

Public Works (1899) Department.

G.O., No.

2218 W

DATED 18 August 1899.

[Despatch Abstract.]

Water-Supply and Drainage Schemes

Proo. Loc. & mun. depts. stating that Govt sees
no reason to reconsider the orders already
issued in a previous order in the matter of the
execution of — in municipalities & laying
down certain rules to be observed in the preparation
of plans & estimates for such works, commd to
the officers of the P.W.D.

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

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GOVERNMENT OF MADRAS.

LOCAL AND MUNICIPAL DEPARTMENT.

READ—the following papers :—

From J. A. JONES, Esq., M.I.C.E., F.R.S.E., Sanitary Engineer to Government, to the Secretary to Government, Local and Municipal Department, dated Fort St. George, 26th April 1898, No. 857.

As the result of a consultation with the Chief Engineer, Public Works Department, I have the honour to invite the attention of Government to the present method of carrying out water and drainage schemes designed by this department in Municipalities, &c.; my views are, I believe, concurred in by the Chief Engineer as are also the proposals in regard to Assistant Engineers.

G.O., No. 2073 M., of 9th December 1895.
G.O., No. 847 M., of 15th May 1896.

2. The papers marginally-noted show exactly why the change from the former system, viz., this department executing the works it designs, was effected.

3. The change, it was not denied by Government, was one which could not be defended except on financial grounds. That the change has effected any economy cannot, I think, be upheld in any respect. It was thought that a Divisional Executive Engineer would be able to undertake the supervision of the construction of any of an Assistant Engineer and staff would be saved. This, I believe, has not been so; has been undertaken a special Engineer as a water-supply or drainage scheme have due supervision. Financially, therefore in this respect the change in system has produced no economy. It is true Government are not charging for the supervision, but that is merely a transfer of the charge and not a saving in any way.

4. Another objection to the change which may be pointed out is that the transfers of the Public Works Department officers are constantly taking place and that already there have been two officers at Tirupati and Vizagapatam, respectively, and I am not sure whether I might not also add Cocanada; works suffer a good deal owing to such changes.

5. Again, there has been great delay in execution, because (1) as I pointed out in my original objections, the first idea of any officer receiving a scheme (drawn up by somebody else) for execution is to amend it with the idea of improvement and nada schemes were sanctioned on 11th January, 16th January and 3rd February 1897, respectively; and (2) if any iron work has been ordered it has been so only within the last few months by indent on the Secretary of State. I venture to say that if the work had been in the hands of this department, the pipes and other iron work would have been on the ground.

6. Another loss financially is due to the fact that all stores must come through the India Stores Department. This means taking delivery at ports far distant from

the work site with all the risks of transshipment and breakage; whereas with this department the materials are received only on the spot, when only sound pipes and materials are accepted, the materials until then being at the contractor's risk.

7. I venture to point out that not only is this so, but that the cost of the schemes must thus be very materially increased above the amount of the estimates framed by this department in which I venture to think that economy has been practised seeing the balances we have had remaining at Conjeeveram, Tanjore, Kurnool (even after a reduction in the revised estimate), while several other schemes have been executed at amounts hardly exceeding the original estimates.

8. If then there is no saving financially, if execution is delayed and if supervision is unsatisfactory (owing to necessary changes of officers in charge), I venture to submit that the present system should be discontinued and the former reverted to.

9. Apart from all this, the present position of the Sanitary Engineer is anomalous. He designs works which are passed or otherwise by the Chief Engineer, Public Works Department (as a member of the Sanitary Board), but the schemes are then open to criticism and change by the Superintending Engineer, the Executive Engineer, &c., and the Sanitary Engineer has no voice in the matter, nor has he the opportunity of inspecting the works for the design of which he is responsible and in the execution of which he should certainly have some control.

10. I believe the Chief Engineer concurs with me in thinking that either the old system should be resumed or that the Sanitary Engineer should be attached to the Public Works Department, where as a Superintending Engineer he could have the chance of seeing his designs fairly dealt with in execution. This latter proposal would have the advantage of facilitating the appointment of a *locum tenens* when the Sanitary Engineer goes on leave.

11. On many grounds some change is very desirable, for it has been necessary to send to this office to have the indents for materials for the schemes prepared for the India Office even after all the specifications and schedules had been issued for guidance, showing that some special knowledge is necessary for the execution of water and drainage works which all Public Works officers have not the opportunity to obtain.

12. I trust therefore that this matter may be again brought before His Excellency the Governor and that the result will be that the Sanitary Engineer to Government will be again in charge of, or at least in touch with, all the sanitary works being executed in this Presidency.

13. The arguments I adduced against the change are fully given in the Government Orders already quoted and as the only ground on which the change was upheld, viz., the financial one, has, I think, proved to be a fallacy, I trust that Government may again place me in that position to which my appointment as Sanitary Engineer to Government would naturally seem to entitle me.

14. Should Government be pleased to accept these proposals, I believe no difficulty would now be found in placing the services of Assistant Engineers, Public Works Department, as required up to a limit of three at my disposal (their pay being borne by Government as at present arranged), and I therefore request that with this exception the arrangements in force prior to the issue of G.O., No. 2073 M., of 9th December 1895 (1st paragraph), may be reverted to (except in regard to works at present under execution by Public Works Department, which, however, the Sanitary Engineer should be allowed to inspect and advise on during progress, when desirable).

Endt. No. 696.

Referred to the Chief Engineer, Public Works Department, for remarks.

(Signed) H. TREMENEERE,
Ag. Secretary to Government.

11th June 1898.

Note by the Chief Engineer, Public Works Department, No. 705 D., dated 23rd July 1898.

These papers were, for some unaccountable reason, mislaid in the office, and came before me for the first time on 8th instant.

2. I may say at once that I fully agree with the Sanitary Engineer that the procedure ordered in G.O., No. 2073 M., dated 9th December 1895, has not proved satisfactory in practice, and that a change of some kind is very desirable.

3. This procedure was that the investigation of water-supply, drainage, &c., projects and the preparation of the plans and estimates should be in the hands of the Sanitary Engineer, while the construction thereof should be entrusted to the Public Works Department.

4. The procedure is proving unsatisfactory for the following reasons:—

(1) The fact that works designed by one independent authority are carried out by another has led to amendment, revision and consequent delay.

(2) The work is of such a special character and requires such close supervision that it has been found necessary to put an Assistant Engineer in charge of each of the three works now in progress. These assistants are much needed for other works, the number of Assistant Engineers in the department being already inadequate for the work to be done. Their employment on this special duty is therefore a distinct loss to the department and the State.

(3) The necessity for sending indents for pipes, &c., to the Store Department of the India Office means great delay, and additional expense and as a matter of fact the indents for the Cocanada and Vizagapatam water-works have not yet gone to England, and that for Tirupati has only lately been sent. This is partly due to the inexperience of officers of the department in such a special branch of the profession, and partly to the fact that, in the case of Vizagapatam particularly, the details of the pipes have required much revision.

It would be more economical and save much delay to allow the Sanitary Engineer to get his pipes, &c., from Home direct as formerly.

(4) Whether from faulty preparation in the Sanitary Engineer's office, or from the inexperience of our officers in execution, the estimates in the case of Vizagapatam and Cocanada and possibly also in that of Tirupati will show considerable excesses. In the former case, I believe the fault certainly lies on the Sanitary Engineer's office, but when work is designed by an officer entirely independent of the Public Works Department and unavoidably ignorant of Public Works Department methods, it is difficult to fix responsibility or avoid errors.

(5) The position of the Sanitary Engineer is undoubtedly under the present system most anomalous, and the dual control now existing is inimical to both efficiency and economy.

5. As a remedy for this state of things, I have thought for some years that the Sanitary Engineering Department should be placed entirely under the control of the Public Works Department, the Sanitary Engineer being given the rank of a Superintending Engineer and it was with this idea in my head that I proposed to the Sanitary Engineer that the Assistant Engineers of the Public Works Department engaged on water-works should be placed under his immediate orders so that he would have control not only of the preparation, but also of the execution, of sanitary works. I have now changed this view for the following reasons:—

(1) We cannot spare Assistant Engineers from the Public Works Department, our number of that rank being too short already, the result being that most subdivisions are in charge of upper subordinates, a most undesirable state of things.

(2) The work is so special and technical that during the time an Assistant Engineer is engaged upon it, he is practically learning nothing of the regular duties of the department, and when the time came for him to revert to those duties he would have no experience of the duties of a sub-division or of a divisional officer.

(3) On the other hand, just when an Assistant Engineer has learnt the special duties of a water-works Engineer thoroughly, he would have to revert to the Public Works Department if he is not to remain an Assistant Engineer for good and all, and the Sanitary Engineer would have to take on a new and inexperienced hand, and begin his instruction all over again.

(4) Water-works engineering is such a special branch that if the experience gained on one work is to be utilised on the next, there should be a separate staff continuously devoted to it, and liable to transfer to no other work.

6. I therefore firmly believe that, in the interests of economy and efficiency, and of the important sanitary works themselves, the time has come for Government to organise an entirely distinct Sanitary Works Department. It need not be a large one. I take it that the funds available will not admit of more than three works being under construction at one time and if each work takes an average of two years to complete, it will suffice to keep investigation ahead of execution if two new works are investigated annually. To carry out a programme of this kind, and to inspect existing sanitary works, I think some such staff as that indicated below would suffice:—

	Pay.	Rising by triennial increments of
		RS.
1 Sanitary Engineer	Rs. 1,000 to 1,350	50
1 Deputy Sanitary Engineer	500 to 850	50
3 Assistant Engineers	250 to 500	20 for approved service.
6 Upper Subordinates	60 to 200	

7. The duties of the above staff would be as follow:—

Sanitary Engineer.—(1) The inception of all projects, and settlement of the general lines on which they are to be carried out.

(2) The superintendence of all works under construction, with frequent inspection thereof.

Deputy Sanitary Engineer.—(1) The working out of details of all projects and the preparation of plans and estimates therefor, under the general supervision of the Sanitary Engineer.

(2) The annual inspection of all completed works and report to Government on their condition—vide G.O., No. 847 M., dated 15th May 1896.

Assistant Engineers.—Immediate charge of construction of works.

Upper Subordinates.—Three on construction under the Assistant Engineers. Two on investigation, one supernumerary for special work, or to occupy leave vacancies.

It is specially necessary to have upper subordinates who are skilled in pipe laying and jointing and the many other special requirements of water and drainage works. By the above scheme it will, it is thought, be possible to obtain these, and keep them by raising their pay as they learn experience. No men worth having will stay in a service in which they have no prospects.

The average monthly cost of the above establishment, taking a mean between the maximum and minimum pay, would be Rs. 3,755 or Rs. 45,060 per annum, say 10 per cent. on the expenditure. There would also, of course, have to be a clerical establishment, and travelling allowances, but the total percentage on expenditure would certainly not come to the 23½ per cent. charged for Public Works Department establishment, and I think the Sanitary Engineering Department would be decidedly more efficient, and the works they construct more likely to be well designed and executed for the sole reason that thoroughly experienced men would be engaged upon them.

8. I wish to lay special stress on the necessity for dividing the duties of the Sanitary Engineer and his Deputy, as I understand that these two officers often now go over the same ground and that there is consequently waste of time and insufficient inspection of works in progress and completed.

No. 1012 M., 17TH JULY 1899.

9. With regard to the latter works I attach great importance to the thorough and careful annual inspection thereof by the Deputy Sanitary Engineer. To this end I attach a form of report which I think embodies most of the points needing investigation, and I should be glad to see it or something like it submitted annually to Government through the Sanitary Board for each completed work.

(Signed) W. B. DEWINTON,
Chief Engineer.

No. 706 D.

Transferred to the Local and Municipal Department with reference to the endorsement in that department, No. 696, dated 11th June 1898.

23rd July 1898.

(Signed) W. B. DEWINTON,
Secretary to Government, P.W.D.

ORDER—No. 1012 M., dated 17th July 1899.

In its Proceedings, No. 2073 M., dated 9th December 1895, the Government directed that the work of the Sanitary Engineer should be confined to investigating water-supply, drainage, &c., projects, and that the construction of the works and obtaining the required plant should be entrusted to the Public Works Department. The Sanitary Engineer having then requested a reconsideration of that order, the Government in its Proceedings, No. 847 M., dated 15th May 1896, declined to do so and ordered that the scheme inaugurated in G.O., No. 2073 M., dated 9th December 1895, should be adhered to until it should prove to be inadequate.

2. In the first of the letters read above, the Sanitary Engineer again asks for a reconsideration of G.O., No. 2073 M., dated 9th December 1895, and states that the system of carrying out water-supply and drainage schemes thereby introduced should be discontinued chiefly on the following grounds:—

- (1) that there has been no saving financially;
- (2) that the works suffer a great deal owing to frequent transfers of the officers of the Public Works Department;
- (3) that the execution of the works is greatly delayed owing to alterations made in the schemes by the officers carrying out the works;
- (4) that much loss is caused by the stores being obtained through the Stores Department of the India Office; and
- (5) that his position is anomalous as the designs for works are passed by the Chief Engineer, Public Works Department, as a member of the Sanitary Board, but are open to criticism and alteration by the Superintending Engineer or the Executive Engineer, in regard to which he (Sanitary Engineer) has no voice.

3. The Chief Engineer, who was consulted in the matter, agrees with the Sanitary Engineer in considering that the procedure prescribed in G.O., No. 2073 M., dated 9th December 1895, has not worked satisfactorily and points out that as the number of Assistant Engineers in the department is already inadequate, their employment on these works is a distinct loss to the department and to the State. He therefore suggests the organization of a separate Sanitary Works Department consisting of the Sanitary Engineer, one Deputy and three Assistant Sanitary Engineers and six Upper Subordinates, who will not only design, but also carry out, sanitary projects. The Chief Engineer also recommends that the Sanitary Engineer may be allowed to obtain stores from England direct instead of by the Public Works Department through the India Office.

4. The Government does not consider that valid grounds have been shown for a reconsideration of G.O., No. 2073 M., dated 9th December 1895. The scheme thereby inaugurated might, in the opinion of Government, have been worked with greater efficiency, and many of the difficulties in the way of its adoption complained of by the

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Sanitary Engineer appear to be within the power of the Chief Engineer to obviate. Nor can the proposal of the Chief Engineer to organize a separate Sanitary Works Department permanently be entertained in the existing state of Provincial finances, as the execution of water-supply and drainage works depends for the most part on such grants as Government may annually find itself in a position to give. Further, such a measure would be inadvisable, as it would free the Sanitary Engineer from the professional criticism which his projects are now subjected to and which the Government considers to be in the highest degree necessary. In order, however, to prevent the delay in the execution of the works caused by the subsequent amendments of the estimates by the officers of the Public Works Department, the Government directs that, whenever the preparation of a scheme for a water-supply or drainage work is ordered, the Sanitary Engineer should first submit a full note on the scheme with necessary plans or sketches to the Chief Engineer, who will, after obtaining the remarks of the Superintending Engineer thereon, either approve the scheme or modify it where necessary. The final plans and estimates should then be drawn up by the Sanitary Engineer and should be countersigned by the Superintending Engineer of the Circle before being submitted to Government for approval; and no important alterations should be made in the designs or estimates without reference to the Sanitary Engineer who will for all purposes of this nature rank as a Superintending Engineer.

5. The execution of the works will ordinarily remain with the Public Works Department as at present; but the Chief Engineer may for any special reason, with the sanction of Government, entrust the execution of any work to the Sanitary Engineer, in which case, the Sanitary Engineer will comply with the rules in force in the Public Works Department as to the system of accounts and control adopted in the case of the works executed by that department. The required plant should continue to be obtained by the Public Works Department through the India Office.

6. With reference to the difficulty alleged by the Chief Engineer to be experienced by the Public Works Department in carrying out water-supply and drainage works for Municipalities owing to the paucity of Assistant Engineers, the Government observes that the provisions of the Public Works Code in regard to the employment of temporary hands should be more fully availed of than is apparently done at present.

(True Extract.)

J. H. M.
for Ag. Secretary to Government.

To the Sanitary Engineer.
" Board.
" Public Works Department.

Exd. A. F. Eccleston.
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