M.R.O. 1—10,006—28-2-50.

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(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No. 1197-98 Press
B.P. ~~No.~~ Mis. ~~—~~

Dated 30-4-C&J- —195—.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department,
30th April 1875.

No. 708. Read the following despatch from the Right Honorable the Secretary of State for India :—

Public Works,
No. 4.

INDIA OFFICE, LONDON,
18*th March* 1875.

MY LORD,—In continuation of my despatch, No. 9, dated 18th June last, regarding the proposed light-house for Point Godavery, I enclose, for the information and opinion of your Government, copies of letters received from Messrs. Chance Brothers and Mr. Wells furnishing estimates of the cost of the work. The plans submitted by Mr. Wells are forwarded in original.

2. I also enclose a copy of a report* by the Director-General of Stores, and I request attention to his suggestions, should your Government decide to erect a light-house in lieu of employing light-ships for lighting the approaches to Cocanada.

* Dated 26th February 1875.

I have, &c.,
SALISBURY.

His Excellency the Right Honorable
The Governor in Council, Fort St. George.

Copy of Report of Director-General of Stores, dated 26th February 1875.

WITH reference to Madras Public Works letter, No. 11, dated 6th March 1874, and to my report of the 21st April last, regarding the proposed light-house for Point Godavery near Cocanada, I annex, for transmission to India, copies of letters received from Messrs. Chance Brothers and Mr. Wells furnishing estimates of the cost of lanterns, light apparatus, and light-house.

2. From these papers it will be seen that the total cost of the light-house will be about £15,575-11-0, but this sum does not, it is understood, include the work required for fixing the lantern and light apparatus in their places, which is, it is presumed, to be done by the Madras Government.

3. I would suggest that the attention of the Government of Madras be drawn to the latter point, and that they be requested to state, in the event of deciding that a light-house is to be adopted in lieu of a light-ship, whether they approve of the plans and estimates submitted by Mr. Wells and Messrs. Chance Brothers.

4. In addition to the copies of letters above referred to, I annex the original plans submitted with Mr. Well's tender, which, if approved of by the Government, should be returned to this country.

(Signed) G. C. TALBOT,
Director-General of Stores.

From G. WELLS, Esq., to the Director-General of Stores, dated 12, North' Street, Westminster, 17th February 1875.

Cocanada Light-house.

I HAVE now the honor to send, herewith, drawings Nos. 7741*a* and 7745 of the proposed screw pile light-house at Cocanada; also specification of same.

My price for all the materials below the line E, F delivered F, O, B. in the Tyne, and erecting same at the site, will be £13,825-11-0.

If the materials are delivered alongside ship in the Thames 15 per ton extra.

My Superintendent, who tested the ground, states that screws 3 feet 6 inches diameter are of ample dimensions, and he recommends them to be screwed down to a depth of not less than 20 feet into the ground, the depth of water at low water being 18 feet at the site of the light-house.

The time required to complete the work will be two seasons, and my Superintendent informs me that the fine weather there is during the north-east monsoon.

That part of the light-house from the dwelling platform upwards is in every respect similar to that designed for the Oyster Reef, but the rest of the structure below the same is modified to suit the situation.

Trusting that my plans and estimate will be approved of, and apologizing for the delay in forwarding them which has arisen from forced absence from business, I have, &c.

Specification of a Screw Pile Light-house proposed to be erected at Cocanada in the Bay of Bengal as per Drawings Nos. 774a and 774b, dated the 17th day of February 1875.

General Description.—The light-house to be erected in a depth of water not exceeding 20 feet at low water and a rise of tide of 6 feet and from high water to focal plane of light 65 feet.

Foundation Piles.—The foundation piles, which are 13 in number, will extend about 5 feet above high water-mark to be solid wrought iron 6 inches in diameter firmly secured at the upper ends as shown in section on drawing No. 774*b*. Each foundation pile will be made in lengths coupled together with wrought iron couplings. At the end of each pile will be fitted a cast iron screw 3 feet 6 inches diameter, and screwed into the ground a depth of not less than 20 feet.

These piles, with the exception of the one directly under the lantern, will have a slope or batter as shown.

Main Piles.—The 13 main piles, or those above the line C, D drawing No. 774*a*, are also of solid wrought iron 6 inches diameter and secured to the foundation piles by wrought iron couplings.

The pile marked A extends to the interior of the lantern, and will be of sufficient length to carry the pedestal of the dioptric apparatus. The piles marked B, C, D, E, F, G pass through the columns of the dwelling and extend to the platform supporting the lantern. The piles H, I, J, K, L, M extend to the roof of the dwelling only. Collars to be welded upon the piles to support the caps carrying the girders of dwellings.

Horizontal Bracing.—The foundation piles at the upper-ends are braced as shown on drawing No. 774*b* by plan of horizontal bracing at C, D with tapered iron struts 4 inches diameter in the centre, and 2½ inches diameter at the ends.

The other horizontal braces between high water-mark and dwelling platform to be of T iron 4 inches by 4 inches by ½ inch.

Tie Rods.—The first tier of tie rods, or those below the line C, D drawing No. 774*a*, to be of solid wrought iron 2¼ inches diameter. The second tier, or those above the line C, D, to be of solid wrought iron 2 inches diameter.

The third tier, or those immediately below dwelling platform, to be 1⅞ inches diameter, and those above the dwelling 1½ inches diameter, each tie rod being provided with a screw coupling to lighten the whole structure.

Clasps, Bolts, and Nuts.—The clasps for connecting the horizontal bracing and tie rods to the piles to be wrought iron ⅞ inch and ⅝ inch thick and of various widths, and the bolts and nuts for same 1½ inches diameter.

Cast Iron Caps.—The cast iron caps carrying the girders for dwelling platform to fit closely to the piles and to rest on collars welded on same as before mentioned. The cast iron caps on tops of the piles B, C, D, E, F, G are to fit closely to same and made so as to receive the teak platform to carry the lantern and apparatus.

Dwelling Platform.—This platform is composed of built wrought iron plate girders 15 inches deep with top and bottom flanges. On top of these girders will be fixed slate slabs 1½ inches thick and bolted to the girders with counter sunk bolts. The slates to be jointed with white lead colored with lamp black to match the slates.

The slates to be rubbed smooth on the upper surface and sawn square at the joints.

Lantern Platform.—This platform is composed of teak timber bearers 12 inches by 12 inches and covered with teak planking 4 inches thick.

Dwellings.—The dwelling to be of the sizes and forms shown on drawings. The columns of cast iron fitting over the wrought iron piles, the frame-work to be of T and L iron firmly secured to the columns and other parts of the structure.

Proceedings of the Madras Government, Public Works Department,
30th April 1875.

The sides of the dwellings are to be covered with galvanized corrugated iron No. 18 Birmingham wire gauge, and the roof with wrought iron plates ⅛ths of an inch thick. The inside of the dwellings to be lined with wood, and the partitions covered with the same. This lining to be ⅝ inch teak planks tongued and grooved.

Tube and Spiral Stairs.—The tube is to be of ⅛ inch iron plates and firmly secured to the platform girders. The spiral stairs to be of cast iron (supported on the upright pile A before mentioned) and lead from the European's dwelling to the light-room.

Handrail.—A handrail of wrought and cast iron as shown to be fixed round the dwellings.

Life-boat Davits and small Davits.—Two wrought iron davits for supporting life-boat to be provided and fixed as shown. A small davit to be fixed near the natives' dwellings, capable of lifting 10 cwt.

Ladder.—A wrought iron ladder or steps to be provided and securely fastened to the outer piles as shown upon drawing.

Water Tanks.—Water tanks of wrought iron to hold 1,100 gallons of water to be provided and fixed with man-holes over flow pipes and gun-metal taps, one to be fixed in the centre of each cistern or tank for the purpose of emptying same. The water running off the lantern and dwelling to be conveyed to the tanks by means of guttering and tubes. A small expense tank to hold some 20 or 30 gallons of water to be provided. The plates in the tanks to be ¼ inch thick.

Oil Tanks.—Tinned iron oil tanks to hold 400 gallons of oil to be fixed in the store-room upon cast iron stands; each tank to be provided with gun-metal taps or copper drippers; also tap in the bottom of each tank to empty same.

Stove.—A cooking stove complete to be supplied and fixed. The stove to be of the description called "The Enchantress."

Quality of Materials.—The wrought iron to be of the best and toughest quality, and to bear a tensile strain of 20 tons per square inch of section.

The cast iron to be of the best tough grey metal of approved portions.

The slates for the floor to be of the best quality, of uniform color, and free from soft veins, hard places, or other defects.

The timber for the fittings to be well-seasoned teakwood entirely free from sap, shakes, large dead knots, or other defects.

The dwelling platform, dwellings, and all that portion above the dwelling platform to be fitted together before shipment and after approval to be distinctly marked.

The iron-work before leaving the works to be painted with two coats of red lead and boiled linseed oil, and after erection, where possible, with two coats of metallic oxide paint.

All the necessary bolts, screws, and other fastenings or materials required for the light-house below the line G, H to be provided, although not described in the specification, nor shown on the drawings.

General Clause.—All the material and workmanship to be of the best of its kind, to the satisfaction of the Engineer deputed to erect the work in this country. All matters which are not shown on the drawings, or described in this specification, to be made in accordance with the wishes of the Engineer above mentioned.

Duties, &c.—All materials, plant, &c., required, to be admitted free of all duties, charges, and imposts whatsoever.

Erection.—The site upon which the light-house is to be erected to be marked or buoyed immediately the contractor has given notice to the Engineer that he is ready to commence the erection.

Steam Boat and Lighters.—During the progress of the works, the Government to have a suitable steamer on the spot to render gratuitously all necessary assistance to the contractor in the conveyance of materials and labor required thereon from Cocanada to the site of the intended works, subject, however, to this condition that the Government shall not be liable or responsible for any loss or damage whatsoever which may be sustained or arise by reason or in consequence thereof, provided that ordinary care be used by the officer or officers in charge of any vessel which may be used or employed for that purpose.

And the Government shall provide to the Contractor free of cost, until the works shall be completed, store-room on shore at Cocanada for materials, instruments, and plant.

12, NORTH STREET, WESTMINSTER, (Signed) G. WELLS.
17*th February* 1875.

From Messrs. CHANCE BROTHERS & Co., dated 20th April 1874.

REFERRING to your letter of the 8th instant, we have now to state that the writer had an interview with Mr. George Wells on the 17th instant with regard to the proposed light for the port of Cocanada.

2. We have ascertained from Mr. Wells that a screw pile substructure is to be adopted of exactly the same dimensions and character as that adopted for the Oyster Reef Light-house, and that therefore a second order light and lantern will be required similar to the light and lantern supplied by us for Oyster Reef.

Estimate of cost is as follows :—

	£
Dioptric apparatus of 180° (three complete segments) with framework, table, balcony, and special column	543
Dioptric mirror for the back light of 180°, 3 panels with framework ..	180
Pressure lamp with improved burner for oil, 5 spare burners, duplicate piston, safety fountain and tubes, and accessories	88
Appurtenances as per list herewith	60
Lantern of our usual construction with diameter at base of 10 feet internal and 11 feet 6 inches external including flange, composed of a circular cast iron pedestal or blocking lined with pine wood, having one door with gun-metal fittings, improved ventilators, and iron steps with brass hand rails, and cast iron service galleries, standards of wrought iron with gun-metal facings, gun-metal cross bars, $\frac{3}{4}$th inch polished plate glass and spare panes, iron soleplates, gun-metal sills and handles, copper gutter and horizontal ladder rods, brass rain-pipes, cast iron rafters and connecting rings, double copper cupola with external ladder, revolving copper cowl with vane, holland blinds, copper wire rope for lightning conductor, &c., &c., and two extra water pipes	765
Hexagonal iron balustrade to suit the platform made by Mr. Wells as before	54
Packing of all, tin-lined cases for optical portion and lamps, and delivery F. O. B. in London	60
	1,750

3. We hardly deem it necessary to send you any drawing of the light and lantern, these being similar to the Oyster Reef, except with regard to the arc illuminated, but we can do so if it is particularly required.

4. We shall be glad to receive your early instructions to proceed with the work.

(Signed) J. KENWARD,
for CHANCE BROTHERS & Co.

List of Various Appurtenances supplied by Chance Brothers & Co. for the service of their Dioptric Sea Lights, the whole of the best design and material.

CHIMNEYS AND WICKS.

150 glass chimneys for large lamp.
50 „ „ for keeper's lamp.
44 yards of wicks of each size for large lamp.
1 gross of „ for keeper's lamp.
8 balls of „ for lighting lantern and common lantern.

TIN AND COPPER WORK.

1 oil filter with spare felt.
2 copper buckets.
1 tin wick box.
2 tin boxes for the whiting.
2 lamps for keeper's use.
1 common lantern and oil heater.
2 lighting lanterns with two "lucernes" each.
1 dripping pan for draining the burners.
1 copper pump for drawing oil.
1 set of oil measures.
2 small oil cans.

TOOLS, &c.

2 triangular scrapers.
14 files, assorted.
2 clock-maker's files (revolving lights).
2 wood chisels.
3 cold „
1 pair flat pincers.
1 „ of pincers for nails.
1 „ of cutting pincers.
1 „ of snipping „
1 spanner.
1 hand vice.
1 bench „
1 large hammer.
2 small hammers.
3 screw drivers, assorted.
1 drill bow, holder, drills, brestplate, and catgut.
1 plumb-bob.
16 tool handles.
50 sheets of emery cloth.
1 metal saw with four spare blades.
6 gimlets.
1 soldering iron.
2 pairs of straight scissors.
4 „ of curved „
2 long spirit levels.
1 wood rule (French and English measure).
1 double decimètre.
1 thermometer.
2 pairs of blue spectacles.
1 cutting diamond.
2 glazier's knives.
1 hone.
1 pair of chimney tongs.
1 telescope (large, improved, day and night).

BRUSHES, &c.

2 large plume brushes.
2 small „ „
6 clock-maker's brushes (revolving lights).

1 wolf's head brush.
2 long brooms.
4 hand brushes.
8 paint „
12 glass chimney brushes.
4 brushes for cleaning large lamp.
4 sponges.
3 chamois skins.
1 cover for apparatus.
12 glass cloths.

OILS, PAINTS, &c.

2 quarts spirits of wine.
2 „ turpentine.
2 „ linseed oil.
2 „ boiled oil.
6 bottles clock-maker's oil (revolving lights).
10 lbs. whiting.
20 lbs. white lead.
10 lbs. red „
10 lbs. green paste.
1 service box.
1 tool chest, specially made.
1 ladder.
1 pair of steps.

N.B.—Certain special accessories for the service and repair of the large lamp are not included in the above list, being charged with the lamp.

Light-house Department, Glass Works, near Birmingham, 1873.

No. 709. ORDER THEREON, 30th April 1875, No. 1,197.

CIVIL WORKS, No. 43.

ORDERED that the following letter be sent:—

(Here enter No. 1,198, dated 30th April 1875.)

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

Exd. W. J. Lewis.

Spare Copies

PUBLIC WORKS DEPARTMENT,
FORT ST. GEORGE, 30*th April* 1875.

No. 710.

No. 1,198.

FROM

COLONEL G. W. WALKER, R.E.,
Secretary to the Government of Madras,
Public Works Department,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
Public Works Department.

CIVIL WORKS, No. 44.

SIR,—I am directed by His Excellency the Governor in Council to forward for the information and orders of the Government of India, copy of a despatch* from the Secretary of State enclosing letters from Messrs. Chance Brothers and Mr. Wells, with plans and an estimate of the cost of the proposed light-house at Point Godavery. And I am to invite the attention of the Government of India to the correspondence which has already passed in connection with this work.

* No. 4, dated 18th March 1875.

2. In my letter of the 23rd April 1873, No. 1,175, I was instructed to submit, for the consideration of the Government of India, the claims of this, with other works of a similar character, for a special grant from Imperial Revenues. In reply,† the Government of India, intimated their willingness to grant some assistance for the purpose, either in the shape of a contribution from the Imperial Revenues, or by a loan on approved security. The Government of India were subsequently acquainted‡ with the further proceedings taken in connection with the work, and a copy of Colonel Fraser's report and of the result of the preliminary borings made by Mr. Wells' Agent in order to test the nature of the bottom were duly furnished for their information.

† Letter No. 374-AB, dated 11th October 1873, paragraph 3.

‡ Letter No. 571, dated 5th Mar. 1874.
„ „ 2,171, „ 7th Aug. „
„ „ 489, „ 19th Feb. 1875.

3. The plans for the work have now been prepared, and its cost estimated; and in again bringing the subject under the consideration of the Government of India, I am to repeat that the resources of the Madras Government are wholly inadequate to meet charges of this character, and to request that the Government of India may be moved to make a special assignment for the execution of the work.

I have the honor to be,
Sir,
Your most obedient servant,

Colonel, R.E.,
Secretary to Government.

Exd. W. J. Lewis.

Spare Copies

Copy of Report of Director General of Stores
dated 26th February 1875

With reference to Madras Public Works Letter No 11 dated 6th March 1874, and to my report of the 21st April last, regarding the proposed Light-house for Point Godavery near Cocanada, I annex for transmission to India copies of Letters received from Messrs Chance Bros. and Mr Wells furnishing estimates of the cost of Lanterns, Light-Apparatus and Light-house.-

From these Papers it will be seen that the total cost of the Light-house will be about £15,575-11-0, but this sum does not it is understood include the work required for fixing the Lantern and Light-apparatus in their places which is, it is presumed, to be done by the Madras Government.

I would suggest that the attention of the Government of Madras be drawn to the latter point, and that they be requested to state, in the event of deciding that

that a Light-house is to be adopted in lieu of a Light ship whether they approve of the plans and estimates submitted by Mr. Wells and Messrs Chance Bros.

In addition to the Copies of Letters above referred to I annex the original Plans submitted with Mr. Wells' tender which if approved of by the Government should be returned to this Country.

(Signd) G. C. Talbot

Director General of Stores

12 North Street
Westminster
17 Feby 1875

To the Director General
of Stores

Coconada Lighthouse

Sir,

I have now the honour to send herewith Drawings Nos 774a and 774b of the proposed Screw-pile Lighthouse at Coconada, also specification of same.

My price for all the materials below the Line E.F. delivered f.o.b. in the Tyne, and erecting same at the site will be £13,825. 11. 0.

If the materials are delivered alongside ship in the Thames 15/ per ton extra.

My superintendent who tested the ground states that

Screws

screws 3 ft. 6 in. diameter are of ample dimensions and he recommends them to be screwed down to a depth of not less than 20 feet into the ground, the depth of water at low-water being 18 feet at the site of the Lighthouse.

The time required to complete the work will be two seasons and my superintendent informs me that the fine weather there is during the N. E. Monsoon.

That part of the Lighthouse from the dwelling platform upwards is in every respect similar to that designed for the Oyster Reef but the rest of the structure below the same is modified to suit the situation.

Trusting that my plans and estimate will be approved of, and apologizing for the delay in forwarding them which has arisen from forced absence from business.

I have the honour to remain,

Sir,

Your most obedient servant,

(Sd) George Wells.

India Office

Westminster.

Specification of a Screw Pile Lighthouse proposed to be erected at Coconada in the Bay of Bengal as per Drawings Nos. 774a and 774b; dated the 17th day of February 1875.

General Description The Lighthouse to be erected in a depth of Water not exceeding 20 feet at low water and a rise of tide of 6 feet and from High water to focal plane of light 65 feet.

Foundation Piles. The Foundation Piles which are 13 in number will extend about 5 feet above high water mark to be solid Wrought Iron 6 inches in Diameter firmly secured at the upper ends as shown in Section on drawing No. 774b. Each Foundation Pile will be made in lengths coupled together with Wrought Iron Couplings. At the end of each Pile will be fitted a cast Iron Screw 3 feet 6 inches diameter and screwed into the ground a depth of not less than 20 feet

These piles with the exception of the one directly under the Lantern will have a slope or batter as shown.

Main Piles The 13 Main Piles or those above the line CD drawing No 774a are also of solid Wrought Iron 6 inches

diameter

diameter and secured to the Foundation Piles by Wrought Iron Couplings.

The pile marked A extends to the interior of the Lantern and will be of sufficient length to carry the pedestal of the Dioptic Apparatus. The piles marked B.C.D.E.F.G pass through the columns of the Dwelling and extend to the platform supporting the Lantern. The piles H.I.J.K.L.M extend to the roof of the Dwelling only. Collars to be welded upon the piles to support the Caps carrying the Girders of Dwellings.

Horizontal Bracing

The Foundation Piles at the upper ends are braced as shown on Drawing No. 774 by plan of Horizontal Bracing at C.D. with tapered Iron Struts 4" diameter in the centre and 2½" diameter at the ends.

The other Horizontal Braces between High Water mark and Dwelling platform to be of T Iron 4" x 4" x ½"

Tie Rods.

The first tier of Tie Rods or those below the line CD drawing No. 774 to be of solid Wrought Iron 2¼" diameter. The second tier or those above the line CD. to be of solid Wrought Iron 2" diameter.

The third tier or those immediately

immediately below Dwelling platfourm to be 1¼" diameter and those above the Dwelling 1½" diameter, each Tie Rod being provided with a Screw Coupling to tighten the whole structure.

Clasps Bolts & Nuts. The Clasps for connecting the Horizontal Bracing and Tie Rods to the Piles to be Wrought Iron 7/8" and ¾" thick and of various Widths and the bolts and nuts for same 1½ inches diameter.

Cast Iron Caps. The Cast Iron Caps carrying the Girders for Dwelling platform to fit closely to the piles and to rest on Collars welded on same as before mentioned. The Cast iron caps on tops of the Piles B.C.D.E.F.G are to fit closely to same and made so as to receive the teak platform to carry the Lantern and apparatus.

Dwelling platform This platform is composed of built Wrought Iron plate Girders 15" deep with top and bottom flanges. On top of these Girders will be fixed slate slabs 1½" thick and bolted to the Girders with counter sunk bolts. The slates to be jointed with white lead coloured with Lamp Black to match the slates.

The

The slates to be rubbed smooth on the upper surface and sawn square at the joints.

Lantern platform. This platform is composed of Teak Timber bearers 12" by 12" and covered with Teak planking 4 inches thick.

Dwellings. The Dwellings to be of the sizes and forms shown on drawings. The columns of cast iron fitting over the wrought iron piles — the frame work to be of T and L iron firmly secured to the columns and other parts of the structure.

The sides of the Dwellings are to be covered with galvanized corrugated iron No. 18 Birmingham Wire Gauge and the roof with wrought iron plates 3/16ths of an inch thick. The inside of the Dwellings to be lined with wood and the partitions covered with the same. This lining to be 5/8" Teak planks tongued and grooved.

Tube & Spiral Stairs. The Tube is to be of 5/16" iron plates and firmly secured to the platform girders. The spiral stairs to be of cast iron (supported on the upright pile A before mentioned) and lead from the European's

dwelling

dwelling to the Lightroom.

Handrail. A Handrail of Wrought and Cast Iron as shown to be fixed round the dwellings.

Life Boat Davits and small davits. Two Wrought Iron davits for supporting Life Boat to be provided and fixed as shown. A small davit to be fixed near the natives' dwelling capable of lifting 10cwt.

Ladder. A wrought iron ladder or steps to be provided and securely fastened to the outer piles as shown upon drawing.

Water Tanks. Water Tanks of wrought iron to hold 1100 Gallons of water to be provided and fixed with manholes over flow pipes and gun metal taps one to be fixed in the centre of each cistern or tank for the purpose of emptying same. The water running off the lantern and dwelling to be conveyed to the tanks by means of guttering and tubes. A small expense tank to hold some 20 or 30 gallons of water to be provided. The plates in the tanks to be ¼" thick.

Oil Tanks. Tinned Iron Oil Tanks to hold 400 Gallons of oil to be fixed in

in the Store room upon Cast iron stands — each tank to be provided with gun metal taps or copper drippers, also tap in the bottom of each tank to empty same.

Stove. A cooking Stove complete to be supplied and fixed. The Stove to be of the description called "The Enchantress".

Quality of Materials. The Wrought Iron to be of the best and toughest quality and to bear a tensile strain of 20 tons per square inch of Section.

The Cast iron to be of the best tough grey metal of approved portions.

The slates for the floor to be of the best quality, of uniform colour, and free from soft veins, hard places or other defects.

The timber for the fittings to be well seasoned teak wood entirely free from sap, shakes, large dead knots, or other defects.

The dwelling platform, dwellings, and all that portion above the dwelling platform to be fitted together before shipment and after approval to be distinctly marked.

The iron work before

leaving

leaving the works to be painted with two coats of red lead and boiled linseed oil, and after erecting where possible, with two coats of metallic oxide paint.

All the necessary bolts, screws and other fastenings or materials required for the Lighthouse below the line GH to be provided although not described in the specification nor shown on the drawings.

General Clause. All the material and workmanship to be of the best of its kind, to the satisfaction of the Engineer deputed to erect the work in this country. All matters which are not shown on the drawings or described in this specification to be made in accordance with the wishes of the Engineer above mentioned.

Duties; etc. All materials, plant, etc., required, to be admitted free of all duties, charges, and imposts whatsoever.

Erection. The site upon which the Lighthouse is to be erected to be marked or buoyed immediately the Contractor has given notice to the Engineer that he is ready to

Commence

commence the erection.

Steam Boat and Lighters.

During the progress of the works the Government to have a suitable steamer on the spot to render gratuitously all necessary assistance to the Contractor in the conveyance of materials and labour required thereon from Coconada to the site of the intended works, subject however to this condition, that the Government shall not be liable or responsible for any loss or damage whatsoever which may be sustained or arise by reason or in consequence thereof, provided that ordinary care be used by the officer or officers in charge of any vessel which may be used or employed for that purpose.

And the Government shall provide to the Contractor free of cost until the works shall be completed Store room on shore at Coconada for materials, instruments and plant.

(Sd) George Wells,
12 North Street,
Westminster.

17th February 1875.

x.d
WHB

20th. April 1874.

Sir,

Referring to your letter of the 8th. instant we have now to state that the writer had an interview with Mr. George Wells on the 17th. instant with regard to the proposed Light for the Port of Coconada.

We have ascertained from Mr Wells that a screwpile substructure is to be adopted of exactly the same dimensions and character as that adopted for the Oyster Reef Lighthouse and that therefore a second Order Light and Lantern will be required similar to the Light and Lantern supplied by us for Oyster

Dipter Reef.

Estimate of cost is as follows:-

	£
Dioptric apparatus of 180° (three complete segments) with framework, table, balcony, and special column	543
Dioptric Mirror for the back light of 180°. 3 panels with framework	180.
Pressure Lamp with improved burner for oil, 5 spare burners, duplicate piston, safety fountain and tubes, and accessories	88
Appurtenances as per list herewith	60.
Lantern of our usual construction with diameter at base of 10 feet internal, and 11'6" external including flange, composed of a circular cast iron pedestal or blocking, lined with pinewood, having one door with gun-metal fittings, improved ventilators,	

Carry forward £ 871

Brt forward 871

and iron steps with brass hand rails, and cast iron service galleries; standards of wrought iron with gun-metal facings, gun-metal cross-bars, 3/8" polished plate glass and spare panes, iron soleplates, gun-metal sills and handles, copper gutter and horizontal ladder-rods, brass rainpipes, cast iron rafters and connecting rings, double copper cupola with external ladder, revolving copper cowl with vane; holland blinds, copper wire rope for lightning conductor etc, etc, and two extra water pipes. 765

Hexagonal iron balustrade to suit the platform made by Mr. Wells as before 54

Packing

£ 1690 Carry forward.

Brt. forward.
£1690.

Packing of all tin lined cases for optical portion and Lamps, and delivery F.O.B. in London ... 60

1750

We hardly deem it necessary to send you any drawing of the Light and Lantern, these being similar to the Oyster Reef except with regard to the arc illuminated, but we can do so if it is particularly required.

We shall be glad to receive your early instructions to proceed with the work.

H.A. No 4 of 1875 No 2

We are,

Sir,

Your obedient Servants,

for Chance Bros. & Co.

(Sd). J. Kenward.

3rd Watch

354

List of Various Apparatus supplied by Chance Bros. and Co.

For the Service of their Dioptric Sea Lights.

The whole of the best design & material.

Chimneys and Wicks.

Glass Chimneys for large lamps.
Ditto for keepers lamps
Yards of wicks of each size for large lamps
Inches of wicks for keepers lamp.
Balls of wicks for lighting lantern and corridor lantern.

Tin and Copper Work.

Oil filter, with spare felt
Copper bucket to pump to
Tin wick box to ditto
Tin boxes for the whiting grind
Lamps for keepers use
Corridor lantern and oil heater.
Lighting-lanterns with "two lucernes" each
Dripping pan for draining the burners.
Copper pumps for drawing oil.
Set of oil measures
Small oil cans

Tools, etc.

Triangular Scrapers
Files, assorted.
Clockmaker's files (Revolving Lights)

2 Woodstchisels.
3 Cold chisels.
2 Pairs flat pincers.
1 Pair of pincers for nails.
1 Pair of cutting pincers.
1 Pair of snipping pincers.
1 Hand vice.

1 Large hammer.
2 Small hammers.
1 Set of twelve dotters.
1 Drill bow, holder, drill bread plate, and
16 Tool handles.
50 Sheets of emery cloth.
1 Metal rule, with four spare blades
6 Pin plates.
1 Soldering iron.
2 Pairs of straight scissors.
4 Pairs of curved scissors.
2 Long spirit levels.
1 Wood rule. (French & English measure)
1 Double decimetral rule.
1 Decimetral dividing
2 Pairs of blue spectacles.
1 Cutting diamonds.
2 Glazier's knives.
1 Hone.
1 Pair of chimney tongs.
1 Telescope (large improved day & night)

Brushes, etc.

2 Large plume brushes.
2 Small plume brushes.
6 Clockmaker's brushes (Revolving light
1 Wolf's head brush.
2 Long brooms.
4 Hand brushes.
8 Paint brushes.
12 Glass chimney brushes.
4 Brushes for cleaning large lamp.
4 Sponges.
3 Chamois skins.
1 Cover for apparatus.
12 Glass cloths.

Oils, Paints, etc.

2 Quarts spirits of wine.
2 Quarts turpentine
2 Quarts linseed oil.
2 Quarts boiled oil.
6 Bottles clockmaker's oil (Revolving light
10lbs. Whiting.
20lbs. White lead.
10lbs. Red lead.
10lbs. Green paste.

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1 Service box.
1 Tool chest, specially made.
1 Ladder.
1 Pair of steps.

N.B. Certain special accessories for the service and repair of the Large Lamp are not included in the above List, being charged with the lamp.

Lighthouse Department,
Glass Works, near Birmingham.
1873.

Public Works.
No. 4.

India Office, London.
18th March 1875.

My Lord,

1. In continuation of my Despatch, No. 9. dated 18th June last, regarding the proposed Light-house for Point Godavery, I enclose for the information and opinion of your Government copies of Letters received from Messrs Chance Bros: and Mr Wells furnishing estimates of the cost of the Work. The Plans submitted by Mr Wells are forwarded in original.

2. I also enclose a copy of a report* by the Director General

*dated 24th February 1875

His Excellency,
The Right Honorable,
The Governor in Council
Fort St George

General of Stores, and I request attention to his suggestions, should your Government decide to erect a Light-house in lieu of employing Light-ships, for lighting the approaches to Cocanada.

I have the honor to be,

My Lord,

Your Lordship's most obedient humble Servant.

Salisbury

Letter to the Most Honble the Marquis of Salisbury Secy of State for India dy 24 Feby/75 &c.

L O 19th Feby/75 No 501
" 19th do / " " 497-500
" 9th Oct / 74 " 2668-2667
" 10th Septr / " " 2276-2270
" 7th Augt / " " 147
" 7th do / " " 145-146 A
" 5th May / " " 116-117
" 16th Septr / " " 106

Letter to the Right Honble the Secy of State for India dy 6th March/74 No 11.

L O 5th Mar / 74 No 103
" 5th do / " " 102
" 5th do / " " 569
" 23d Apl / 73 " 397
" 23d do / " " 394-396
" 31st Mar / " " 732
" 31st do / " " 730-731
" 12th Augt / 72 " 206-206
" 3d July / " " 68
" 3d do / " " 66-67

No 3.

Public Works
18th March 1875
No 14 of 1875

To
Letter to Fort St George
No 4

E: 7.5-0

Forwarding copies of letters from Messrs Chance Bros: & Wells, for erecting Estimates for a Light: house at Point Godavery —

G.O. No 1197-98 dy 30-4-75

Port Works Dept.

Proceedings of the Madras Government

Read the following:

Despatch from the Secretary of State for India No 4 dated 18th March 1875.

G.O No: 1197 of 30th April 1875.

Ordered that the following letter be sent.

H.S. No 1198 / 30 April

To

The Secretary to the Government of India

Public Department

Sir,

I am directed by His Excellency the Governor in Council to forward for the information and orders of the Government of India copy of a Despatch from the Secretary of State inclosing letters from Messrs Chance Bros: and

Mr.

26/4

+ No 4 of 18th March 1875

Mr Wells, with plans and an Estimate of the cost of the proposed Light House at Point Pedaveny. And I am to invite the attention of the Government of India to the correspondence which has already passed in connection with this work.

In my letter of the 23rd April 1873 No 1176 I was instructed to submit for the consideration of the Government of India the claims of this, with other works of a similar character, for a special grant from Imperial Revenues. In reply* the Government of India intimated their willingness to grant some assistance for the purpose, either in the shape of a Contribution from

*Letter No 374 A B dy 11th Aug 1873 para 3

Ltr No 571 dy 5th Mar 1874
" " 2171 " 7th August "
" " 489 " 19th Feby 1875

from the Imperial Revenues, or by a loan on approved security. The Government of India were subsequently accompanied with the further proceedings taken in connection with the work, and a copy of Colonel Fraser's report and of the result of the preliminary borings made by Mr Wells' Agent in order to test the nature of the bottom were duly furnished for their information.

The plans for the work have now been prepared, and its cost estimated; and in again bringing the subject under the consideration of the Govt: of India I am to repeat that the resources of the Madras Govt:

are

are severally inadequate to
meet charges of this character
and to request that the Cost
of Suits may be moved to
make a special assignment
for the Execution of the work.

Gmw.

Recd 10-5-75 with 2 plans

31 Copies of Ord 1197 of 1875

Despt. No. 6.

Govt. of [1875] Madras.

PUBLIC WORKS.

20

Dated Weekly Abstract to the Govt of India

Rec'd. 30. 4. 75 Encl.

G. O. 30 April 1875. No. 1127
1128

No. 708-709
710

Forwarding to the Government of India for orders, the Despatch of the Home Government forwarding copies of letters from Messrs: Chance Bros: and Mr. Wells furnishing estimates for a Light-house at Point-Godavery.

Light-house at Point Godavery.

Copy of Despatch from the Home Government forwarding copies of letters from Messrs: Chance Bros: and Mr. Wells furnishing estimates for a _____; ordered to be forwarded to the Government of India, with the request that a special assignment may be made for the execution of the work.

623-4-76