2400.4.

No. RM-21 (5)/75 *Dated the 28th November, 1975*

To

The Chief Engineer, Public Works Department (R & B), Assam, The Addl. Chief Engineer, P.W.D. (NH) Bihar, The Addl. Chief Engineer (Roads), P.W.D. (B & R), Haryana, The Chief Engineer, P.W.D. (Roads), The Chief Engineer, National Highway, Tamil Nadu, The Chief Engineer, P.W.D. Uttar Pradesh, The Chief Engineer, P.W.D. Directorate (Roads), West Bengal

Subject : Draft minutes of the group of State Chief Engineers meeting held at New Delhi on 11th and 12th November, 1975 to consider some aspects of the Central Machinery

Two copies of the draft summary record of the group of State Chief Engineers meeting, concerning Central Road Making machinery, held at New Delhi on the above mentioned dates are enclosed herewith. Corrections/modifications, if any, in the draft may kindly be intimated, so as to reach this Ministry by 20th

December, 1975, positively. If no reply is received by the said date, it will be assumed that you have accepted the draft.

2. In this connection I am to request that such further action as may be necessary on the recommendations of the meeting may please be initiated, pending acceptance of the minutes.

DRAFT MINUTES OF THE MEETING OF GROUP OF STATE CHIEF ENGINEERS HELD ON 11TH NOVEMBER, 1975, AND 12TH NOVEMBER, 1975 FOR CONSIDERATION OF SOME ASPECTS OF CENTRAL MACHINERY

The following persons were present in the meeting:

As per Annexure I

A group of 7 State Chief Engineers had been set up during the meeting of the State Chief Engineers held on 29th June, 1975 to consider various points regarding training programmes for mechanical staff, pay scales of mechanical personnel, incentive schemes, modification of proformae prescribed by the Ministry for submission of reports, etc. Director General (Road Development) in his opening remarks stressed the importance of various points, to be discussed, on which further action can be taken as suggested by the Group of State Chief Engineers.

ITEM NO. 1 *CONSIDERATION OF VARIOUS PROFORMAE PRESCRIBED BY THE MINISTRY FOR SUBMISSION OF REPORTS REGARDING CENTRAL ROAD MAKING MACHINERY*

The Group of Chief Engineers considered the different proformae prescribed by the Ministry in detail. On the basis of the Group discussions, various modifications were suggested in them. A set of the modified Proformae finalised on the basis of the discussions is attached below.

(a) *Code Numbers for machinery:*

It was explained that Code Nos. for different machinery were already allotted by the Ministy to different States and are to be painted on the machines, as information regarding these machines will be kept in the Ministry and in the Regional Offices of the Ministry in index cards. This system is expected to be more convenient for keeping information as well as locating the same quickly. The index cards in which such information is to be kept is being finalised in the Ministry. After finalisation, the card will be sent to the State Governments so that they may adopt the same and keep the information in the same fashion as will be kept in the Ministry.

The required information for filling in the index cards in the Ministry is to be sent by the State P.W.Ds. to the Ministry as early as possible so that the master index cards can be compiled very soon in the Ministry. For this purpose, a proforma "plant data sheet" was finalised by the group.

(b) *Basic records of construction equipment*

Detailed discussion was held on the various columns to be filled in, in the history sheets and the log books for Central equipment to be maintained by the State P.W.Ds. It was decided that at the time of transfer of a machine from one State to another, it will be sufficient to transfer the history sheet. It will not be necessary to transfer the log book alongwith the equipment, as the log book will be required to be kept in the State for meeting audit requirements etc.

In the history sheet, information is to be kept regarding the monthly performance of the machines, from the information collected from the log books. One of the columns is with regard to progressive total hours of working of the machine. Chief Engineer of Rajasthan mentioned that for machines received on transfer in one State from another State, previous running hours are not available. It was decided in such an event, information should be filled in, from the date of receipt of the machines in the State or from any other date from which data have been maintained. It was pointed out by DG (RD) that efforts to collect the missing information should however be continued and the information incorporated later on.

Regarding log books the, Chief Engineer, Tamil Nadu explained that in his State the Daily log sheets are maintained in triplicate for each machine. The original and a copy of the daily log sheet are detached from a bound book and sent to the Sub-Division and Divisional Office for account purposes and record. He also mentioned that the primary responsibility for filling in the entries of the log sheet as well as for the safe custody of the bound log book, which will contain the 3rd copy of the daily reports, rests with the operator/driver of each machine. The machine numbered copies received in the Sub-Divisional office and the Divisional Office are kept bunched together for permanent record. In this system there is no need for maintenance of separate log books for alternative months.

The advantages and disadvantages of the above system with the system prescribed by the Ministry i.e. of keeping separate log books for alternate months were discussed in detail. It was suggested that the States may adopt either of the systems they consider suitable to their requirements.

(c) While considering utilisation programme and the norms fixed by the Ministry for working the same, the Chief Engineer, Tamil Nadu pointed out that whereas the Ministry have indicated in the norms that one paver is to be used with 3 hot mix plants, the experience in Tamil Nadu would indicate that one Marshalls paver PF-45 cannot cope up with the production of 3 Marshalls hot mix plants of 20-30 TPH. It was decided that a complete report on the performance of the pavers for coping with the production of Marshalls hot mix plants would be sent to the Ministry by the Chief Engineer, Tamil Nadu for further consideration. It was decided that after this report is received and considered, if necessary, field trials may be conducted by associating the Ministry's representative.

(d) Proforma for disposal of machines beyond economical repairs was considered at great length. Some of the Chief Engineers suggested that as there is already a standard form accepted by the Audit authorities for this purpose, the same may be adopted. It was decided that the information for write off may be furnished in the proforma prescribed by the Ministry as suitably modified, and also in the proforma approved by the audit. Ministry will then be able to appreciate the reasons for write off and take action accordingly.

(e) The proformae for submission of repair estimates to the Ministry for sanction were considered. It was decided that estimate will be submitted for each machine individually. In proforma II there is a column for furnishing information of total number of hours worked out upto date for each machine. As some Chief Engineers indicated that there may be difficulties in filling this column in respect of machines received on transfer from other States, it was decided that informa-

tion should be given from the date of receipt of machines in the State if possible or from the date from which the records have been maintained in the State. it was impressed upon by DG (RD) that efforts to collect all previous information should be continued to be made and this information filled in as and when available.

(f) Some of the State Chief Engineers mentioned that there would be difficulty and delay, if estimates for minor repairs to machine are to be forwarded to the Ministry or for small maintenance works of surplus machines. They suggested that there must be delegation of powers to the State Chief Egnineers to sanction repair/maintenance estimates upto a certain percentage of the annual expected repairs/maintenance cost. It was explained to them that the proposal will be considered by the Ministry and action taken so that the powers for sanction of estimates can be apportioned in suitable proportion amongst Ministry's Headquarter, Regional offices of the Ministry and State Chief Engineers.

(g) It was decided that Proforma V & VI for reporting progress in respect of repair of Central machinery against sanctioned estimates and maintenance of idle machinery against sanctioned estimates are to be sent quarterly instead of monthly.

ITEM NO. 2 *TRAINING PROGRAMMES FOR MECHANICAL STAFF FOR USING FACILITIES AVAILABLE WITH I.T.Is*

The need for imparting training to the mechanical staff in the proper operation, maintenance, and repair of machines was accepted by the Group. It was also felt that necessary training to supervisory personnel in the management of machines should be given. As the I.T.Is set up in the various States are not fully occupied and may have some spare facilities available these may be used by the P.W.Ds., for imparting training to their mechanical personnel. It was decided that the States would consult the Directors/ Assistant Directors of Training, Incharge of the I.T.Is, and work out suitable proposals so that by using the facilities available in the I.T.Is and supplementing them by providing machines, personnel, sandwiching integrating with on road job field training on actual operation etc, a suitable training programme can be worked out. It was felt that a period of 3-6 months may be required for one such training course. The course will consist of lectures on theoretical aspects of using machines, display of cutaway models, or models of actual machines which may not be or may be in working condition and can end with field training on actual jobs. Wherever higher facilities are available, as in the case of Nangal Project at Irrigation projects, with B.R.D.B. workshops, at manufacturers plants, such higher facilities may also be used. The staff to be trained should already be in the employment of the P.W.Ds. and should not be taken or recruited specifically for the training purpose. The training programmes may be organised by the States individually. Any State which is not able to organise the training programme due to lack of facilities, may approach the neighbouring States where such facilities may be available for arranging training programmes for their staff.

Regarding the expenditure to be incurred in organising and running such a training programme it was mentioned that the per capita training cost for each trainee should be worked out, taking into account the fact that the training will be imparted both for operating, maintenance and repair etc of the State machines and Central machines. The proportionate per capita training cost for Central machines alone then can be provided from Central works estimate, as an national component of the crew wages for operating central machinery for such Central works, spread over a certain period and could then be debited to such works through usage charges debit. However, if any State approaches the Ministry for loan assistance to meet the expenses of training programmes for Central machines, such proposals would be considered by the Ministry in consultation with Ministry of Finance.

ITEM NO. 3 *PAY SCALES OF MECHANICAL PERSONNEL HANDLING THE SOPHISTICATED MACHINERY*

The Pay Scales for mechanical personnel as available in the various States were considered. It was felt that in order to attract qualified and experienced personnel, the following pay scales for each category may be considered for adoption :

	All inclusive pay ranges
Foreman Special	800–1200
Foreman Heavy Plant	700–1000
Foreman Other Plant	600–800
Assistant Foreman	500–700
Chargeman	450–650
Operator Heavy Plant	450–650
Mechanic Gr. I	400–600
Mechanic Gr. II	350–550
Operator Other Plant	350–550

The above pay ranges will include Pay and all other allowances. The State Governments may work out and consider suitable pay scales for different posts, so that the above pay ranges may be obtained.

ITEM NO. 4 *INCENTIVE SCHEMES FOR MECHANICAL STAFF (OPERATING AND MAINTENANCE) CENTRAL MACHINERY*

At present no incentive scheme is being followed in any of the State P.W.Ds for doing work by machines. The Chief Engineer, Tamil Nadu mentioned that they have worked out a scheme of giving incentives to the personnel working on the hot mix plants complex. He stated that the scheme provides for the payment of half per cent basic salary to each person employed on the hot mix plant complex, for every 10 tons of extra output, over a minimum targetted output for the complex. The assessment will be made every week but the payment will be made to the crew on monthly basis. It was agreed by the Group that an incentives scheme will go a long way, towards improving the performance of mechanical equipment, both in the field of operation as well as in the field of repair. It was decided that the incentive scheme available with big firms who are doing similar kind of work will also be examined in the Ministry, and a suitable scheme will be worked out in the Ministry and communicated to the States for their comments and finalisation.

ITEM NO. 5 *PLANNING AND PROCUREMENT OF IMPORTED SPARE PARTS FOR CENTRL MACHINERY*

DG (RD) mentioned that no proposals were coming to the Ministry for release of foreign exchange needed for import of spares. In case these cannot be procured by the States from the dealers or from the local markets, and the States wanted to import them, proposals will have to be sent to the Ministry for the release of foreign exchange and for sponsoring the case for issue of Actual Users Import Licence. The necessary formalities for the release of foreign exchange and for issue of Actl. ! User's, Import License will have to be completed by them in all respects. He also mentioned that all the machines belonging to the Ministry have to be re-paired and kept in order fit for operation. The estimates for the repair of machines required for use according to utilisation programme as

well as for surplus machines will be considered in the Ministry. The procedure for obtaining spare parts against stock has already been prescribed by the Ministry and intimated to States. In case of any difficulty regarding exceeding of stock limits, appropriate action will have to be taken by the State P.W.Ds.

ITEM NO. 6 *INADEQUACY OF THE OPERATIONAL CHARGES COMPONENT OF HIRE CHARGES TO MEET THE COST OF REPAIRS*

As per the procedure prescribed by the Ministry 150 per cent of ownership charges are to be recovered from works for keeping in reserve for utilising subsequently for the repair of machines. These charges are called operational charges. It has been pointed out by some State Govts., particularly U.P., that due to the increase over the last several years in the cost of spares and the cost of labour this percentage is inadequate to meet the cost of repairs and it has been exceeded in the case of several machines which have not yet completed their useful life. DG (RD) explained the background for fixing up the percentage of operational charges. He also mentioned that instead of changing the percentage from 150% to any other higher figure it would be more reasonable to adopt after consulting Ministry of Finance the present value of the equipment and apply the 150% for calculating the operational charges component. The ownership charges could however be calculated on the basis of the cost of acquisition. in any case this matter can be considered only when complete details of the History of the repairs of different machines from the time of receipt and commissioning of the machines giving the amount earned towards the operational charges, the actual expenditure incurred in repairs etc are furnished. The States were requested to do so to enable further examination and Ministry of Finance being consulted.

The meeting ended with a vote of thanks to the Chair.

Annexure I

List of Officers who participated in the meeting of the Chief Engineers held in New Delhi on 11th and 12th Nov., 1975, in the room of Director General (Road Development)

Sl. No.	Name of State or Ministry	Name of Officer	Designation
1.	Ministry of Shipping and Transport	Shri J.S. Marya	Director General (Road Development) & Addl. Secretary
2.	—do—	Shri S.L. Kathuria	Addl. Director General (Roads)
3.	—do—	Shri P.K. Thakur	Chief Engineer (Mechanical)
4.	Assam	Shri H. Gohain	Chief Engineer
5.	Assam	Shri J.C. Deka	Superintending Engineer (Mech)
6.	Bihar	Shri H.N. Singh	Superintending Engineer (Mech)
7.	Haryana	Shri K.L. Kapoor	Addl. Chief Engineer
8.	Haryana	Shri S.K. Gupta	Executive Engineer (Mech)
9.	Rajasthan	Shri D.P. Jain	Chief Engineer
10.	Tamil Nadu	Shri E.C. Chandersekharan	Chief Engineer
11.	Tamil Nadu	Shri J.R. Cornelius	Divisional Engineer (T&M)
12.	Uttar Pradesh	Shri Pratap Singh	Chief Engineer
13.	Uttar Pradesh	Shri Hanuman Prasad	S.E. (Mech)
14.	West Bengal	Shri P.K. Sen	S.E. (Mech)
15.	Ministry of Shipping and Transport	Shri G. Viswanathan	S.E. (Mech)
16.	—do—	Shri B. Natrajan	Under Secretary (RM)
17.	—do—	Shri P.H. Bhavnani	S.E. (Mech) — Patna
18.	—do—	Shri R. Ramaswamy	S.E. (Mech) — Calcutta
19.	—do—	Shri B.K. Mehn	E.E. (Mech) — Lucknow

REPORT FOR RECEIPT OF MACHINERY

Sl. No.	Name of equipment	Name of the supplier	DGS&D A/T No.	Location of the plant	Ministry's Code No.	Make/ Model	Chasis No./ Serial No.
1	2	3	4	5	6	7	8

Engine Sl. No.	Registration No. (if any)	Date of receipt at Consignee's rail head	Date of commissioning of the plant	Cost of the palnt at site including A/T cost, transportation charges, assembly and erection/ commissioning charges etc.	Remarks
9	10	11	12	13	14

PLANT DATA SHEET

Code No. _____

1. Machine Serial No. _____
2. Weight _____
3. Make & Model _____
4. Capacity _____
5. Year of Receipt _____
6. A/T No. & date _____ Nme of equipment _____
7. A/T Cost _____
8. Over-all Dimensions _____
9. Rate of Hire Charges
   (a) Ownership component
   (b) Operational component
10. Name of Manufacture suppliers of main plant
11. Prime Mover
    Make : 1. _____ 2. _____
12. H.P/K.W. 1. _____ 2. _____
13. Engine No. 1. _____ 2. _____
14. Name of Manufacturer/supplier of engines
    1. _____
    2. _____

HISTORY SHEET

NOMENCLATURE OF MACHINERY/EQUIPMENT :

PLANT NO. (MACHINE SERIAL NO)

PLANT CODE NO. _____

INDEX

COMPONENT MAIN ASSEMBLIES

(Where different manufacturer's assemblies are mentioned, full details with manufacturer's number should be furnished)

	Name of Assembly	Make	Model	Capacity Voltage	Sr. No.	Any other information
1.	Fuel Injection Equipment					
2.	Generator					
3.	Starter Motor					
4.	Torque Convertor					
5.	Hydraulic System					
6.	Air Compressor					
7.	Turbo-Charger					
8.	Any other information :					

PARTICULARS OF EQUIPMENT

(2–3)

1. Brief description of machine :
2. Dimensions :
   Overall length:
   Overall width :
   Weight of equipment :
   Transportation weight :

3. Project Identification No :
4. Date of receipt/purchase :
5. Supply Order No.
6. Name of supplier :
7. Total cost at destination :
8. Name of manufacturer :
9. Manufacturer's make _____ Model _____ Sr. No. _____
10. Capacity/Pay load/Draw Bar Pull :
    Speed range : I Gear _____ II Gear _____ III Gear _____
    IV Gear _____ V Gear _____ Reverse
11. Engine Details :
    (i) Make :
    (ii) Model :
    (iii) Sr. No. :
    (iv) Type :
    (v) H.P. :
    (vi) No. of Cyl :
    (vii) Bore & Stroke :
    (viii) R.P.M. :
12. Aux. Engine Details :
    (i) Make :
    (ii) Model :
    (iii) Sr. No. :
    (iv) Type :
    (v) H.P. :
    (vi) No. of Cyl. :
    (vii) Bore & Stroke :
    (viii) R.P.M. :
13. Tyre sizes :
    From _____ No. fitted _____ Inflation Pr. _____
    Rear _____ No. fitted _____ Inflation Pr. _____
    Battery :
    Size _____ No. of plates _____
    Voltage _____ Capacity _____
    List of tools received with equipment :

(4 to 10)

RECORD OF TYRES

Tyres Front
Size _____ _____ Ply _____ No. fitted _____

Tyres Rear
Size _____ Ply _____ No. fitted _____

Tyre changes

Date	Tyre size	Sr. No. & Make (old)	Changed/to Sr. No. & Make (new)	Reason	Signature

(11-53)

RECORD OF REPAIR REPLACEMENT

Date	Details of breakdown	Hours/ Miles run	Date of completion of repair	Nature of repairs carried out	Parts replaced	Cost of repairs	Remarks	Signature

(54–55)

MONTHLY DATA

Month	No. of Hours/mile	Progressive total hours	P.O.L. Consumption				Signature
			Diesel Oil	Petrol	Engine Oil	Other lubricants	

(56–63)

RECORD OF WIRE ROPE

Description	Specification	Length fitted
HOIST		
Derrick/Suspension		
Back haul & Digging		
Tripping		

WIRE ROPE CHANGES

Date	Description	Approx. hrs/miles worked after last change	Probable cause of breakdown	Signature

(64–68)

BATTERY CHANGES RECORD

Date of fitting new battery	Battery Make size and its number	Reasons for replacement	Signature

(69–70)

RECORD OF TRANSFER OF MACHINE

Date of transfer	From	To	Hours used	Present depreciated cost	Remarks	Sig. of Officer	
						Handing over	Taking over

(71–75)

Records of observations of the Inspecting Officer

_____ STATE

DRIVER'S DUTY LOG BOOK

Nomenclature of Machine _____

Plant No. (Machine Serial No.) _____

Plant Code No. _____

INDEX

(1-2)

PARTICULARS OF EQUIPMENT

1. Brief description of Machine :
2. Dimensions :
   Overall length :
   Overall width :
   Weight of equipment :
   Transportation weight :
3. Project identification No. :
4. Name of manufacturer :
5. Manufacturer's Make _____ Model _____ Sr. No. _____
6. TYRE SIZES :
   Front _____ No. fitted _____ Inflation PR _____
   Rear _____ No. fitted _____ Inflation PR _____
7. Battery size, No. of plates and Voltage Capacity :
8. List of tools received with equipment :

(3-103)

Driver's Duty

Date	Shift	Driver's name	P.O.L. used				Other materials
			Petrol	Diesel	Engine oil	Other lubricants	

LOG SHEET

Signature of issuer	Hour meter/Milometer Reading			Detilas of work done	signature with designation of the officer of using Deptt.	Remarks
	From	To	Total hours worked/ kms run			

(104-109)

RECORDS OF OBSERVATIONS OF INSPECTING OFFICERS

PROFORMA I

PROFORMA SHOWING THE CONDITION OF MACHINERY

Name of State _____

Sl. No.	Name of Machinery	Quantity available in the State						No. in working order		No. under break down which can be repaired with the indigenous parts and those in stock	No. which cannot be made ready until & unless the parts are imported with brief details	No. which are beyond economical repairs	Remarks
		IDA	LRP	Emergency	SR	Others (NH)	Total	In use	Idle				
1	2	3	4	5	6	7	8	9	10	11	12	13	14

PROFORMA II

PROFORMA INDICATING THE UTILISATION PROGRAMME OF MACHINERY

NAME OF STATE _____

Sl. No.	Name of Machinery	Quantity available in the State	Quantity required for the period ending March (Detailed calculations to be enclosed)	Surplus	Remarks
1	2	3	4	5	6

PROFORMA III

PROFORMA INDICATING THE PRESENT ORGANISATIONAL SET-UP AND WORKSHOP FACILITIES AVAILABLE IN THE STATE

Sl. No.	Details of organisation						Workshop and their location				Remarks
	S.E. (M)	E.E. (M)	A.E. (M)	Overseers	Foremen	Mechanics	Central	Regional	Mobile	Field	
1	2	3	4	5	6	7	8	9	10	11	12

PROFORMA IV

QUARTERLY REPORT OF PERFORMANCE OF MACHINERY USED ON CENTRAL ROAD WORKS, FOR THE QUARTER ENDING

Sl. No.	Name of machinery	M/C No.	Total No. of days worked	Total No. of hrs. actually worked	Total idle hrs. for want of work	Break down hrs. with brief reasons	Total out put achieved (Cu. M) etc.		Remarks
							Sq.	M	
1	2	3	4	5	6	7	8		9

NAME OF STATE

1. *SCRAPERS :*

   Quantity of Earthwork involved :

   (i) Construction of missing links @ 10% by machines

   (ii) Approaches to new bridge over-bridges and high embankments upto 50% by machines

   (iii) Widening roads to four lanes @ 20% by machines

   Total quantity of eath work involved. =

   Assuming average output of a scraper = 30 cu. yd/hr. or 810 c ft/hr.

   Assuming working hours/year = 1500

   Time period =

   No. of scrapers required =

2. *PUSHERS ;*

   @ 1 for 4 scrapers =

3. *TRACTOR DOZERS (150 H.P.) for spreading etc.*

   @ 1 for 4 scrapers =

4. *TRUCK MOUNTED WATER TANKERS*

   @ 1 for 4 scrapers =

5. *ROAD ROLLERS, 8–10 TONS CAP (for Compaction and Metalling)*

   (a) *Earth work compaction :*

   (i) Missing links @ 95%

   (ii) Improvement of low grade sec. (100%) =

   (iii) Widening and strengthening of single lane section to two lanes (100%) =

   (iv) Strengthening existing weak double lane stretches (100%) =

   (v) Widening roads to two lanes (without strengthening) (100%) =

   (vi) Providing bye-passes (100%) =

   (vii) Approaches to new bridges, over-bridges and high embankments (50%) =

(viii) Widening roads to four lanes (80%) =

Total Earthwork =

Assuming out-turn of a Roller = 15,000 c ft/day

Time period =

Assuming No. of working days/year = 200

No. of Rollers required

(b) *Muram Gravel :*

Quality of Gravel =

Assuming out-turn of a Roller = 15,000 c ft/day

Time period =

No. of Rollers required =

(c) *Soling :*

(i) Oversize metal =

(ii) Overburnt bricks =

Total =

Assuming out-turn of a roller = 1,500 cft/day

No. of Rollers required =

(d) *Metalling :*

Quantity of work =

Assuming out-turn of a Roller = 1200 cft/day

No. of days/year = 200

Time period =

No. of Rollers required =

(e) *Surface dressing first coat*

Quantity of work =

Assuming out turn of roller per day = 7000 s. ft

Time period =

No. of rollers required =

Second coat :

Quantity of work =

Assumming out turn of a roller/day = 10,000 sft

No. of Rollers required =

(f) *Rolling of 3/4" carpet :*

Quantity of 3/4" carpet =

Assuming out-turn/day = 5000 sft/day

Time period =

No. of rollers required =

(g) *Seal coat over 3/4" carpet*

Quantity of seal coat =

Assuming out-turn of a roller/day = 10,000 sft

Time period =

No. of rollers required =

(h) *Rolling of Bitumen Macadam/Built-in-spray Grout :*

Quantity of 2" Bitumen Macadam/spray grout =

Assuming out-turn of a roller/day

Time period = 3000 sft/day

No. of rollers required

6. *SHEEP FOOT ROLLER (DOUBLE DRUM)*

Quantity of earthwork =

(i) Missing links @ 5% =

(ii) Approaches to new bridges over-bridges and high embankments upto 50% by machines =

(iii) Widening to 4 lanes @ 20% =

Total earthwork =

Assuming out-turn of a roller = 3000 cft/hr.

Time period =

	No. of Rollers required	=	
7.	*SINGLE PASS SOIL STABILIZERS (HOWARD) :*		
	Quantity of stabilized soil sub-base	=	
	Assuming out-turn of a Howard stabilizer	=	4,000 cft/day
	Time period	=	
	Working days per year	=	
	No. of Stabilizers	=	
8.	*MOTOR GRADERS :*		
	@ 1 No. each for Four Nos. soil stabilizers	=	
9.	*WATER TANKERS, 1000 GALS. CAP (TRAILER MOUNTED)*		
	Assuming quantity of water required to be 10% of total quantity	=	
	(i) Earthwork high approaches	=	
	(ii) Quantity of metal consolidation	=	
	Assuming output of a water tanker	=	2000 Gals/hour
	Time period	=	
	No. of Tankers required	=	
	Due to availability of local water to an extent of one-third quantity, tankers may be reduced to	=	
	Add 3 trailer mounted water tankers for each soil stabilizer	=	
	Total water tankers	=	
10.	*Tractors*		
	@ 1 per Sheep Foot Roller	=	
	@ 1 per per 3 Nos. Trailer mounted Water Tankers	=	
	Total :	=	
11.	*ROAD ROLLERS (4-6 TONS)*		
	(i) Double brick sub-base 6" thick	=	
	Assuming out-turn of roller	=	1500 cft/day
	Time period	=	
	No. of rollers	=	
12.	*HOT MIX PLANTS :*		
	(i) Quantity of 3/4"-1" carpetting	=	
	Assuming 20 cft = 1 ton	=	
	(ii) Quantity of 2"-3" bitumen macadam	=	
	Assuming 25 cft = 1 ton	=	
	Total quantity of bitumen macadam and carpetting	=	
	Assuming out-turn of hot mix plant/hour	=	15 tons/hr.
	Time period	=	
	Working hours/year	=	1500
	No. of Hot Mix Plants	=	
13.	*PAVER FINISHERS :*		
	@ 1 No. of per 3 Hot Mix Plants	=	
14.	*TIPPERS :*		
	@ 5 Nos. per Hot Mix Plant	=	
15.	*Bitumen Boilers*		
	(a) @ 5 Nos. per Hot Mix Plant	=	
	(b) Quantity of seal coat over 3/4" carpet	=	
	(c) Assuming bitumen required @ 20 lbs/100 sft of seal coat	=	
	(d) Quantity of seal coat over 1¼" carpet	=	
	Assuming Bitumen required @ 25 lbs/100 sft of seal coat	=	
	(e) Quantity of seal coat over 2" Bitumen Macadam	=	
	Assuming Bitumen required @ 32 lbs/100 sft of Seal coat	=	
	(f) Quantity of surface dressing	=	
	Assuming bitumen required @ 70 lbs/100 sft of surface dressing	=	
	(g) Quantity of spray grout	=	
	Assuming Bitumen required @ 85 lbs/100 sft of spray grount	=	

Total bitumen required = (b)+(c)+(d)+(e)+(f)

Assuming out-turn of bitumen boiler/day = 500 Gallons

Time period =

No. of Bitumen boilers required =

16. *AIR COMPRESSORS (210-250 c. ft)* (For quarrying job)

(i) Qty. of soling _____ cft.

(ii) Qty. of metalling _____ cft.

(iii) Qty. of Surface dressing _____ cft.

Total : _____ cft.

Assuming out-turn of compressor = 8×10^5 c ft/year

Time period =

Therefore, No. of Compressors = _____ Nos.

17. *JACK HAMMERS :*

@ 2 Nos. per compressor = _____

18. *STONE CRUSHERS* (16"×9" opening)

Qty. of metalling _____ cft.

Assuming out put of crusher = 240 cft/hour
12 tons/hour

Time period =

No. of crushers required = _____ Nos.

19. *GRANULATORS :*

Total quantity of chips required =

Assuming output of granulator = 130 cft/hr.

Time period =

Granulators required = _____ Nos.

PROFORMA FOR THE TRANSFER OF MACHINERY BELONGING TO THE GOVERNMENT OF INDIA, MINISTRY OF SHIPPING AND TRANSPORT (ROADS WING), NEW DELHI.

1. Name of Equipment & Code No.
2. State in which it is located.
3. (i) State to which transferred
   (ii) Date of transfer
4. Brief description of the machine
5. Make
6. Main engine
   Make & S.No.
7. Auxiliary Engg.
   Make & S.No.
8. Registration No. (if any).
9. Chassis No. and/or serial No.
10. Major attachments transferred 1.
    2.
    3.
    (Mention if any major component is missing or not transferred)
11. Present cost
12. Condition of the plant
13. No. of hours run by the plant upto the time of transfer; hour metre/kilometre reading.
14. Major Repairs Carried out :
    (a) When were the last major repairs carried out.
    (b) No. of hours worked after the above
    (c) What is the balance in the Repair fund ?
15. Tools transferred along with the Plant (list may be attached) to include the tools supplied for the plant, and purchased for the plant subsequently from Central funds.
16. Whether any spare parts are transferred along with the Plant. If so a list be attached showing all spares purchased out of Central funds for that machine.
17. Literature transferred with the Plant.
    a) Spare parts Catalogue
    b) Operational Manual
    c) Repair Manual
    d) History Sheet.
18. Any other remarks.

Signature of Rep.
of Transferer State

Signature of Rep.
of Transferee State.

DISPOSAL OF MACHINERY BEYOND ECONOMICAL REPAIRS

PROFORMA

Sl. No.	Brief description of machine with make, model & type	Engine No.	Chassis No.	Sl.No.	Date of receipt after purchase/ transfer	Source of receipt (New or transfer)	Purchase price	Hours/kms run
1	2	3	4	5	6	7	8	9

Book value (depreciated cost)	Present condition	Reasons for condemning the equipment or stating it is beyond economical repairs.	Remarks of State Executive Engineer, Superintending Engineer, Chief Engineer
10	11	12	13

SPECIMEN FORM

C.P.W.A. 18

SURVEY REPORT OF STORES
(Central P.W.D. Code, Paragraphs 140, 160 and 161)
REPORT OF SURVEY OF STORES WHICH HAVE BECOME UNSERVICEABLE

Division _____ _____ Sub-Division

Number or Quantity	Description of articles	Value on the books Rate	Amount	Date of receipt	Remarks by the Officer-incharge explaining the cause of the articles becoming unserviceable	Remarks or orders of the Divisional Officer	Order of the Superintending Engineer

No. _____ dated the _____ 19 No. _____ dated the _____ 19

Submitted to Superintending Engineer, _____ Returned to the Divisional Officer, for _____ for orders with reference to necessary action as per orders noted above.
paragraph 129 of the Central P.W.D. Code.

Divisional Officer Superintending Engineer

APPENDIX I

ABSTRACT TO ACCOMPANY THE REPAIR ESTIMATE

(a) Cost of spares (is detailed in proforma I). Rs _____

(b) Cost of miscellaneous items such as cotton waste, split pins, P.O.L. and other consumable materials Rs _____

(c) Cost of Labour

i) Foreman/Chargeman Hrs. @ Rs per hour

ii) Mechanic Hrs. _____
@ Rs per hour

iii) Helper Hrs. _____ Rs _____
@ Rs per hour

iv) Departmental workshop expenses (with details)

v) Outside agency charges if any (with details)

Total :Rs _____

PROFORMA I

ESTIMATE FOR REPAIR OF MACHINE

Code No. _____ Machine Name _____ Machine Serial No. _____

State _____ Division _____

Sl. No	Name of part	Part No.	Qty. required	Availability from parts previously procured by Ministry	Balance quantity required	Rate in Rs	Amount	Remarks
1	2	3	4	5	6	7	8	9

PROFORMA II

PROFORMA FOR SUBMISSION OF ESSENTIAL INFORMATION ALONG WITH REPAIR ESTIMATE

State _____ Division _____

Sl. No.	Type of machine	Code No.	Total No. Hrs. worked up to date.	Brief particular of last major repairs overhauling if any, with month.	No. of Hrs. worked after last major repairs	Present condition of machine
1	2	3	4	5	6	7

Repair Reserve Balance available and head to which credited	Value of present estimate	Remarks
8	9	10

PROFORMA III

PROFORMA FOR SUBMISSION ALONGWITH MAINTENANCE ESTIMATE FOR WORKING OUT POL CONSUMPTION ONE HOUR IDLE RUNNING PER FORTNIGHT

Sl. No.	Category of machine	Qty.	Type of Engine fitted and H.P.	Average consumption of H.S.D. oil in litres/hour/ machine	Total H.S.D. consumption litres	Crank case capacity for engine oil in litre.	Average consumption of engine oil for topping up in litres/hour/machine
1	2		4	5	6	7	8
1.	Air compressors			6	6	16	0.030
2.	Motorised Scrapers & so on.						

ABSTRACT

Total Rate Cost		Litres	Total Rate Cost	Litres
Total consumption of engine oil in litres/ hour	Other consumable	Qty. per machine	Total quantity	Remarks
9	10	11	12	13

PROFORMA IV

PROFORMA FOR SUBMISSION ALONGWITH MAINTENANCE ESTIMATE FOR IDLE/SURPLUS MACHINES

STATE
DIVISION

Sl. No.	Category of machine	Total as available in the State	No.actually required as per utilisation programme already communicated to this Ministry justifying their retention	Reference of utilisation programme sent to Ministry (if not already sent to be enclosed now)	Quantity surplus to State requirements	Reference of intimating surplus to Ministry
1	2	3	4	5	6	7
1.	Motorised Scrapers					
2.	Motor grader and so on.					

Mechanic No.	Amount	Staff No.	required Operator Amount	with average salary for one set of Helper No.	Amount	No.	machine Other	Amount	Remarks
8	9	10	11	12	13	14		15	16

PROFORMA V

PROFORMA FOR QUARTERLY PROGRESS REPORT IN RESPECT OF REPAIR OF CENTRAL MACHINERY SANCTIONED
OUT OF CENTRAL FUND

State.....

Sl. No.	Job No.	Senctioned amount of estimate Spares	Other materials	Labour	Total	Type of machine	Sl.No. of machine	Brief details of repairs done.
1	2	3	4	5	6	7	8	9

Expenditure on spare parts	Expenditure on other material	Expenditure on labour Depot	Out side agency	Total expenditure in the period	Cumulative total	Likely date of completion of work	Bottlenecks if any	Remarks
10	11	12	13	14	15	16	17	18

PROFORMA VI

PROFORMA FOR QUARTERLY PROGRESS REPORT IN RESPECT OF IDLE MAINTENANCE OF CENTRAL MACHINERY SANCTIONED OUT OF CENTRAL FUNDS FOR SUBMISSION TO REGIONAL SUPERINTENDING ENGINEER, MINISTRY OF SHIPPING AND TRANSPORT (ROADS WING)

STATE _____ DIVISION _____ MONTH OF REPORT _____

Sl. No.	Job No.	Name of the machine	Sl. No. of machine	Details of Engine starting date	maintenance Date of oil charge crank case/GB/ differential	action Other items attended to with date	Expenditure during the month	Cumulative expenditure	Remarks
1	2	3	4	5	6	7	8	9	10