
3351 18-3-90	Boilers	Locomotive type, multitubular 25 H. P. nominal, working pressure 80 lbs. per square inch, fitted with chimney and piping and fittings, complete, with extra large fire-box of Lowmoor iron	455	0	0	Each.	

CLASS OF STORES. B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*contd.*
Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.			REMARKS.
			Amount.		Unit.	
			£	s.	d.	
3736	24-7-90	With levers, 2½" screw	2	5	0	Each
3869	30-9-90	" " " " " "	2	15	0	"
3949	15-10-90	" " " " " "	3	8	0	"
4043	29-10-90	" " " " " "	2	12	0	"
3736	24-7-90	With levers, 2½" screw	3	5	0	"
3949	15-10-90	" " " " " "	2	8	0	"
4043	29-10-90	" " " " " "	2	15	0	"
4043	29-10-90	With levers, 2½" screw, for 68 lbs. D. H. rails	4	0	0	"
4043	29-10-90	With levers, 2½" screw	4	0	0	"
4127	7-11-90	" " " " " "	4	0	0	"
4094	6-11-90	Mills, Mortar.	456			Total
		One Double, Lucop's pulverizer, F size, with latest improvements				
		One Single " " " " " "				
		Note.—Spare wearing parts for above machine, and 50 pieces wire gauze to suit pulverizers, cut to shape of 2 sizes, 8 wires and 6 wires per inch, strong iron wire not galvanized.				

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CLASS OF STORES. B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*contd.*
Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.				REMARKS.
			Amount.			Unit.	
			£	s.	d.		
3044	26-11-90	Monkeys, Pile driving.	5	15	0	Each.	
4034	25-10-90	Picks	0	1	9	Each.	
4123	7-11-90	Presses, Rail-straightening.	32	10	0	Each.	
3900	9-10-90	Pulsonometer	160	0	0	Each.	
3886	4-10-90	Pumps.	46	5	0	Each.	
4057	30-10-90		473	0	0	"	
3218	15-2-90	Ropes, Wire.	53	13	9	Each.	Similar to those supplied under Nos. 2010 and 2181 of 1889.
3377	25-3-90		3	7	0	Cwt.	
		Each 500 feet long, for shafts, to have a spliced eye at each end, the splices warranted for a load of 50 tons.					
		Note.—To be suitable for a working load of 8 tons and to work round a drum 4 feet in diameter. The breaking strain of the ropes is to be not less than 80 tons.					
		Each 250 fathoms long, circumference 4½", weight per fathom 19 lbs., breaking strain 80 tons, working strain 13 tons.					

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.		REMARKS.
			Amount.	Unit.	
3377	25-3-90	Each 860 fathoms, weight per fathom 8½ lbs., breaking strain 36 tons, working strain 6 tons. Note.—The ropes on contract No. 3377 are to be of the description known as Lang's patent, and are required to work over 4' 6" pulleys, eyes or attachments not needed.	£ 3	d. 0	Cwt.
3787	23-8-90	Of extra plough steel, each 280 fathoms long— Circumference 4½". Weight per fathom 19 lbs., breaking strain 80 tons, working strain 13 tons. Note.—The ropes are required to work over 4' 6" pulleys, eyes or attachments are not required.	£ 2 100	1 or 17 0	Cwt. Rope.
4036	27-10-90	Flexible steel, 2½" circumference, 1,450 feet long. The twist of the wires in the strands and the strands round the core to be in the same direction as Lang's patent. Best plough steel alone to be used in construction ...	35	0	Each.
4089	28-10-90	Special steel, for running tackle, breaking stress 135 tons per square inch, diameter of rope ¾", to be in lengths of 500, 250, 200 and 150 feet. (Total 1,100 feet long) ...	25	10	Total.
"	"	Special steel, for standing rigging, breaking stress 100 ton per square inch, diameter of rope 1", for use as derrick guys, in lengths of 250, 225 and 200 feet. (Total 675 feet long) ...	24	10	"
		Note.—The ropes have a thimble rigged at each end of sufficient size to pass a hook of the same strength as the rope.			

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.		REMARKS.
			Amount.	Unit.	
4124	7-11-90	Winding, Lang's patent, made of best plough steel wire, each 400 feet long, ½" diameter and weighing 7½ lbs. per fathom. Caps or sockets for above rope made of Lowmoor iron ... Note.—Each rope to be suitable for winding on a drum 6 feet diameter, with a maximum load of not less than 5 tons at a speed of 30 feet per minute and to work over pulleys 12 feet diameter at angles of 65° and 57°. Lang's patent, made of best plough steel wire, 1,250 feet long, ¾" diameter and weighing 3½ lbs. per fathom. Caps or sockets for above rope made of Lowmoor iron ... Note.—To be suitable for an underground hauling engine and to wind on a drum 36" diameter with a working load not less than 2 tons, 5 cwt. Guide, made of steel wire, with steel core, 300 feet long and weighing 9 lbs. per fathom.	£ 10 0 0 20 0 4	s. 0 12 0 0 10 16	Each " " " " "
133	11-11-90	On wrought iron round shanks, each with a ring 6" internal diameter at one end, in lengths as under— Long. Diameter. Thick in shank. No. ordered ... 6 ft. 18" 2½" 8 ... 8 ft. 20" 2½" 8 ... 10 ft. 22" 2½" 8 ... 12 ft. 21" 3" 8 ...	124	0	Lot.
		Screws, Mooring and Guy, cast iron.			

CLASS OF STORES. B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—concl'd.
Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.				REMARKS.
			Amount.			Unit.	
			£	s.	d.		
4017	Tester, Cement.	Complete in every respect, and supplied with an equivalent weighing machine, 2 moulds (extra), and an automatic filler, including 28 lbs. shot.	19	0	0	Each.	
3596	Tools, Earth Boring in sets, complete.	Vide Schedule in Appendix B	45	0	0	Set.	
3590	Tools, Earth Boring, spare parts of.	Tubes, boring, 5½" outside diameter " 4½" " 3½"	186	12	6	for 800 feet.	
3854	Trolleys.	Wheels with axles for 2 feet gauge, outside bearings	6	0	0	Pair.	of 4 wheels and 2 axles.
3252		Wheels and axles for 2' 0" diameter, metre gauge (Platclayer's)	5	14	6	Set.	
3849		Wheels and axles, light, for 5' 6" gauge	5	3	0	"	
4070		Cast steel, 10" diameter, in sets, each set consisting of one axle with one fixed and one loose wheel attached (Plant for Dandot Colliery)	1	0	9	"	
		Pedastals, cast iron, for	0	6	1	Each.	

Appendix A.

List of Stores to be supplied to form 1 set of Diving Apparatus as per Contract No. 3975.

- 1 Improved, two cylinder, double action diving machine air pump, complete in strong chest.
 - 2 Handles, pump.
 - 1 Spanner 1¼" × ⅝", 1 Spanner ⅝" × ⅞", 1 Spanner ⅞" × 1", 1 Spanner 1" × 1¼".
 - 1 Socket spanner, 1 washer punch, 1 oil can.
 - 2 Screw drivers.
 - 1 Joint, union, double, connecting, male.
 - 1 " " " " female.
 - 1 " " for air pump, male.
 - 1 " " " " female.
 - 2 Caps, iron, to protect crank ends.
 - 1 Tin box containing—
 - 2 Springs top inlet valve pump.
 - 1 Valve top outlet pump.
 - 1 Valve bottom " "
 - 6 Nuts, brass wing Helmet collar.
 - 6 Screws for Helmet collar.
 - 2 Springs Inlet helmet.
 - 2 " Outlet " "
 - 1 Wing spanner, for nuts on oval frames on Helmet.
 - 1 Nozzle overflow.
- Note.—All the foregoing are contained in the Pump Chest.
- 2 Wheels, fly, cast iron.
 - 1 Strong double Wicker Basket containing—
 - 1 Improved tinned copper Helmet, with breast plate fitted speaking apparatus.
 - 1 Set of speaking apparatus, consisting of mouth piece and diaphragm for Helmet.
- Copper connection and shut up nut.
- 90 feet speaking pipe, with couplings.
- Attendant's Mouth piece and tube.
- " Belt.
- 1 Body shackle, 90 feet air piping with couplings.
 - 1 Helmet cushion.
 - 1 Seamen's chest containing—
 - 2 Dresses, diving, waterproof, 1 pair cuff expanders.
 - 1 Spanner, Wing, and Helmet nut, 12 wrist rings.
 - 3 Frocks, Woollen, 3 pairs Drawers, woollen.
 - 3 Pairs stockings, woollen inside.
 - 1 " " " " overall.
 - 1 Woollen cap, 1 neckerchief, 1 dress canvas overall.
 - 180 feet reverse laid signal line.
 - 1 Pair lead soled boots.
 - 1 " " weights with mountings.
 - 1 Belt weight, to carry 30 lbs.
 - 1 Knife in watertight case.
 - 1 Leather knife belt, 1 holder pipe, air.
 - 2 ½ lb. tins solution. 1 yard prepared twill.
 - 1 Screw frame, with glass for helmet.
 - 2 Spare glasses for helmet.
 - 1 Book of instructions.

Specification.

The air piping tendered for, to be made of vulcanized india-rubber in and outside, inflated with metal wire, and fitted with gun metal union joints. To be made of the best Para Caoutchouc and with no other ingredients whatever than sulphur and white oxide of zinc, the sulphur not to exceed 3 per cent., the oxide of zinc, 30 per cent., to endure a dry heat test of 270° Fahrenheit for an hour, and a moist heat of 320° Fahrenheit for three hours without its quality being impaired.

The diving dresses to be made of india-rubber between tanned twill, with insulation between the parts of india-rubber of collars, the cuffs to be made of solid rubber without insertion.

Appendix B.

Detail of set of Earth Boring Tools as supplied under Contract 3596 of 1890.

Description.	No.
Angurs, clay, 2' long, for 4" hole	1
" shell or wimble scoop 2' long, 4" hole	1
" worm (short) " spiral," 2' long, 4" hole (for extracting broken rods) ...	1
" " (long) 2' long, 4" hole (for loosening stuff in bore hole) ...	1
Ball valve sludger 2' long, 4" hole	1
Bell or screw or screw box, 2' long, 4" hole (for extracting rods in case of breakage)	1
Chisel, flat, or straight bits 2' long, 4" hole... ..	1
" T, 2' long, 4" hole	1
" double T, 2' long, 4" hole	1
" V, or diamond point 2' long, 4" hole... ..	1
Common block sludger 2' long, 4" hole	1
Crows feet 2' long, 4" hole	1
Dogs, hand, to fit 1 1/4" square rods (rod wrench)	1
Dogs, lifting, to fit 1 1/4" square rods	1
Kinds plug, to raise tubes	1
Lengthening pieces of 1 1/4" square iron, to suit rods with loop swivel top, 4' long...	1
Nipping tongs, or tigers, to fit 1 1/4" square rods	1
Pipe, clamp, for 4" bore to suit tubing	1
Rods, 1 1/4" square, mild steel, each 10' long	70 feet.
Stone breaker, 2' long, for 4" hole	1
Tiller, or brace head, to fit 1 1/4" square rods	1
Tubes, flush, outside, screw joints in 10' lengths, 4" in external diameter ...	80 feet.

Enclosure to Director General of Railways' Circular No. 16, dated the 30th
July 1891.

RATE LIST.
CLASS B.
ENGINEERS' PLANT
(Excluding Petty Tools)
FOR 1890.

G. C. Press, Simla.—No. 1565 P. W. D.—24-8-91—1,100.

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Statement showing the average rate per ton for entire sea freight on class B. Stores imported from England at the several ports during 1890-91.

Class of Stores.	Port of Bombay.	Port of Calcutta.	Port of Karachi.	Port of Rangoon.	REMARKS.
Class B.—“Engineers Plant” (excluding petty tools)	s. d.	s. d.	s. d.	s. d.	
	20 0	23 0	20 0	27 6	

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.				REMARKS.
			Amount.			Unit.	
			£	s.	d.		
3975 21-10-90	Apparatus, Diving.	Complete, with fittings for a depth of 90 feet, of which 80 feet is water and 10 feet above water, <i>vide</i> Appendix A.	112	0	0	Set.	
3391 28-3-90	Beaters	Platelayers, with solid steel ends, weight about 11 lbs.	0	2	3	Each.	
4034 25-10-90		" iron, with solid steel ends, 7 lbs. each	0	1	6½	"	
3898 9-10-90	Blocks.	Differential, pulley, Weston's, with chain, complete—					
" "		To lift 10 cwt.	1	11	6	Each.	With 52 feet chain.
4074 3-11-90		" 1 ton	2	8	0	"	With 55 feet chain.
" "		" 1 "	2	5	3	Set.	
3167 15-5-90		" 1½ "	3	19	0	"	
4074 3-11-90		" 2 "	3	17	6	"	
" "		" 5 "	9	10	0	"	
" "		" 8 "	18	15	6	"	
3354 1-8-90	Boilers	Locomotive type, multitubular, 25 H. P. nominal, working pressure 80 lbs. per square inch, fitted with chimney and piping and fittings, complete, with extra large fire-box of Lowmoor iron	455	0	0	Each.	

CLASS OF STORES. B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*contd.**Contracted for in 1890.*

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.				REMARKS.
			Amount.			Unit.	
			£	s.	d.		
3740 26-7-90	Boilers.— <i>conold.</i>	Locomotive type, compound, high pressure, multitubular, semi-portable, 30 H. P. nominal, working pressure 140 lbs. per square inch, with all fittings, steam piping, and chimneys, complete ...	545	0	0	Each.	Same as contract No 403 of 1887.
3890 8-10-90		Locomotive type, tubular, 20 H. P. working pressure 100 lbs. per square inch, with all fittings, steam piping and chimney, &c., complete ... <i>Note.</i> —The Boiler is to be fitted with a donkey pump of an approved description and a steam jet for forcing the draught, an injector need not be supplied with the boiler. The chimney for the boiler must not be less than 12 feet long. The boiler is to be mounted on four cast iron flanged wheels 2 feet diameter and suitable for travelling on a metre-gauge Railway.	274	0	0	"	
3904 9-10-90	Cranes.	Steam, portable, 5 tons ...	670	0	0	Each.	
3921 10-10-90	Engines, Steam.	Pile drivers (Sissons and White's patent); with endless steel pitched chain, steam winch and spike wheel drum, vertical boiler and steam and feed connections, complete ...	380	0	0	Each.	
4142 11-11-90		Hauling or winding, stationary, under ground, horizontal, high pressure, non-condensing type, 20 H. P. nominal, double cylinder, with boiler, &c., complete ... Extra large fire box, for — ... <i>Note.</i> —The engine is to be of extra strength throughout for a steam pressure of 90 lbs. per square inch, and is to run at a speed of 120 revolutions per minute. The engine is required for colliery work.	730	0	0	"	
			16	10	0	"	

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CLASS OF STORES. B.—ENGINEERS' PLANT (EXCLUDING PETTY TOOLS)—*contd.**Contracted for in 1890.*

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.			REMARKS.	
			Amount.				Unit.
			£.	s.	d.		
3890 8-10-90	Engines, Steam— <i>conoid.</i>	Portable, 25 H. P., working pressure 100 lbs. per sq. inch ... <i>Note.</i> —The boiler is to have a pump on one side and an injector on the other both fitted with all necessary suction and other piping. The injector is to be of the description known as Fiesham's and Oriven's patent of sufficient capacity for feeding the boiler when working at its full power, arranged to take to pieces for cleaning or repairs.	540	0	0	Each.	
3354 18-3-91	Engines, Steam— <i>Spares</i>	Fire-box, for Marshall's 30 H. P. semi-fixed winding engine, boilers, same as in Contract C 257 of 1883 ...	74	10	0	Each.	See Appendix.
3589 10-6-80		Fire-box, for Robey's engine, with rivets, 24 ferrules, 150 stays, 24 cross bar bolts, nuts and washers, 2 bearer bars, and 1 brass plug ...	42	12	0	"	
4092 5-11-90	Forges	Portable, with hearth-plates, 24" diameter and 2' 6" high ...	9	14	6	Each.	
3197 25-1-90	Gauges.	16" × $\frac{3}{8}$ " external diameter ...	0	3	1	Doz.	
"		15" × $\frac{3}{8}$ " " ...	0	3	0	"	
3202 28-1-90		Rings for—internal diameter $\frac{1}{4}$ ", external diameter $\frac{1}{16}$ " ...	0	4	0	%	
3401 5-4-90	Jacks.	Carriage lifting, 5 tons ...	3	2	6	Each.	
4016 23-10-90		Hydraulic, to lift 200 tons to a height safely of one foot ...	25	0	0	"	
3591 19-6-90		Screw, traversing, to lift 10 tons ...	4	5	0	"	
3778 10-8-90		Screw, traversing, with levers and ratchets, 20 ton, with steel cylinder, screws and angles; and gun-metal nuts ...	5	14	0	"	

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.				REMARKS.
			Amount.			Unit.	
			£	s.	d.		
3786	Jim Crows.	With levers, 2½" screw	2	5	0	Each	Span 20 inches diameter.
3869		" " " " " " " "	2	15	0	"	
3949		" " " " " " " "	3	8	0	"	
4043		" " " " " " " "	2	12	0	"	
3786		With levers, 2½" screw	3	5	0	"	Ditto.
3949		" " " " " " " "	2	8	0	"	
4043		" " " " " " " "	2	15	0	"	
4043		With levers, 2½" screw, for 68 lbs. D. H. rails	4	0	0	"	
4043		With levers, 2½" screw	4	0	0	"	Span 24 inches diameter.
4043		With levers, 2½" screw	4	0	0	"	
4127		" " " " " " " "	4	0	0	"	Ditto.
4094	Mills, Mortar.	One Double, Lincop's pulverizer, F size, with latest improvements One Single " " " " " " " "	456	0	0	Total	

Note.— Spare wearing parts for above machine, and 50 pieces wire gauze to suit pulverizers, cut to shape of 2 sizes, 8 wires and 6 wires per inch, strong iron wire not galvanized.

Note.—Spare wearing parts for above machine, and 50 pieces wire gauze to suit pulverizers, cut to shape of 2 sizes, 8 wires and 6 wires per inch, strong iron wire not galvanized.

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

Contracted for in 1890.

Contract number and date.		Articles.	Details.	RATE—FREE ON BOARD.			Unit.	REMARKS.
				Amount.				
				£	s.	d.		
3044	26-11-90	Monkeys, Pile driving.	Cast iron, ½ ton	...	...	...	Each.	Similar to those supplied under Nos. 2019 and 2181 of 1889.
4034	25-10-90	Picks	Beater, Platelayer's, 8 lbs. each	0	1	9	Each.	
4123	7-11-90	Presses, Rail-straightening.	Suitable for bending or straightening steel rails, of the Vignoles section weighing 41½ lbs. per yard. No punching gear or punches are required.	32	10	0	Each.	
3900	9-10-90	Pulsmeter	No. 9 size, each with wrought iron suction and discharge pipes, and connections, and 2 bends, suitable for 40 feet lift.	160	0	0	Each.	
3886	4-10-90	Pumps.	Hydraulic, for testing boilers, with copper pipes and connections, complete...	46	5	0	Each.	"
4057	30-10-90		Cameron's patent, double ram, with steam cylinders 12" diameter and pump barrels 6" diameter, working pressure 40 lbs. per square inch, suitable for colliery purposes.	473	0	0		
3218	15-2-90	Ropes, Wire.	Each 500 feet long, for shafts, to have a spliced eye at each end, the splices warranted for a load of 50 tons. Note.—To be suitable for a working load of 8 tons and to work round a drum 4 feet in diameter. The breaking strain of the ropes is to be not less than 80 tons.	53	13	9	Each.	Contract
3377	25-3-90		Each 200 fathoms long, circumference 4½", weight per fathom 19 lbs., breaking strain 80 tons, working strain 13 tons.	3	7	0	Cwt.	

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.			REMARKS.
			Amount.		Unit.	
3377	25-3-90	Each 860 fathoms, weight per fathom 8½ lbs., breaking strain 36 tons, working strain 6 tons. <i>Note.—The ropes on contract No. 3377 are to be of the description known as Lang's patent, and are required to work over 4" 6" pulleys, eyes or attachments not needed.</i>	£	s.	d.	
			3	7	0	Cwt.
3787	23-8-90	Of extra plough steel, each 290 fathoms long— Circumference 4½", Weight per fathom 19 lbs., breaking strain 80 tons, working strain 13 tons. <i>Note.—The ropes are required to work over 4" 6" pulleys, eyes or attachments are not required.</i>	{	2 100	1 17 0	Cwt. Rope.
4086	27-10-90	Flexible steel, 2½" circumference, 1,450 feet long. The twist of the wires in the strands and the strands round the core to be in the same direction as Lang's patent. Best plough steel alone to be used in construction ...	35	0	0	Each.
4089	28-10-90	Special steel, for running tackle, breaking stress 135 tons per square inch, diameter of rope ¾", to be in lengths of 500, 250, 200 and 150 feet. (Total 1,100 feet long) Special steel, for standing rigging, breaking stress 100 ton per square inch, diameter of rope 1", for use as derrick guys, in lengths of 250, 225 and 200 feet. (Total 675 feet long). ...	25	10	0	Total.
"	"	<i>Note.—The ropes have a thimble rigged at each end of sufficient size to pass a hook of the same strength as the rope.</i>	24	10	0	"

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.			REMARKS.
			Amount.		Unit.	
4124	7-11-90	Winding, Lang's patent, made of best plough steel wire, each 400 feet long, ¾" diameter and weighing 7½ lbs. per fathom. Caps or sockets for above rope made of Lowmoor iron ... <i>Note.—Each rope to be suitable for winding on a drum 6 feet diameter, with a maximum load of not less than 5 tons at a speed of 30 feet per minute and to work over pulleys 12 feet diameter at angles of 65° and 57°.</i> Lang's patent, made of best plough steel wire, 1,250 feet long, ¾" diameter and weighing 4½ lbs. per fathom. Caps or sockets for above rope made of Lowmoor iron ... <i>Note.—To be suitable for an underground hauling engine and to wind on a drum 36" diameter with a working load not less than 2 tons, 5 cwt.</i> Guide, made of steel wire, with steel core, 300 feet long and weighing 9 lbs. per fathom.	£	s.	d.	
			10	0	0	Each.
			0	12	0	"
			20	0	0	"
			0	10	0	"
			4	16	8	"
138	11-11-90	On wrought iron round shanks, each with a ring 6" internal diameter at one end, in lengths as under— Long. Diameter. Thick in shank. No. ordered ... 6 ft. 18" 2½" 8 ... 8 ft. 20" 2½" 8 ... 10 ft. 22" 2½" 8 ... 12 ft. 24" 3" 8 ...	124	0	0	Lot.

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

Contracted for in 1890.

Contract number and date.	Articles.	Details.	RATE—FREE ON BOARD.				REMARKS.
			Amount.			Unit.	
			£	s.	d.		
4017	23-10-90	Tester, Cement.	19	0	0	Each.	
3596	20-6-90	Tools, Earth Boring in sets, complete.	45	0	0	Set.	
3530	19-6-89	Tools, Earth Boring, spare parts of.	186	12	6	for 800 feet.	
3854	25-9-90	Trolleys.	6	0	0	Pair.	of 4 wheels and 2 axles.
3252	17-2-90		5	14	6	Set.	
3849	23-9-90		5	3	0	"	
4070	3-11-90		1	0	9	"	
			0	6	1	Each.	

Appendix A.

List of Stores to be supplied to form 1 set of Diving Apparatus as per Contract No. 3975.

- 1 Improved, two cylinder, double action diving machine air pump, complete in strong chest.
 - 2 Handles, pump.
 - 1 Spanner 1¼" × ⅞", 1 Spanner ⅝" × ⅞", 1 Spanner ¾" × ⅞".
 - 1 Socket spanner, 1 washer punch, 1 oil can.
 - 2 Screw drivers.
 - 1 Joint, union, double, connecting, male.
 - 1 " " " " female.
 - 1 " " for air pump, male.
 - 1 " " " " female.
 - 2 Caps, iron, to protect crank ends.
 - 1 Tin box containing—
 - 2 Springs top inlet valve pump.
 - 1 Valve top outlet pump.
 - 1 Valve bottom " "
 - 6 Nuts, brass wing Helmet collar.
 - 6 Screws for Helmet collar.
 - 2 Springs Inlet helmet.
 - 2 " Outlet "
 - 1 Wing spanner, for nuts on oval frames on Helmet.
 - 1 Nozzle overflow.
- Note.—All the foregoing are contained in the Pump Chest.
- 2 Wheels, fly, cast iron.
 - 1 Strong double Wicker Basket containing—
 - 1 Improved tinned copper Helmet, with breast plate fitted speaking apparatus.
 - 1 Set of speaking apparatus, consisting of mouth piece and diaphragm for Helmet.
- Copper connection and shut up nut.
90 feet speaking pipe, with couplings.
Attendant's Mouth piece and tube.
" Belt.
1 Body shackle, 90 feet air piping with couplings.
1 Helmet cushion.
- 1 Seamen's chest containing—
 - 2 Dresses, diving, waterproof, 1 pair cuff expanders.
 - 1 Spanner, Wing, and Helmet nut, 12 wrist rings.
 - 3 Frocks, Woollen, 3 pairs Drawers, woollen.
 - 3 Pairs stockings, woollen inside.
 - 1 " " " " overall.
 - 1 Woollen cap, 1 neckerchief, 1 dress canvas overall
- 180 feet reverse laid signal line.
1 Pair lead soled boots.
1 " " weights with mountings.
1 Belt weight, to carry 30 lbs.
1 Knife in watertight case.
1 Leather knife belt, 1 holder pipe, air.
2 ½ lb. tins solution, 1 yard prepared twill.
1 Screw frame, with glass for helmet.
2 Spare glasses for helmet.
1 Book of instructions.

Specification.

The air piping tendered for, to be made of vulcanized india-rubber in and outside, inlaid with metallic wire, and fitted with gun metal union joints. To be made of the best Para Caoutchouc, and with no other ingredients whatever than sulphur and white oxide of zinc, the sulphur not to exceed 3 per cent., the oxide of zinc, 30 per cent., to endure a dry heat test of 270° Fahrenheit for an hour, and a moist heat of 320° Fahrenheit for three hours without its quality being impaired.

The diving dresses to be made of india-rubber between tanned twill, with insertion between the parts of india-rubber of collars, the cuffs to be made of solid rubber without insertion.

Appendix B.

Detail of set of Earth Boring Tools as supplied under Contract 3596 of 1890.

Description.	No.
Augurs, clay, 2' long, for 4" hole	1
„ shell or wimble scoop 2' long, 4" hole	1
„ worm (short) " spiral," 2' long, 4" hole (for extracting broken rods) ...	1
„ „ (long) 2' long, 4" hole (for loosening stuff in bore hole) ...	1
Ball valve sludger 2' long, 4" hole	1
Bell or screw or screw box, 2' long, 4" hole (for extracting rods in case of breakage)	1
Chisel, flat, or straight bits 2' long, 4" hole... ..	1
„ T, 2' long, 4" hole	1
„ double T, 2' long, 4" hole	1
„ V, or diamond point 2' long, 4" hole... ..	1
Common block sludger 2' long, 4" hole	1
Crows feet 2' long, 4" hole	1
Dogs, hand, to fit 1 1/4" square rods (rod wrench)	1
Dogs, lifting, to fit 1 1/4" square rods	1
Kinds plug, to raise tubes	1
Lengthening pieces of 1 1/4" square iron, to suit rods with loop swivel top, 4' long...	1
Nipping tongs, or tigers, to fit 1 1/4" square rods	1
Pipe, clamp, for 4" bore to suit tubing	1
Rods, 1 1/4" square, mild steel, each 10' long	70 feet.
Stone breaker, 2' long, for 4" hole	1
Tiller, or brace head, to fit 1 1/4" square rods	1
Tubes, flush, outside, screw joints in 10' lengths, 4" in external diameter ...	80 feet.

The Secretaries to the Governments of Madras, 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, Hyderabad and 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 Accountant General, Public Works Department.
 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, Lucknow, and Central Division.
 The Agent and General Manager, Assam Railways and Trading Com-
 pany, Limited.

Copy forwarded to
 the Local Govern-
 ments, Administra-
 tions and Officers
 noted in the margin
 for information.

R. A. SARGEANT, Lieut.-Colonel, R.E.,
 Officiating Director General of Railways.

[General Distribution.]

Circular No. 16.

FROM

THE DIRECTOR GENERAL OF RAILWAYS,

TO

THE MANAGER, NORTH WESTERN RAILWAY.
THE MANAGER, OUDH AND ROHILKHAND RAILWAY.
THE SUPERINTENDENT OF WORKS, CHAMAN EXTENSION.
THE SUPERINTENDENT OF WORKS, HYDERABAD-UMERKOT RAILWAY.
THE ENGINEER-IN-CHIEF, EAST COAST RAILWAY.
THE ENGINEER-IN-CHIEF, KISTNA BRIDGE.
THE ENGINEER-IN-CHIEF, MU VALLEY RAILWAY.
~~THE ENGINEER-IN-CHIEF, MOGHAL SARAI-HOWRAH RAILWAY SURVEY.~~
THE ENGINEER-IN-CHIEF, MOGHAL SARAI-DALTONGUNGE SECTION OF THE MOGHAL SARAI-HOWRAH RAILWAY SURVEY.
THE ENGINEER-IN-CHIEF, FRONTIER RAILWAY SURVEY.
THE ENGINEER-IN-CHIEF, KASHMIR RAILWAY SURVEY.
THE ENGINEER-IN-CHIEF, ZHOB VALLEY RAILWAY SURVEY.
~~THE ENGINEER-IN-CHIEF, JEYPORE-CHUMBAL RAILWAY SURVEY.~~
THE ENGINEER-IN-CHIEF, GOONA-BINA RAILWAY SURVEY.
THE ENGINEER-IN-CHIEF, UJJAIN-BHOPAL RAILWAY SURVEY.
THE PORT STOREKEEPER, STATE RAILWAY DEPARTMENT, CALCUTTA.

Rate List, Class B.—“Engineers’ Plant” (excluding Petty Tools) for 1890.

Simla, the 30th July 1891.

SIR,

I have the honor 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 1890.

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 1890-91 is prefixed to the Rate List.

I have the honour to be,

SIR,

Your most obedient Servant,

R. A. SARGEAUNT, Lieut.-Col., R.E.,
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 at the several ports during 1890-91.
2. Rate List, Class B.—Engineers’ Plant (excluding Petty Tools) for 1890.

9TH SEPTEMBER 1891, No. 849, REVENUE.

GOVERNMENT OF MADRAS.

REVENUE DEPARTMENT.

READ—the following Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), dated 25th August 1891, No. 545 :—

MR. CLOGSTOUN.

Read—the following letter from W. J. H. LE FANU, Esq., Collector of North Arcot, to the Secretary to the Commissioner of Revenue Settlement and Director of the Department of Land Records and Agriculture, dated North Arcot, 21st July 1891, No. 3652-Rev. Gl. :—

With reference to Board's Proceedings, No. 148, dated 18th March 1891, I have the honour to submit herewith a talukwar list of Civil Agency works suitable for famine relief in 1891-92, revised with reference to G.O., No. 140, Revenue, dated 24th February 1891, communicated in the Board's Proceedings quoted above. The works proposed by the Revenue Department and by the Local and Municipal bodies are separately shown for each taluk and division, those costing Rs. 5,000 and above being entered in detail separately and the rest lumped together. Most of the works proposed by the Revenue Department are Local Fund works, and they were included in the Revenue Department list in 1889-90 when the list of the District Boards and Municipalities were being separately sent to Government direct. Now that the Collector is held responsible for the submission of consolidated lists including works of those departments, I am of opinion that under the head of Revenue Department works should be shown only such works as relate to the construction and repair of minor tanks, pounds, chavadies, &c., and that the works relating to the construction and repair of roads, markets, &c., should be included in the lists furnished to me by the Local and Municipal bodies. With this view I have sent the detailed list to the District Board, so that that body might consider which of the Local Fund works proposed by the Tahsildars should be retained as suitable for famine relief. The determination of this question may take a considerable time, and as it is not desirable to wait till then, I have submitted the revised list, basing the particulars on the old list, but complying with the instructions as to classification, &c., prescribed in the Government Order quoted above.

2. Estimates for none of the works are ready, and the officers concerned have been requested to cause estimates to be prepared for a sufficient number of the works proposed by them. As the Board's Proceedings quoted above was received only towards the end of March, it was not possible to get the estimates ready for the works proposed by the Revenue Department. They will be got ready in the course of the current year.

Reference on the above, dated 24th July 1891.

The list of works will be returned to the Collector with the request that the works proposed for execution by the District Boards and the Municipalities may be clearly distinguished and the list returned to this office with an abstract statement in the accompanying form showing the estimated cost of the several classes of works in each taluk or division.

(Signed) P. RAJARATNA MUDALIAR,
Secretary.

To the Collector of North Arcot, with two enclosures.