



TENDER NOTICE-ENGINEERING DEPARTMENT

Tenders are invited under Rule 36(b) of PPRA by the Chief Engineer KPT, from Contractors registered with Government, Semi Government Department / Organizations or with any reputable client for the following work.

NAME & SCOPE OF WORK	DATE & TIME OF RECEIPT AND OPENING OF TENDER
<p>ESTABLISHMENT OF FAMILY PARK AT PLOT NO. 20 (KV-67 & KV-68) AT KEAMARI. The work mainly comprises of :</p> <ul style="list-style-type: none"> ● Excavation and Backfilling. ● Rubble Masonry 2'-0" Wide and 4'-0" High (2'-0" high from N.G.L.) ● Filling of Morum 0'-9". ● 2" Coping with cement mortar on to Surface of Rubble Masonry. 	<p>13-10-2020 Receipt at 11:30 Hrs. & Opening of Technical Bids at 12:00 hrs.</p>

1. The interested Bidders must be registered with Pakistan Engineering Council in the Category C-06 valid on the date of opening of tender.
2. The Bid should be sealed in two separate envelope, marked as "Technical Offer" & "Financial Offer" The Technical Bids will be opened on same day in presence of bidder representative. The Financial Bids shall be kept in safe custody of the Department and to be opened only of Technically Qualified firms.
3. The interested Bidders are required to fulfill the mandatory requirements as mentioned from serial "a to f" and the (documents should be binded to form a company profile with flags) and **the Bid Security is fixed as Rs. 0.1 (M) (refundable) & the Tender fee Rs. 3000/- (non-refundable) in the shape of original Pay Order in favour of the Chief Accounts Officer, KPT and both shall be sealed in the envelope of Technical Offer.**
 - a. Copy of latest NTN & SRB Certificate. (Valid)
 - b. Online Tax verification (fresh copy of ATL).
 - c. Updated Company Profile.
 - d. Valid PEC Registration Certificate. (Copy)
 - e. Affidavit, that the firm is not defaulter in Income Tax Department nor blacklisted by any Organization.
 - f. Financial Stability Statement from Banker for the last two years.
4. "Only the FBR & SRB Registered contractors are eligible for bidding. Bidders have to quote their rates inclusive of all Govt. Taxes".
5. The Intending Bidders may visit KPT, PPRA & MOMA Websites. for any queries and download the Tender Documents.
6. The Financial Bid must be in a separate sealed envelope without any cutting crasing and all the quoted amount should be neatly clearly mentioned in words and figures as well.
7. The Bid opening will take place in the Committee Room of the Engineering Department, at 2nd Floor KPT Head Office Building, Karachi.
8. The KPT may reject all bids or proposals at any time prior to the acceptance of a Bid or Proposal. The KPT shall upon request communicate to any supplier or contractor who submitted a Bid or Proposal, the grounds for its rejection of all Bids or Proposals, but is not required to justify those grounds.



Chief Engineer, Karachi Port Trust
Head Office Building, Eduljee Dinshaw Road, Karachi-74000,
UAN-111-KPT-111, Ph: 99214318, Fax: 99214329-30

Also available at: www.kpt.gov.pk & www.ppra.org.pk

19 / PID(K)

22 x 2

DN_751

Creation Date: 10-09-2020

T H E T E N D E R

(Tenderers are required to fill in the blank spaces in this Tender Form and this attached Proforma "A")

To,

**The Chief Engineer,
Karachi Port Trust,
Karachi (Pakistan)**

Description of Work : ESTABLISHMENT OF A FAMILY PARK AT PLOT NO.20 (KV-67 & KV-68) AT KEAMRI

1. Having examined the **Drawings** General Conditions of the Contract Special Conditions of Contract (if any) Specification and Bill of Quantities for the construction of the above named-works, we the undersigned offer to construct complete and maintain the whole of the said works in conformity with the said Drawings. General Conditions of Contract. Special Conditions of contract (if any), Specification and Bill of Quantities for the sum of Rupees _____ (Rs _____) or such other sums as may be **ascertained** with the said Conditions.
2. If undertake if our Tender is accepted in whole or in part to commence the work within **07 days** of receipt of the Engineer's order to commence and to complete and deliver the whole of the Works compared in the Contract within **(4 Months)** calculated from the last day of aforesaid period in which the works are to be commenced
3. If our Tender is accepted in Whole or in **part we** will furnish a Security Deposit for due performance of the Contract in accordance with Clause 9 of the General Conditions of Contract.
4. We agree to abide by this tender for a period of **4 Months** from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before expiration of that period.
5. Unless and until a formal Agreement is prepared and executed this tender, together with your written acceptance thereof, shall constitute a binding Contract between us.
6. We understand that you are not bound to accept the lowest or any Tender you may receive and accept any Tender in part or in whole.

(P.T.O.)

7. We further agree to pay all cost towards the execution of the Contract Agreement including the cost of stamps.

8. We agree that should we withdraw the offer within the aforesaid period or fail to execute the formal contract Agreement and / or make the required Security Deposit the Board of Trustees of the Karachi Port Trust shall be at liberty at their absolute discretion to appropriate our **Bid Security Amount to Rs. 0.1 (M) fixed** either as agreed ;liquidated damages without any proof whatsoever of the extent of such damage or on account reserving to themselves the right to recover from us any further loss or expenses to which they may have been put directly or indirectly by reason of any failure on our parts as aforesaid.

9. We enclose a pay order for Rs. _____ as Bid Security within favour of the Chief Accounts Officer, Karachi Port Trust and hold his receipt No. _____ dated _____

10 We agree to maintain the work in good order for a period of **12 Months** from the date of its Completion

Date: TENDERER

Place: (FULL SIGNATURE)

Signed by Mr. _____ for and on behalf of

Messers _____

Address _____



CHIEF ENGINEER

K.P.T

KARACHI PORT TRUST

ENGINEERING DEPARTMENT

PROFORMA "A" (To be submitted with the Tender)

Particulars	Details
1. Experience as a Contractor	
2. Works carried out in the past with detailed cost particulars and the year in-which they were undertaken etc.	
3. Banker reference redarding Financial status	
4. Whether registered with any Other Department or Organization? if so, give details.	



CHIEF ENGINEER

K.P.T

PROFORMA "A"

Particulars	Details
5. Plant and equipment in possession (Give details with Cost)	
6. Technical personnel employed: give names and other details	
7. Is your firm registered?	
8. State capital of your firm?	
9. Detail of Income Tax Sales Tax Registration etc.	
10. Number of years of actual work carried out in Pakistan	
11. Attach attested copies of certificates of past work of the same nature carried out as that in this Tender.	

SIGNATURE OF TENDERER

Date _____

Signed by Mr. _____

Place _____

For and on behalf of _____

KARACHI PORT TRUST

ENGINEERING DEPARTMENT

PROFORMA "A-1"

COMPOSITION & PARTICULARS OF THE TENDERING FIRM (To be submitted with the Tender)

Particulars	Details
NOTE: The information relevant to the tender should be given below, failing which the tender will not be considered.	
1. in case of Sole proprietorship Concern. a) Business Address. b) Residential Address.	
2. In case of Partnership Concern. a) Name of the Partners with their Residential Address. b) Partnership Deed & Certificate of Registration. (Attach Certified Copies)	
3. In Case of Private Ltd. Company a) Name of all Directors with their Residential Address. b) Memorandum & Articles of association of the company & Certificate of incorporation. (Attach Printed, Certified Copies)	
4. in Case of Public Ltd. Company Memorandum and Articles of Association and Certificate, of incorporation (Attach Printed, Certified Copy)	

In submitting the above particular to further bind ourselves of furnishing to the K.P.T. any further changes our particulars and composition of our firm.

We clearly understand that failure we comply with the above or for submitting incorrect or inaccurate information, will render our tender invalid.



CHIEF ENGINEER

K.P.T

SIGNATURE & SEAL OF THE TENDERER

Signed By Mr. _____

for, & on behalf of _____



KARACHI PORT TRUST ENGINEERING DEPARTMENT

**DOCUMENTS TO
BE RETURNED**

NAME OF WORK: ESTABLISHMENT OF A FAMILY PARK AT PLOT NO.20(KV-67 & KV-68) AT KEAMRI.

S.No	Description of Work	Unit	Rate	Quantity	Amount(Rs.)
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Notes:-

- a) After the completion of the work the contractor is required to clear away and remove from the site all construction plants, surplus material, rubbish, debris and temporary works of every kind etc. to the entire satisfaction of the Engineer. It may be noted that Contractors' account will not be finalized till such time a certificate to this effect is obtained from Executive Engineer and submitted to the Chief Engineer for his information
- b) The Contractor must ensure that the dismantled materials should be disposed in accordance with safety standards fixed by the civic agencies and specified environmental protection rules.
- c) Debris dismantled materials, rubbish etc. should be disposed in such a way that it should not cause any pollution and shall not be source of harm to public.
- d) The tenderer must fill all the pages of Performa "A" & A-1" of tender documents, and ensure enclosing of the pay order for Earnest Money Equal to but not less than 2% of the bid amount.
- e) The tenderers are advised to avoid cutting / over writing in B.O.Q. In case any cutting / over writing it should be properly re-write, sign and stamp otherwise, the tenders may not be considered.
- f) The (Contractor Tech Representative) is bound to visit the plan monthly & give satisfactory report after checking the plan or he is bound to visit on the call of the Engineer Incharge as & under required.
- g) *“Only the FBR & SRB Registered Contractors are eligible for bidding, Contractor has to quote their rates inclusive of all Govt. Taxes”.*

CHIEF ENGINEER

K.P.T

B. O. Q. ITEMS

Case -Id

ESTABLISHMENT OF A FAMILY PARK AT PLOT NO.20(KV-67 & KV-68) AT KEAMRI

Plan #

Dated :

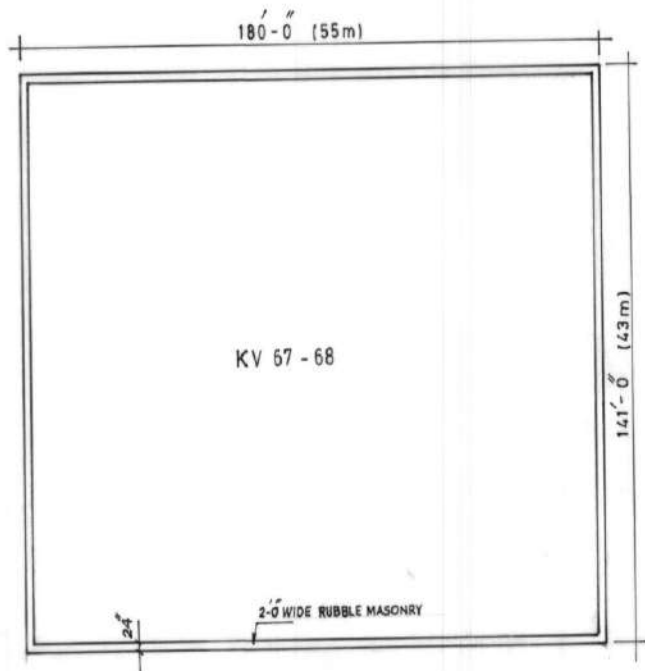
<u>S.No.</u>	<u>Ref.</u>	<u>Item description</u>	<u>Unit</u>	<u>R a t e</u>	<u>Rate in Words</u>	<u>Quantity</u>	<u>Amount</u>
1		EXCAVATION IN ANY KIND OF SOIL, IN FOUNDATIONS, DRAINS, TRENCHES, EMBANKMENTS, AREAS SHAFTS, WELLS, INDEPENDENT HOLES ETC UPTO REQUIRED DEPTH AND LIFT, BY ANY MEANS (MANUALLY, OR MECHANICALLY), AND BACK FILLING THE EXCAVATED SPOIL WITH SAME MATERIAL CONSOLIDATION, WATERING AND COMPACTION IN LAYERS COMPLETE INCLUDING COST OF TIMBERING AND DEWATERING (IF REQUIRED) AND DISPOSE OFF SURPLUS SPOIL POUT SIDE KPT LIMIT.	<i>Cu.M</i>			91.00	
2		PROVIDING AND LAYING UNCOURSED RUBBLE MASONARY IN CEMENT MORTAR 1:4 INCLUDING ,CURING POINTING .COMPLETE IN ALL RESPECT AS DIRECTED BY ENGINEER / INCHARGE	<i>Cu.M</i>			145.00	
3		SUPPLY & SPREADING OF MORUM WITH COMPLETE LEVELLING, DRESSING WATERING ETC. IN ALL RESPECT AS DIRECTED BY ENGINEER / INCHARGE.	<i>Cu.M</i>			535.00	
4	N/S	COPING WITH 1:4 CEMENT MORTAR ON TOP SURFACE OF RUBBLE MASONARY AS DIRECTED BY ENGINEER /INCHARGE.	<i>Sq.M</i>			120.00	

TOTAL :	<input type="text"/>
ADD 5% CONTINGENCIES	<input type="text"/>
NET TOTAL	<input type="text"/>
ADD13% S.R.B	<input type="text"/>
GRAND TOTAL	<input type="text"/>

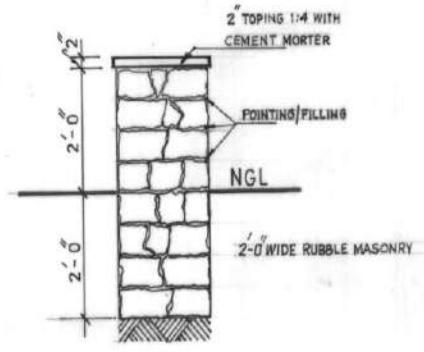


CHIEF ENGINEER

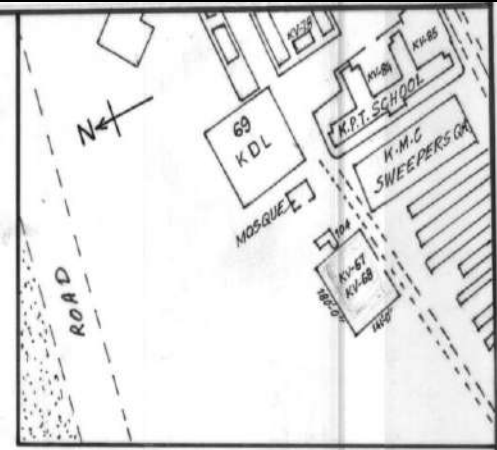
K.P.T



PLAN



TYP. SEC. OF RUBBLE MASONRY



SITE PLAN

NOTE
 PROPOSED LOCATION SHOWN THUS - - - -

Iran_ali DRAWN	KARACHI PORT TRUST ENGINEERING DEPARTMENT	
TRACED	ESTABLISHMENT OF A FAMILY PARK AT PLOT No.20 (KV-67 & KV-68) AT KEAMARI	
CHECKED		
B-1-1 DRAWER N O.		
12669 PLAN NO.		
09-03-2020 DATE		

SUB ENGINEER (W)

KARACHI PORT TRUST
ENGINEERING DEPARTMENT



NAME OF WORK ESTABLISHMENT OF A FAMILY PARK AT PLOT NO.20 (KV-67 & KV-68) AT KEAMRI.

**GENERAL CONDITIONS OF
CONTRACT**

A handwritten signature in blue ink, appearing to be 'K.P.T.', is written over a light blue rectangular stamp or background.

CHIEF ENGINEER

K.P.T

The General Conditions of Contract have been approved by the Board of Trustees of Karachi Port Trust Under their Resolution No.21, dated 9th April, 1958 for adoptions of works. of Civil Engineering Construction

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General Conditions of Contract

DEFINITIONS AND INTERPRETATION

1. (1) In the Contract (as hereinafter defined) the following words and expression shall have the meanings hereby assigned to them except where the context otherwise requires:-

- (a) **“Board”** means the Board of Trustees of the Port of Karachi, Pakistan, and includes the Board’s representatives of successors.
- (b) **“Contractor”** means the person firm or company whose Tender (as hereinafter defined) has been accepted by the Board and includes the Contractor’s personal representative successors and permitted assigns.
- (c) **“Engineer”** means the Chief Engineer of the Karachi Port Trust or other Engineer appointed from time to time by the Board.
- (d) **“Representative of Engineer”** means any Exertive Engineer appointed from time to time by the Board or the Engineer to perform the duties set forth in **Clause-2** hereof.
- (e) **“Works”** means the works to be executed in accordance with the Contract.
- (f) **“Contract”** means the conditions of Contract, Specification, Drawings, priced Bill of Quantities, Schedule of Rates and prices (if any) Tender and the Contract Agreement.
- (g) **“Contract Price”** means the sum named in the Tender subject to such additions there to or deductions there from as may be made under the provisions hereinafter contained.
- (h) **“Constructional Plant”** means all appliances things of whatsoever nature required in or about the execution completion or maintenance of the works or Temporary works (as hereinafter defined) but does not include materials or other things, intended to from or forming part of the permanent work.
- (i) **“Temporary Works”** means all temporary works of every kind required in or about the execution completion or maintenance of the Works.
- (j) **“Drawing”** means the drawing referred to in the specification and any modifications of such drawings approved in writing by the Engineer and such other drawing as may from time to time be furnished or approved in writing by the Engineer.
- (k) **“Site”** means the lands and other places on, under in or through which the works are to be executed or carried out and any other lands or places provided by the Board for the purposes of the Contract.
- (l) **“Approved”** means approved in writing including subsequent written confirmation of previous verbal approval and “approval” means approved in writing as aforesaid.
- (m) **“Tender”** means the offer tendered by the Contractor for the works governed by the Contract.

(2) Words importing the singular only also include the Plural and vice versa where the contents requires.

(3) The marginal headings or note in these General Condition shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof the Contract.

Singular and Plural

Marginal Headings of Notes

REPRESENTATIVES OF THE ENGINEER

Duties and Power of Representative of the Engineer.

2. The duties of the Representative of the Engineer are to watch and supervise the works and to test and examine any material to be used or workmanship employed in connection with the works. He shall have no authority to relieve the Contractor of any of his duties or obligations under the Contract nor except as expressly provided hereunder or else where in the Contract, to order any work involving delay or any extra payment by the Board nor to make any variation of or in the Works.

The Engineer may from time to time in writing delegate to the Representative of the Engineer any of the powers and authorities vested in the Engineer and shall furnish to the Contractor, a copy of all such written delegation of powers and authorities. Any written instruction or approval given by the Representative of the Engineer to the Contractor with the terms of such delegation (but not otherwise) shall bind the Contractor and the Board though it had been given by the Engineer, provided always as follows :-

- (a) Failure of Representative of the Engineer to disapprove any work of material shall not prejudice the power of the Engineer there after to disapprove such work or materials and to order the pulling down removal or breaking up thereof.
- (b) If the Contractor shall be dissatisfied by reason of any decision of the Representative of the Engineer he shall be entitled to refer the matter to the Engineer who shall there upon confirm serve or vary such decision.

ASSIGNMENT AND SUB- LETTING

Assignment and sub- letting

3. The Contractor shall not assign or Sub-let the Contract or any part thereof or any benefit or interest therein or there under without the prior written consent of the Board.

3. (i) The Contractor shall not except, electrical portion of the work & Sui Gas installation work, which shall be got done through duly licensed & approved Sub-Contractors, assign or sub let the Contract or any part thereof or any benefit or interest therein or there under, without the prior written consent of the Board.

ELECTRICAL WORKS

Electrification works will form part of all contracts for buildings to ensure god quality finished work, avoid, subsequent delay in completion of works occupation of building and divisions of responsibility between the main and electrical Contractor. The rain Contractor for Civil or Mechanical works may, however, employ an experier:c d, reputed and reliable electrical Sub-contractor for electrification works approved in advance by the K.P.T. (as per approved list of Electrical Contractors attached).

EXTENT OF CONTRACT

Extent Of Contracts

4. The Contract comprises the constructions, completion and maintenance of the works and except in so far as the Contract otherwise provides the provision of all labour materials, Constructional Plant. Temporary works and everything whether of temporary or permanent nature required in and for such construction completion and maintenance so far as the necessity for providing the same is specified in or reasonably to be inferred from the Contract.

CONTRACT DOCUMENTS

Documents manually Explanatory Drawing

5. The several documents forming the Contract are to be taken as mutually explanatory of one another and in case of ambiguities or discrepancies the same shall be explained and adjusted by the Engineer whose decision in this respect shall be final.

6. **Three (3) copies** of the approved drawings shall be furnished to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him. At the completion of the Contract the Contractor shall return to the Engineer all drawings provided under the Contract.

One Copy of Drawing kept on Site

One copy of drawings furnished to the Contractor as aforesaid shall be kept by the Contractor on the Site and the same shall at all reasonable times be available for inspection and use by the Engineer and the representative of the Engineer.

Further Drawings and Instruction

7. The Engineer shall have full power and authority to supply to the Contractor from time to time during the progress of the works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works and the Contractor shall carry out and be bound by the same.

Contract Agreement

8. The Contractor shall within **Fourteen (14) days** after written notice of acceptance of the Tender has been posted to the Contractor enter into and execute a Contract agreement, (to be prepared at the cost of the Contractor) in the form annexed, with such modifications as may be necessary.

9. Unless otherwise agreed between the Board and the contractor the contractor shall within fourteen days after written notice of acceptance of the Tender has been posted to the Contractor and before the contract agreement is entered into and executed. Furnish. to the Board a security for the due fulfillment of the contract through pay order from a Scheduled Bank in cash with the Chief Accounts Officer, Karachi Port Trust amounting to a sum equal to five percent of the Contract Price. If the security deposit as aforesaid is made in cash it shall be optional with the Contractor to make the full deposit before entering into and executing the agreement or to deposit fifty per cent of the amount due at that time and the balance to be made up by deduction of five percent of the amount payable to the Contractor in each on-account bill or certificate.

Security Deposit

In the event of the Contractor failing to execute a formal Contract or to make a Security Deposit therefore in the manner aforesaid and in the period specified, the Board is entitled to appropriate any earnest money or initial deposit made by the Contractor with his Tender without prejudice to their right to claim any further loss or damage which may result to them by reason of the aforesaid defaults of the Contractor as if a Contract is actually executed for purpose of such claim.

Contractor's Failure to Furnish Security Deposit

10. The Contractor shall inspect and examine the Site and its surroundings and shall satisfy himself before submitting the Tender as to the nature of ground and sub-soil, the form and nature of the Site the quantities and nature of the work and materials necessary for the completion of the works and the means of access to the Site, the accommodation he may require and in general shall himself obtain all necessary information as to risk contingencies and other circumstances which may influence or affect his Tender.

Inspection of Site

11. The Contractor shall be deemed to have satisfied himself before tendering as to The correctness and sufficiency of his Tender for the Works and of the rates and prices stated in the priced Bill of quantities and the Schedule of rates (if any) which rates and prices shall except in so far & otherwise provided in the Contract cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the Works.

Sufficiency of Tender

12. The Contractor shall execute, complete and maintain the work in strict accordance with the Contract to the satisfaction of the Engineer and shall comply with the adhere strictly to the Engineer's Instruction and directions on any matter (whether mentioned in the Contract or not) touching or concerning the work. The Contractor shall take instruction and direction only from the Engineer or (subject to the Limitations referred to in **Clause 2** hereof) from the Representative of the Engineer.

Work to be to Satisfaction of Engineer.

13. As soon as practicable after the acceptance of his Tender the Contractor shall if required submit to the Engineer for his approval a Programme showing the order of procedure and method in which he proposes to carry out the Works and shall whenever required by the Engineer or Representative of the Engineer furnish for his information particulars in writing of the Contractor's arrangements for the carrying out of the Works and of the Constructional Plant and Temporary Works which the Contractor intends to supply use or construct as the case the case may be. The submission to and approval by the Engineer or the Representative of the Engineer of such Programme or the furnishing of such particulars shall not relieve the Contractor of any of his duties or responsibilities under the Contract.

Programme to be furnished

14. The Company shall give or provide all necessary Superintendence during the execution of the Works and as long thereafter as the Engineer may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract the Contractor or a competent and authorized agent or representative approved of in writing by the Engineer (which approval may at any time be withdrawn is to be constantly on the Works and shall give his whole time to the Superintendence of the same. If such approval shall be withdrawn by the Engineer the Contractor shall as soon as practicable having regard to the requirements of replacing him as hereafter mentioned) after receiving written notice

Contractor's Superintendence

such withdraw remove the agent from the Site and shall not thereafter employ him again on the Site in any capacity and shall replace him by another agent approved by the Engineer. Such authorized agent representative shall receive on behalf of the Contractor and directions instructions from the Engineer or (subject to the Limitations of **Clause 2** hereof) Representative of the Engineer.

15. (1) The Contractor shall provide and employ on the Site in connection with the execution and maintenance of the works :-

(a) Only such technical assistants are as skilled and experienced in their respective callings and such sub-agents foremen and leading hands as are competent to give proper supervision to the work they are required to supervise.

(b) Such skilled semi- skilled and unskilled labour as is necessary for the proper and timely execution and maintenance of the Works.

(2) The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the work any person employed by the Contractor in or about the execution or maintenance of the Work who in the option of the Engineer misconducts himself or is incompetent or negligent in the proper opinion of his duties or whose employment is otherwise considered by the Engineer to be undesirable and such person shall not be again employed upon the works without the written permission of the Engineer. Any person to be removed from the Works shall be replaced without delay by a competent substitute approved by the Engineer.

(3) The Contractor shall if required by the Engineer deliver to the Engineer or Representative of the Engineer returns in such form and at such intervals as the Engineer may prescribe showing in detail the supervisory staff and the number of the several classes of labour from time to time employed by the Contractor on the Site.

16. The Contractor shall be responsible for the true and proper setting out of the work and for the correctness of the position levels dimensions and alignment of all part of Works and for the provision of all necessary instruments appliances and labour in connection therewith. If at any time during the progress of the Works any error shall appear or arise in the position level dimensions or alignments of any part of the works, the Contractor on being required to do so by the Engineer or Representative of the Engineer shall at his own expense rectify such error to the satisfaction of the Engineer or the Representative of the Engineer. The checking of any setting out or any line or level by the Engineer or Representative of the Engineer shall not in any way relieve the Contractor of his responsibility for the correctness thereof and the Contractor shall carefully protect and preserve all bench-marks, Site- rails pegs and other things used in setting out the Works.

17. The Contractor shall in connection with the Works provide and maintain at his own cost all light, guards fencing and watching when and where necessary or required by the Engineer or the Representative of the Engineer or by and duly constituted authority for the protection of the Works or for the safety and convenience of the public or others.

18. (a) From the commencement to the completion of the Works the Contractor shall take full responsibility for the care thereof and of all Temporary works and in case any damage loss or injury shall happen to the work or of any part thereof or to any Temporary Works from any cause whatsoever (save and except the excerpted risks as defined in **sub-Clause (2)** of this **Clause**) shall at his own cost repair and make good the same so that at completion the works shall be in good order and condition and in conformity in every respect with requirements of the Contract and the Engineer's instructions. The Contractor shall also be liable for any damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligation under **Clause 4** hereof.

(b) The "**Excepted risk**" are war, hostilities (whether war be declared or not) Invasion, act of foreign enemies , rebellion, revolution, Insurrection of military or usurped power, civil war or (otherwise than among the Contractor's own Employee) riot, commotion or disorder or the use or occupation by the Board of any portion of the Works

**Contractor's
Employees**

Setting Out

**Watching and
Lighting**

Care of Works

Excepted Risks

in respect of which a Certificate of Completion has been issued or any such operation of the forces of nature as reasonable foresight and a ability on the part of the Contractor could not foresee or reasonably provide against (all of which are herein collectively referred to as “the excepted risks.”)

19. The Contractor shall (except if an so far as the Specification Provides otherwise)

indemnity and keep indemnified the Board against all asses and claims for injuries of damage to any persons or any property whatsoever (other than surface or other damage to land being or corps being on the Site suffered by tenants or occupier) which any arise out of or in consequence of the construction and maintenance of the work and against all claims demands proceedings damage, cost charges and expenses whatsoever in respect of or in relation thereto

20. The Board shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any Workman

or other person in the employment of the Contractor or any sub-contractor and the Contractor shall indemnify and keep indemnified the Board against all such damages compensation and against claims demands proceedings costs charges and expenses whatsoever in respect thereof or in relation thereto.

21. The Contractor shall give all notices and pay all fees required to be given or paid by any National or state statute Ordinance or other Law or any Regulation or Bye- law of any local or other duly constituted authority to relations to the execution of the Works or of any Temporary Works and by the rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works or any Temporary Works.

The Contractor shall conform in all respects with the provisions of any such StatueOrdinance or Law as aforesaid and the Regulations or Bye-Law of any local or other duly With constituted authority which may be applicable to the Works or to any temporary Works and with such rules and regulations of public bodies and companies as aforesaid and shall keep.

The oard Indemnified against all penalties and liabilities of every kind for breach of any such statue Ordinance or Law Regulation or Bye-Law.

22. All fossils coins articles of value or antiquity and structures and other remains or things of geological of archaeological interest discovered on the Site of the Works shall as between the Board and Contractor be deemed to be the absolute property of the Board and the Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Representative of the Engineer of such discovery and carry out the expense of the Board Representative of the Engineer or orders as to the disposal of the same.

23. The Contractor shall save harmless and indemnify the Board from and against all claim and proceedings for or on account of infringement of any patent rights any design trade-mark or name or other protected rights in respect of any constructional Plant machine work or material used for or in connection with the Works or Temporary Works or any of them and from and against all claims demands proceedings damages cost charges and expense whatsoever in respect thereof or in relation there to except where otherwise specified the Contractor shall pay all tonnage and other royalties rent and other payments or compensation (if any) for getting stone, sand , gravel clay or other materials required for the Works Temporary Works or any of item.

24. The Contractor shall in accordance with the requirements of the Engineers afford all reasonable opportunities for carrying out their work to any other Contractors employed by the Board and their workmen and the workmen of the Board and of any other duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contractor of any Contract which the Board may enter into in connection with or ancillary to the works.

25. Except where otherwise specified the Contractor shall at his own expense supply and provide all the Constructional plant. Temporary Works Materials both for temporary

**Damage to
Persons and
Property**

**Accident or
Injury to
workman**

**Giving Of Notices
and Payment Of
Fees**

Fossils, etc

**Patent Rights and
Royalties**

**Opportunities
for other
Contractor's**

**Supply of Plant
Materials and
Labour**

and for permanent works labour (Including the supervision thereof) transport to or from the Site and in and about the work and other things of every kind required for the construction completion and maintenance of the works.

Clearance of Site on Completion

26. On the completion of the work the Contractor shall clear away and remove from the Site all constructional plant surplus material rubbish and Temporary works of every kind and leave the whole of the Site and works clean and in a workman like condition to the satisfaction of the Engineer.

LABOUR

**Hours of Employment and payment of Wages
Return of Labour
Etc.**

27. The Hours of Employment Regulation and payment of Wages Act so far these are applicable to the Contractor's labour shall be adhered to by the Contractor.

28. The Contractor shall if required by the Engineer deliver to the Representative of the Engineer or at his office a return in detail such form and at such Intervals as the Engineer may prescribe showing the number of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting Constructional plant as the Representative of the Engineer may require

WORK MATERIAL AND PLANT

Quality of Material and workmanship and Tests

29. (1) All Materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Engineer's Instructions and shall be subjected from time to time to such test as the Engineer may direct at the place of manufacture or fabrication on the Site or at all or any of such place. The Contractor shall provide such assistance Instruments, machines, labour and materials as are normally required for examining measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporation in the works for testing as may be selected and required by the Engineer.

**Cost of samples
Cost of Test**

(2) All samples shall be supplied by the Contractor at his own cost.

(3) The cost of making all tests specified in the Contract shall be borne by the Contractor.

Access to Site

30. The Engineer and any person authorized by him shall at all times have access to the works and to the Site and to all workshops and places where work is being prepared or whence materials, manufacture articles, or machinery are being obtained for works, and the Contractor shall afford every facility for and every assistance in or obtaining the right to such access.

Examination of Work Before Covering Up

31. No work shall be covered up or put out of view without approval of the Engineer or the Representative of the Engineer and the Contractors shall afford full opportunity for the Engineer or the Representative of the Engineer to Examine and measure any work which is about to be covered up or put out of view and to examine foundation before permanent work is placed thereon. The Contractor shall give due notice to the Representative of the Engineer whenever any such work or foundations if are ready or about to be ready for examination

Removal of Improper Work and materials

32. (1) The Engineer shall during the progress works have power to order from time to time.

(a) The removal from the Site within such time or time as may be specified of any materials which in the opinion of the Engineer are not in accordance with the Contract.

(b) The substitution of proper and suitable materials and

(c) The removal and proper re-execution (not-with-standing any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not in the opinion of the Engineer in accordance with the Contract.

Default of Contractor In compliance

(2) In case of default on the part of the Contractor in carrying out such order the Board shall be entitled to employ and pay other person to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and

shall be recoverable from him by the Board or may be deducted by the Board from any monies due or which may become due to the Contractor.

33. The Contractor shall on the written order of the Engineer suspend the progress of the Works or any part thereof for such time to times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the Work so far as is necessary in the opinion of the Engineer. The Extra cost (if any) incurred by the Contractor in giving effect to the Engineer's Instructions under this **Clause** shall be borne and paid by the Board unless such suspension is:-

- (a) Otherwise provided for in the Contract or
- (b) Necessary for the proper execution of the Works or by reason of weather conditions affecting the safety or quality of the Works or by some default on the part of the Contractor or.
- (c) Necessary for the safety of the Works or any part thereof. Provided that the Contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention of claim to the Engineer within **28 days** of the Engineer's order. The Engineer shall settle and determine the extra payment to be made to the Contractor in respect of such claim as the Engineer shall consider fair and reasonable.

Suspension of Works

COMMENCEMENT TIME AND DELAYS

34. The Contractor shall commence the Work on Site within the period named in the tender after the receipt by him of any order in writing to this effect from the Engineer and shall proceed with the same with the due expedition and without delay except as may be expressly, sanctioned or ordered by the Engineer or be wholly beyond the Contractor's control

Commencement of Works

35. (1) Save in so far as the Contract may prescribe the extent of options of the Site of which the Contractor is to be given possession from time to time and the order in which such portions shall be made available to him and subject to any requirement in the Contract as to the order in which the Works shall be executed, The Engineer will with the written order to commence the Works, give to the Contractor possession of so much of the Site as may be required to enable the Contractor to commence and proceed with the construction of the Works in accordance with the programme referred to in **Clause 13** hereof (if any) and otherwise in accordance with such reasonable proposals of the Contractor as he shall by notices in writing to the Engineer make and will from time to time as the Works proceed give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the construction of Works with due despatch in accordance with the said programme or proposals (as the case may be).

Possession of Site

(2) The Contractor shall bear all expenses and charges for special or temporary way leaves required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional accommodation outside the Site required by him for the purpose of the Works.

Way Leaves Etc Time for Completion

36. Subject to any requirement in the specification as to completion of any portion of the Works before completion of the whole of the Works the Works shall be completed within the time stated in the tender calculated from the last day of the period named in the tender as that within which the Works are to be commenced or such extended time as may be allowed under **Clause 37** hereof.

37. Should the amount of extra or additional Work of any kind or other special circumstances of any kind whatsoever which may occur be such as fairly to entitle the Contractor to an extension of time for the completion of the Work the Engineer shall determine the amount of such extension provided that the Engineer is not bound to take into account any extra or additional Work or other special circumstances unless the Contractor has, within **28 days** after such Work has been commenced or circumstances have arisen or as soon thereafter as is practicable delivered to the representative of the Engineer full and detailed particulars of any claim to extension of time to which he may consider himself entitled in order that to such claim may be investigated at the time

Extension of Time for Completion

38. (1) The whole of the materials plant and labour to be provided by the Contractor under **Clause 4** hereof and the mode, manner and speed of execution and maintenance the works are to be of kind and conducted in a manner approved of by the Engineer. Should the rate of progress of the Works or any part thereof be at any time in the opinion of the Engineer too slow to ensure the completion of the Works by the prescribed time or extended time for completion, the Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as the Contractor may think necessary and the Engineer may approve to expedite progress so as to complete the Work by the prescribed time or extended time for completion. If the work is not being carried on by day and by night and the Contractor shall request permission to work by night, as well as by day then if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment for so doing.

(2) Notwithstanding anything contained hereto in the event of the rate of progress of the Works. being such that in the opinion of the Engineer Works cannot be completed by of

Termination Contract for

slow Progress the prescribed time or the extended time; the Engineer may have the works constructed, completed through any other agency either concurrently with or independently of the Contractor at the risk and cost of the Contractor or the Engineer may supplement the Contractors labour plant equipment and materials at the Contractor's cost and risks and in all such cases provisions of Clause 39 hereof shall apply. Further the Board shall have the power to terminate the Contract and withhold payment to the Contractor till the whole of the Works have been constructed, completed and maintained in the manner laid down in the Contract and the Contractor shall be liable for any loss or damage which the Board may sustain on that account and for forfeiture the provision Clause 56 and 57 hereof shall apply.

Liquidated Damages for Delay 39. If the Contractor shall fail to complete the works within the time prescribed by Clause No.36 hereof, or extended time, when the Contractor shall pay to the Board a sum of Rs.11,700.00 (Eleven Thousand Seven Hundred only) as liquidated damages for such default and not as penalty for every week or part of a week which shall elapse between the time prescribed by Clause No. 36 hereof or extended time as the case may be and the date of completion of the works, upto a maximum of 10% of the total value of the contract. The Board may without prejudice to any other method of recovery deduct the amount of such damages from any monies in the Board's hands due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the works or from any other of his obligations and liabilities under the Contract, nor it will prejudice the Board's right to recover the actual amount of damages, which the Board may suffer on account of delay in completion of the works. Further more; the fact that the Board has not deducted any amount of liquidated damages during the execution of the works will not prejudice the Board's right either to deduct the same from the final bill or recover the same through recourse to law.

(Approved under B. R. NO. 40, dated 23rd July,1969)

Certificate of Completion of Works 40.As soon as in the opinion of the Engineer the works shall have been substantially completed and shall have satisfactorily passed any final test that may be prescribed by the Contract the engineer shall on receiving a written undertaking from the Contractor to finish any outstanding work during the period of Maintenance issue a Certificate of Completion in respect of the Works,the period of Maintenance of the Works shall commence from the date of and the Period of Maintenance of the such certificate. Provided that the Engineer may give such a certificate with respect to any part of the Works before the completion of the whole of the Works and shall upon the written application of the Contractor give such Certificate with respect to any substantial part of the Works which has been both completed to the satisfaction of the Engineer and occupied or used by the Board and when any such certificate is given in respect of a part of the Works such part shall be considered as completed and the Period of Maintenance of such part shall commence from the date of scuh certificate. Provided also that a Certificate of Completion given in accordance with the foregoing provisions of any part of the works occupied and used as aforesaid shall not be deemed to certify completion of any ground or surfaces requiring reinstatement unless such certificate shall expressly so state.

MAINTENANCE & DEFECTS

Definition of Period of Maintenance 41. (1)In these conditions the expression "Period of Maintenance" shall mean the period of maintenance named in the Tender calculated from the date of completion of the Works certified by the Engineer in accordance with Clause 40 hereof or in the event of more than one certificate having been issued by the Engineer under the said Clause from the respective dates so certified and in relation to the Period of Maintenance the expression "the Works shall be construed accordingly.

Execution of Work of Repair, Etc (2) To the intent that the Works shall at or as soon as practicable after the expiration of the Period of Maintenance be delivered upto the Board in as good and perfect a condition (fair wear and tear excepted) to the satisfaction Engineer as that in which they were at the commencement of the Period of Maintenance the Contractor shall execute all such work of repair, amendment, reconstruction, rectification and making good of defects, imperfections, shrinkates or other faults as may be required of the Contractor in writing by Engineer during the Period of Maintenance or within fourteen days after its expiration as a result of an inspection made by or on behalf of the Engineer.

Cost of Execution of Work of (3) All such work shall be carried out by the Contractor at his own expense if the necessity thereof shall in the opinion of the Engineer be due to the use of materials or Workmanship not in accordance with the Contract or to neglect or failure on the part of Contractor to comply with any obligation expressed or implied on the Contractor's part under the Contract. If in the opinion of the Engineer such necessity shall be due to any other cause the value of such Works shall be ascertained and paid for as if it were additional Works.

Remedy on Contractor's Failure to carry out Work required

(4) If the Contractor shall fail to do any such Work as aforesaid required by the Engineer the Board shall be entitled to carry out such Work by its own Workman or by other Contractor and if such Works is Work which the Contractor should have carried out at the Contractor's own cost shall be entitled to recover from the Contractor the cost thereof or may deduct the same from any monies due or that become due to the Contractor.

ALTERATION, ADDITION AND OMISSIONS

42. (1) The Engineer shall make any variation of the form quality of quantity of the Works or any part thereof that may in his opinion be necessary and for that purpose or if for any other reason it shall in his opinion be desirable he shall have power to order the Contractor to do and the Contractor shall do any of the following:-

- (a) Increase or decrease the quality of any Work included in the Contract
- (b) Omit any such Work
- (c) Change the character or quality or kind of any such Work
- (d) Change the levels, lines, position and dimentions of any part of the Works and
- (e) Execute additional Work of any kind necessary for the completion of the Works.

And no such variation shall in any way validate or invalidate the Contract, but the value (if any) of all such variation shall be taken into account in ascertaining the amount of the Contract price.

(2) No such variation shall be made by the Contractor without an order in writing of the Engineer, provided that no order in writing shall be required for increase or decrease in the quantity of any Work where such increase or decrease is not the result of an order given under his **Clause** but is the result of the quantities exceeding or being less then those stated in the Bill of Quantities. Provided also that if for any reason the Engineer shall consider it desirable to give any such order verbally, the Contractor shall comply with such order and any confirmation in writing of such verbal order given by the Engine whether before or after the carrying out the order shall be deemed to be an order, in writing within the meaning of this **Clause**

Order of variation to be in writing

43. (1) The Engineer shall determine the amount (if any) to be added to or deducted from the sum named in the tender in respect of any extra or additional Works done or Work omitted by his order. All such Work shall be valued at the rates set out in the Contract if in the opinion of the Engineer the same shall be applicable. If the Contract shall not contain any rates applicable to the extra or additional Work then reasonable prices shall be fixed by the Engineer

Valuation of Variations

(2) Provided that if the nature or amount of any omission or addition relative to the nature or amount of the whole of the Contract Work or to any part thereof shall be such that in the opinion of the Engineer the rate or price contained in the Contract for any item of the works is by reason of such omission or addition rendered unreasonable or inapplicable the Engineer shall fix such other rate or price as in the circumstances he shall think reasonable and proper

Power of Engineer to Fix Rate

(3). REIMBURSEMENT FOR INCREASE IN PRICE OF SPECIFIED CONSTRUCTION MATERIALS DUTIES ETC.

All Lump sum /prices and unit rates in the Contract are fixed and unchangeable. However, to cater for escalation KPT will reimburse the contractor, only in respect of the increase in prices of specified principal construction materials and as provided for below. All other increases, what-so-ever are deemed to have been assessed by the Contractor, entirely at his own risk, and catered for in his rates, and the contractor hereby unconditionally agree that he shall have no claims under this context.

The lump sum tender prices and unit rates, quoted against BOO items and as per specification, shall be based on the rates of materials, duties, taxes, royalties, octori charges, etc, and be in conformity with the laws, rules and regulations etc, of the Govt. applicable and/ or in force on the scheduled date of tender opening. Should there be any subsegment increase in the above, whereby the contractors cost for executing the works are increasd, the Engineer will reimburse the Contractor only for the specific items listed below, For all other items or reasons the tender prices shall be deemed to already include all necessary provision for absorbing any possible cost increase, whatsoever, in supplies, performances and appertaining services, for finished work, complete in all respect.

Import duties, sales tax and applicable surcharge on imported materials utilized by the contractor for incorporation in the permanent works, provided increases are due to legislation or Government Notification.

Reinforcing steel bars and structural steel, cement and bitumen, provided increases are due to Govt. Notification or officially notified by the nationalised industries.

NOTE Contractor shall have to furnish to documentary evidence in Support of any such reimbursement for examination and approval of the Engineer.

PROPERTY IN MATERIALS AND PLANT

**Plant Etc. the
Property of the Board**

44. (1) All constructional plant, Temporary Works and materials provided by the Contractor shall when brought on to Site immediately be deemed to become the property of the Board and the Contractor shall not remove the same or any part thereof without the consent in writing of the Engineer. But the Engineer will permit the Contractor the exclusive use of all such constructional plant. Temporary Works and material in and for the completion of the Works until the happening of an event which gives right to the Board to exclude Contractor from the Site and proceed with the completion of the Works.

**Revesting of Plant,
Etc.**

(2) Upon the removal of any such constructional plant, temporary Works or materials with consent as aforesaid the same shall be deemed to revest in and become the property of the Contractor and upon completion of the Works the remainder of the said constructional plant and temporary Works and any unused material provided by the Contractor shall be deemed to revest in and become the property of the Contractor who shall remove the same. If the Contractor fails to remove any of the said constructional plant, temporary Works or unused materials within such reasonable time after the completion of the Works as may be allowed by the Board then the Board may sell the same and shall after deducting from the proceeds the cost charges and expenses of and in connection with such sale pay the balance (if any) to the Contractor.

**Board not liable for
Damage to plant Etc.**

(3) The Board shall not at any time be liable for loss or injury to any of the said constructional plant, Temporary Works, or materials.

**No Approval by
Vesting**

45. The operation of the **Clause 44** shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Engineer

MEASUREMENT

Quantities

46. The quantities set out in the Bill of Quantities are estimated quantities of the Work but they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfilment of his obligations under the Contract

Work to be Measured

47. The Engineer shall, except as otherwise stated, ascertain and determine by admeasurement the value in accordance with the Contract of Work done in accordance with the Contract. he shall when he requires any parts of parts of the Works to be measured give notice to the Contractor's agent or representative who shall forthwith attend or send a qualified agent to assist the Engineer or the representative of the Engineer in making such measurement and shall furnish all particulars required by the either of them. Should the Contractor not attend or neglect or omit to send such agent then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the Works.

**Method of
Measurement
Use of provisional and
Contingency items**

48. The Works shall be measured net notwithstanding any general or local custom except where otherwise specially describe or prescribed in the Contract

49. All the sums set out in the Bill of Quantities which shall be started to be provisional or for contingencies shall be used only at the direction and discretion of the Engineer and if not used either wholly or in part shall as to the amount not used be deducted from the Contract Price

Item not monied

50. All item not monied out in the Bill of Quantities shall be used at the direction and discretion of the Engineer and if used either wholly or in part shall as to amount used, added to the Contract price.

CERTIFICATE AND PAYMENT

**Bill for On-account
Payments**

51. (1) The Contractor shall submit to the representative of the Engineer during the execution of the Works on-account bill signed by the Contractor showing the quantities and values of the permanent Works done on the Site as soon as measurements have been recorded as per **Clause 47** hereof.

Rates and Price

(2) The rates and prices in such on-account bills shall be in accordance with those in priced Bill of Quantities so far as such rates and prices are applicable and on the approved rates and prices for other items or Work.

(3) The quantities in such on-account bills shall be in accordance with the agreed measurement recorded by the representative of the Engineer as per provision of **Clause 47** hereof.

Quantities

(4) The Contractor will be paid on the certificate of the Engineer the estimated Contract value of the permanent work executed and in addition such amount as the Engineer may consider fair and reasonable for any temporary Works for which separate amounts are provided in the Bill of Quantities subject so far as it applies to a retention of a percentage until the amount retained shall reach the amount of security deposit as per **Clause 9** hereof, after which time no further deduction or retention will be made.

Advances

(5) **ADVANCE PAYMENT FOR MOBILIZATION.**

Should the contractor so desire, the Engineer will effect certain advances payment to him, upto a maximum of 10 (ten) percent of the price of the contract after signing the agreement of Contract. This advance payment will be effected only for such contracts whose contract price exceeds the sum of As. 500,000/- (Rupees Five Lakhs only). Such advance shall exclusively be used for mobilization and purchase of constructional plant and materials for Temporary Works. A pre-requisite for these payments is, the submission of guarantees from first class bank registered in Karachi, and approved in advance by the K.P.T. The contractor shall supply the Engineer with pertinent vouchers, such as invoice shipping documents, etc. showing that the advance payments are used only for the above purpose.

Recovery of the above Mobilization Advance shall be made from Running Bills, at the rate of 20 (twenty) percent of the respective total amounts of each 'on-account' running bill due to the contractor. Such deduction will be continued till all advances are fully settled.

Bank Guarantee will be returned to the contractor after the respective advance payment has been recovered from the running Bills, and thus the advance discharged.

52. No certificate other than maintenance certificate referred into **Clause 53** hereof shall be deemed to constitute approval of any Work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the Contract or any part thereof or of the accuracy of an claim or deemed made by the Contractor by the Contractor or of additional or varied Work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the powers of the Engineer.

Approval only by Maintenance certificate

53. The Contractor shall not be consider as completed until a maintenance certificate shall have been signed by the Engineer and delivered to the Board stating that the Works have been completed and maintained to his satisfaction. The maintenance certificate shall be given by the Engineer twenty **Eight (08) days** after the expiration of the period of maintenance (or if different period of maintenance shall become applicable different part of the Works the expiration of the latest such period) and full effect shall be given to the **Clause** notwithstanding any previous entry of the Works or the taking possession Working or using thereof or any part thereof by the Board. The security deposit of the Contractor shall be refunded after the maintenance certificate has been issued by the Engineer after deducting any sums which may become due from Contractor in terms of provision of **Clause 38 (2), 39 and 41 (4)** hereof.

Maintenance certificate

54. When the Engineer granted a certificate or certificates of completion of the whole of the Works under **Clause 40** hereof and when the Board has ascertained the estimated final sum due to the Contractor the Board shall after allowing for the amount all of previous on account bills and certificate and after allowing for all other payments due form the Contractor to the Board pay to the Contractor such a sum out of balance so calculated as remaining due to the Contractor as will leave to be retained by the Board a sum equal to the security deposit (see **Clause 9** hereof).

Payment on Completion

55. Unless otherwise agreed between the Board and the Contractor all payment to be made to the Contractor under this Contract shall be in Pakistani rupee currency.

Currency of payment

REMEDIES AND POWERS

56. (1) If the shall become bankrupt or have a receiving order made against him or shall present his petition in bankruptcy or shall make an arrangement with or assignment in favor of his creditors or shall agree to carry out the Contract under a committee of Inspection of his creditors or (being a corporation) shall go into liquidation (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) or if the Contractor shall assign the Contract without the consent in writing of the Board first obtained or shall have an execution levied on the goods or if the Engineer shall certify in writing to the Board that in his opinion the Contractor.

Forfeiture

- (a) has abandoned the Contract or
- (b) without reasonable excuse has filed to commence the Works or has suspended the progress of the Works for **Ten (10) days** after receiving from the Engineer written notice to proceed or
- (c) has failed to remove materials from the Site or to pull down and replace Work for **28 days** after receiving from the Engineer written notice that the said materials or Work had been condemned and rejected by the Engineer under these conditions or
- (d) is not executing the Works in accordance with the Contract or is persistently or flagrantly neglecting to carry out his obligations under the Contract or

(e) Has to the detriment of good Workmanship or in defiance of the Engineer's instructions to the contrary sublet any part of the Contract?

Then the Engineer may after giving **14 days** notice writing to the Contractor enter upon the Site and the Works and expel the Contractor there from without hereby avoiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the rights and powers conferred on the Board of the Engineer by the Contract and may himself complete the Works or may employ any other Contractor to complete the Works and Board or such other Contractor may use for such completion so much of the constructional plant temporary Works or materials which have been deemed to become the property of the Board under the provision of the Contract as he or the Board may think proper and Board may at any time sell any of the said constructional plant, Temporary Works and used materials and apply the proceed or sale in or towards the satisfaction of any sums due which may become due to the Board from the Contractor under the Contract.

**Valuation at Date
forfeiture**

(2) The Engineer shall as soon as may be practicable after any such entry and expulsion by the Board fix and determine or by or after reference to the parties or after such investigating or enquiries as he may think fit to make or institute and shall certify what amount (if any) had at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work then actually done by him under the Contract and what was the value of any unused or partially used materials any Constructional Plant and any Temporary Works which have been deemed to become the property of the Board under the provisions of the Contract

**Payment after
Forfeiture**

(3) If the Board shall enter and expel the Contractor under this **Clause** the Board shall not be liable to pay to the Contractor any money on account on the Contract until the expiration of the period of maintenance and thereafter until the cost of completion and maintenance damages for delay in completion (if any) and all other expenses incurred by the Board have been ascertained and the amount thereof certified by the Engineer the Contractor shall be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. But if such amount shall exceed the sum which would have been payable to the Contractor on due completion by him Contractor shall upon deemed pay to the Board the amount such excess and it shall be deemed a debt due to the Contractor to the Board and shall be recoverable accordingly.

Urgent Repairs

57. If by reason or any accident or failure or other event occurring to in or in connection with he Works or any part thereof either during the execution of the Works or during the period of maintenance any remedial or other Works or repair shall in the opinion of the Engineer or the Representative of the Engineer be urgently necessary for security and the Contractor is enable or unwilling at once to do such Work or repair as the Engineer may by his own or other Workmen do such Works or repair as the Engineer or the Representative of the Engineer may consider necessary. If the Works repairs so done by the Engineer is Works which in the opinion of the Engineer the Contractor was liable to do at his own expense under the Contract all cost and charges property incurred by the Board in so doing shall no demand be paid by the Contractor to the Board or may be deducted by the Board from any monies due or which may become due to the Contractor. Provided always that the Engineer or the Representative of the Engineer (as the case may be) shall as soon as after the occurrence of any such emergency as may be reasonable practicable notify the Contractor thereof in writing.

**Bribes Commission
Etc.**

58. Any bribe commission gift or advantages given promised or offered by or on behalf of the Contractor or his partner, agent or servant or any one on his or their behalf to any officer, servant, representative, or agent of the Board or any person on its behalf in relation to the obtaining or to the execution of this or any other Contract with the Board shall in addition to any criminal liability which may incur subject the Contractor to cancellation of this and all other Contract and also to payment of any lose or damage resulting from such cancellation to the like extent as is provided in cases of forfeiture under **Clause 56** hereof and the Board shall be entitled to deduct the amounts so payable from any monies otherwise due to the Contractor under this or any other Contract.

Any question or dispute as to the commission of any offence under this **Clause** shall be settled by the Board in such manner as it shall think fit and sufficient and its decision shall be final and conclusive.

SETTLEMENT OF DISPUTES

**Law Covering the
Contract**

59. This Contract shall be governed by the law of Pakistan. Resort to court by either of the parties in respect of any dispute should be had only to an appropriate court within the limit of KARACHI

DISCLOSURE CLAUSE FOR THE CONTRACTS OVER RS. 10 MILLIONS.

60. (The Seller/Supplier) hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice

Without limiting the generality of the foregoing (The Seller/Supplier) represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or including the procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

(The Seller/Supplier) certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

(The Seller/Supplier) accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

Notwithstanding any rights and remedies exercised by GoP in this regard,

(The Seller/Supplier) agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by (The Seller/Supplier) as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

KARACHI PORT TRUST

ENGINEERING DEPARTMENT

SPECIFICATION PART-II

SUB:- ESTABLISHMENT OF MATERNITY HOME AND DENTAL CLINIC AT KV-69 & KV-70 AT KEAMARI.

Note:- The Contractor shall provide for the sole use of Executive Engineer's representative and his staff, one Core i7 (8th Gen) desk top computer of approved brand with laser jet HP.M12 printer and HP scanner. After the completion of the work the computer & its accessories will revert to the employer free of cost.

The contractor shall include the cost of the above facility in the rates of the items of BOQ and no additional / separate payment would be made for the above mentioned facilities.

1. The Contractor must inspect the site & condition of the existing area, before tendering general conditions of contract, drawing & bill of quantity shall be read in conjunction with these specification.

Although the specification are sub divided under different headings, every part of it shall be deemed supplementary to and complementary to every other part and shall be read with it or into it so far as it may be practicable to do so.

2. The work has to be carried out at site in portions so as to cause the least dislocation to the flow of traffic on road it is proposed to deliver the site to the contractor in convenient portions so that the contractor completes the work in one portion and takes delivery of the next and hands over the completed portion to the Engineer for being put to use. However contractor may suggest alternate facing for approval of engineer to suit the conditions at site during the execution of the work.
3. The material required for the work should be brought at site of works in convenient lots which will be determined by the Engineer on basis of programme to be furnished by the contractors.
4. All existing services such as cables, mains pipes above or below the ground encountered during the course of work are to be maintained by the contractor in position and in working order, the cost of temporary supports and protection shall be borne by the contractor
5. The contractor will take all necessary precautions against fire hazard and arrange stand-by services of the fire staff at his own cost if necessary.
6. The contractors will include in their rate for providing barricading the job at site which will be needed at site for efficient and correct execution of work.
7. The contractor must inspect the site to assess regarding rates. The Contractor have to make proper provision in rates for filling all pot holes, signage, portion and damages slab to bring surface in one level.
8. The contractor has to provide job mix design formula of asphalt concrete from recognized soil and material testing laboratory as per approval for Engineer Incharge.
9. The contractor has to make testing arrangements at site through recognized soil and material testing laboratory as per approval of the Engineer Incharge.
10. The work is to be carried out in working time in case of stoppage of work due to any incident or due to strike and other reason no claim of the contractor is to be entertained.

11. BITUMINOUS PAVEMENTS (CENTRAL PLANT HOT MIX).
DESCRIPTION

- 1.01** The pavement mix shall be composed of mineral aggregate and bituminous material mixed in a central mixing plant meeting the requirement of these specifications until all aggregate particles are coated completely with bitumen. The pavement shall conform in all respects in the line and grades, dimension and cross sections shown on the plans or as required by the Engineer
- 1.02** Job mix Formula: No work shall be started on the project nor any mixture accepted thereof until the contractor has submitted samples materials intended for use and the engineer has approved the job mix formula based upon tests on the materials furnished. Percentage of bituminous material by weight to be added shall be mixed by the Engineering within the range as shown in table 1. The material furnished shall conform to the job mix formula within the tolerance specified here in.

<u>JOB MIX TOLERANCES</u>	<u>PLUS OR MINUS</u>
Aggregate passing sieve No. 4 and larger	5 Percent.
Aggregate passing sieves No.10 & 80	3 Percent.
Aggregate passing sieve No. 200	1 Percent.
Asphalt cement or Tar	0.3 Percent.
Temperature of mixing and placing	250 F.

When tolerances are used in conjunction with the job mix formula the resulting gradation shall not be outside of the specification limits.

2. MATERIALS.

2.01 AGGREGATE:

The aggregate shall consist of crushed stone, crushed gravel and screening and sand or any approved material having essentially the same qualities and meeting all the requirements when combined within the limits for gradation.

The coarse aggregate (Plus No.4 sieve) shall have 100% pass by. The aggregate shall be tough, durable & sound and shall consist of angular fragments of reasonable uniformity in density and quality. The aggregate shall be free of dirt and other objectionable matter, and shall contain more than 8 percent of thin and elongated pieces, nor more than 5 percent of soft pieces.

The coarse aggregate when tested in accordance with the Los Angeles rattler test. After 500 revolutions, shall have a percent of wear of not more than 45 According to AASHTO T96. The coarse aggregate shall not show evidence of disintegration nor show total loss greater than 10 percent beyond the permissible when subjected to five cycles of the sodium sulphate accelerated soundness test using AASHTO T104.

The portion of the material retained on a No. 4 mesh sieve shall known as coarse aggregate: that portion passing a No. 4 mesh sieve shall be known as fine aggregate. And the material passing the No.200 mesh sieve shall be known as filler. The composite material shall meet the requirements for one of the radiations given in table I using T27 or its equivalent.

The portion of the fine aggregate, including any blinded filler, passing No.40 mesh sieve shall have a plasticity index of not more than 6 determined by ASSHO T91 and Liquid limit of not more than 25 as determined by ASSHO T89 or its equivalent.

The composite aggregate shall be free from vegetable matter, lump or balls of clay, adherent films of clay, or other material will prevent through coating with bituminous material. The bituminized aggregate shall have a swell of not more than 1½ percent as determined by ASSHO T101 or its equivalent.

2. 02 **BITUMINOUS MATERIALS:**

The bituminous material to be mixed with mineral aggregate at the central plant & required for tack coat shall meet the requirements of ASSHO M20 or its equivalent. The penetration of the asphalt cement shall be between 60 & 100 as approved. A limited range or grade shall be selected for each project, such as 60/70, 80.

The bituminous materials for tack coat shall be asphalt cement of an approved quality and grade or as directed by the Engineer. Petroleum asphalt cement shall not be cracked.

3. **COMPOSITION**

3.01 **COMPOSITION OF MIXTURE:**

The material aggregate for the surface course shall be of such size that the percentage composition by weight as determined by laboratory sieves, will confirm to one of the following gradations. The percentage by weight for the bituminous material shall be within the limits given,

The bituminous content of the mixture shall be calculated or its percentage on the basis by weight of the total mix.

Table 1 = Aggregate Bituminous Surface Coarse

Sieve Designation (Square opening)	Percentage by A 1 st maximum	Weight passing B ¾" maximum	Sieve C ½" maximum.
1 inch	100	--	--
¾ Inch	82-100	-100	-100
1/2 inch	70-90	82-100	100

3/8 INCH	60-82	68-90	82-100
No. 4	42-70	50-70	56-88
No. 10	30-60	36-67	40-75
No. 40	15-40	17-44	19-48
No. 80	08-26	9-39	10-32
No. 200	03-08	3-8	04-09
Bituminous material present stone or gravel.	4.5-7.0	4.0-7.5	5.5-6

The gradations in the table represent the limits which shall determine suitability of aggregate for use from the sources of supply. The final gradations decided on within the limits designated in the table shall be uniformly graded from coarse to fine shall not vary the low limit on one sieve to the high limit on the adjacent sieves, vice versa.

The selection of any of the gradations shown in the table shall such that the maximum size aggregate used shall not be more than ½ thickness of the layer of the surface course being constructed.

A sample of the coarse and fine aggregate shall be washed to determine the percentage of the total material passing the No. 200 mess sieve of the amount of the material passing the No.200 mesh sieve at least ½ shall pass the No/200 mesh sieve by dry sieving.

The weights for the measurement of the bituminous mixture should be based on the bulk specific gravity of aggregate of 2-65.

Proportionate corrections shall be made when the aggregates furnished on the job (Job aggregate) have bulk specific gravities above 2.75 or below 2.55.

4. CONSTRUCTION METHODS

4.01 WEATHER AND SEASONAL LIMITATIONS:

The pavement course shall be constructed only when the surface upon which it is to be placed is dry, when the atmospheric temperature is above 40 F, and when the weather is not foggy or rainy, the temperature requirement may be waived, but only when so directed by the Engineer.

4.02 PREPARATION OF AREA TO BE PAVED:

The area to be paved shall be true to line and grade and have a dry and properly prepared surface prior to the start of paving operations. It shall be free from all loose screening and other loose foreign materials.

Where a base is rough or uneven, a leveling course shall be place use of a paver or motor grader and shall be properly competed before the placing of subsequent course.

When leveling course is not required, all depressions and other irregularities shall be patched or corrected and the work approved by the engineer before paving operation begins. All fatty and unsuitable patched be removed from the area to be paver. blotting of excusive deposit of asphalt with sand or stone shall not be permitted.

When tack coat shall be applied when the surface to be paved is an existing or newly laid. Portland comment concrete, brick or asphalt pavement surface. When a tack coat is required, it shall consist of an application of the asphalt material of the grade 80/100 or any other approved grade at the maximum rate of 5 pound per hundred square fit at a temperature between 285 F to 350 F.

The surfaces of cubes, gutters, vertical faces of existing pavement and all structures in actual contract, which asphalt mixes shall be painted wit a this, complete coating of asphaltic material to provide a closely bonded watertight joint.

4.03 EQUIPMENT:

General all methods employed in performing the work an 11 equipment tools, and other plant and machinery used for fending materials and executing any part of the work shall be subject to the approval of the engineer before the work is started and whenever found unsatisfactory shall and improved as required. All equipment tools, machinery, and plant used must be maintained in a satisfactory working condition.

A) MIXING PLANT:

The mixing plant used by the contractor n the preparation of the bituminous mixture shall be either a weigh batch or continues mix type.

When the mix is produced in batch type plant the aggregate shall weighted accurately in the designated preparation to provide the specification batch weight. Continuous mix plant shall in general be controlled in the same manner as batch type plants. Details of control differing because of the continuous mixing principle shall be governed by the instructions issued by the plant manufacturer whenever these instructions are not contrary to these specifications.

B) BITUMINOUS DISTIBUTERS:

The distributor used for laying that bituminous tack coat shall have pneumatic tires of such width and number the load produced on the runway surface shall not exceed 650 pounds per inch of tire width and shall be so design equipped maintained and cooperated that bituminous material should not wear off. Distributer equipment shall include tachometer pressure gauges volume measuring devices devious and a thermometer for reading temperature of tank of and asphalt attachment suitable for applying bituminous material spots missed by the distributor the distributor shall be equipped for process. Other approved methods for spraying bituminous material on the surface may also be used.

C) HEATING EQUIPMENT:

The equipment for heating bituminous material shall consist of steam coils and equipment for producing steam so designed that steam will not be introduced into the material. In the event storage tanks are used an armored thermometer with a range from 40 degrees to 400 F shall be fixed to the tank so that the temperature of the bituminous material may be determined at all times. Other approved heating facilities may be used.

D) POWER BROOMS AND POWER BLOWERS:

Blowers and brooms shall be of the power type and shall be suitable for cleaning the surfaces. Other approved methods for cleaning the surface may be used.

E) PLACING EQUIPMENTS:

Equipment for spreading, shaping and finishing shall consist of an approved self-contained power machine operating in such a manner that no supplemental spreading, shaping or finishing will be required to provide a surface which complies with the requirements for thickness and smoothness contained herein.

F) ROLLING EQUIPMENT:

Rollers shall be suitably designed for the use on bituminous surfaces. The rolling shall be done with self-propelled tandem and three-wheel type rollers weighing not less than 10 tons. The wheels on the rollers shall be equipped with adjustable scrapers which shall be used when necessary to clean the wheel surface. Rollers shall also be equipped with tanks and sprinkling apparatus which shall be used to keep the wheel wet and prevent the surfacing material from sticking.

Rubber-tired rollers shall consist of two axes on which are mounted not less than nine pneumatic tires. The tires shall be mounted in such a manner that the rear group of tires will not follow in the tracks of the forward group and will be centered between the forward wheel. The axis shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. The tires shall be uniformly inflated. The rollers shall be twin-axle, pneumatic-tired. The tires on both rollers and towing equipment shall be smooth tread type that will not mark a warm asphalt pavement during rolling operation.

G) SCALES:

Scales shall be standard trade scales of the beam type and sufficient size and capacity to accommodate all trucks to be used by the contractor in handling bituminous mixtures. The scales shall be tested and approved by an inspector of the "Weight and Measures Department", Government of Pakistan or the scale will be tested by the employer. The necessary numbers of standard weights for testing the scales shall be on hand at all times.

H) WEIGHT HOUSES:

Whenever bituminous is to be laid in tons/lb. weight house shall be weather proof and shall be constructed in a manner that will afford adequate protection for the recording device of the scale. The house shall be of a suitable size and shall have one sliding window facing the scale platform, one end window & a shelf desk at least 2 feet wide by 6 feet long.

4.04 PREPARATION OF THE HIGHEST AGGREGATE:

The aggregate and the mixture shall be dried and heated at the plant before entering the mixture. When introduced into the mixer the combined aggregate shall not contain more than percent moisture, if asphalt is used or more than 1 percent for tar mixture water in the aggregate shall be removed by heating to the extent that no subsequent foming shall occurs in the mixture prior to the placing of the material. The aggregate shall be heated to temperature to designate by job formula within the job tolerance specified. The maximum temperature of the rate of heating shall be such that no permanent damaged occurs to the aggregate. Particular care shall be taken that aggregates high in calcium magnesium content not damaged by heating. The aggregate shall be screened to specified size and conveyed and separate bins ready for mixing with bituminous material.

The plant shall be provided with an accurate mechanical means of uniformly feeding the aggregate in to the dryer so that uniform production that uniform temperature may be obtained. When necessary to blend material compartment and feeders shall be supplied.

4.05 PREPARATION OF BITUMINOUS MIXTURE:

Before being delivered to the sit of the work aggregate shall be mixed with the bituminous material at a central mixing plant. the mixture shall be prepared at a temperature as directed by a engineer between 275f to 325F for asphaltic mixture.

The dry aggregate, prepared as prescribed above, shall be combined at the plant in the proportionate amounts of each fraction of aggregate redefine to meet the specified gradation. The quantity for aggregate for each batch shall be determined measure and conveyed in to the mixture. in case of volumetric proportioning the size of the gate opening shall be determined and gates locked in position.

Kettles for storage of bituminous material shall have total capacity sufficient for 1 day and shall be capable of heating the bituminous material with an effective and positive control of the heat and all time to a temperature of between 250F to325F. The temperature of the bituminous material at the time oof mixing shall not exceed 325F (162.75). The temperature of mineral aggregate in the mixer shall not exceed 350F(176.67) when the asphalt is added.

The quantity of bituminous material for each batch or calibrated amount of continuous mixture shall be determined by the engineer, and shall be measured by weight and introduced in to the mixture and the specified the mixture holding to the lowest range possible.

The exact temperature to be used on the work within the specified range shall be fixed by the engineer. In no case shall aggregate be introduced in to the mixture at a temperature more than 25F above the temperature of the bituminous material.

The mixing shall continue for a time determined necessary by the engineer to coat all particular uniformly. This time is dependent upon design and type of mixing equipment used. The compute the mixing time in the continuous mixer the weights of its contents at operating levels is divided by the weight if the mixture delivered per second by the mixer.

Pug mill dead capacity in pounds

Mixing time in second = -----

Outputs i0n pounds per seconds

4.06 TRANSPORTATION AND DELIVERY OF THE MIXTURE:

The mixture shall be transporting for the mixing plant to the point of use in pneumatic tired vehicles heaving tight bodies previously cleaned of all foreign material. Other suitable material of sufficient size and thickness to protect it from the weather or dust condition. The range of temperature of the mixtures, when dumped in to the mechanical spreader specified herein before shall be determined by the engineer. Asphalt mixtures that have temperature of the less than 225F when dumped in to the mechanical spreaders will be rejected. When the mixture is being placed during warm weather and the engineer has determined that satisfactory result can be obtained at lower temperature.

No loads shall be sent out so late in the day as to interfere with sprucing and compacting the mixture during day light unless artificial light, satisfactory to the engineer , is provided. The mixture shall be delivered at a temperature within the tolerance allowed in the approved job formula.

4.07 SPREADING AND LAYING:

Preparation for placing Immediately before placing the bituminous mixture , the existing under lying course shall be cleaned of loosed or deleterious material by sweeping with a power sweeper equipped with blower, supplemented by hand brooms if necessary or as directed by the engineer.

The mixture shall be laid only upon an approved underlying course which is dry, which is in a suitable condition and only when weather conditions are suitable.

No mixture shall be placed when the air temperature in the sheds and a from artificial heat is 40'D (4.44) under, unless so directed by the Engineer. The Engineer may, however, permit work of tails character to continue when overtaken by sudden rains, upto the amount which may be transit from the plant at the time, provided the mixture is within the temperature limits specified.

Grade control between the edges of the road shall be by means of grade stakes or steel pins placed in lanes parallel to the centerline the Road or plinth or other area and at intervals sufficiently close that string lines may be stretched between stakes or pins.

Placing shall commence at the point or points farthest from the mixing plant, and progress continuously toward the plant, unless otherwise considered ordered by the Engineers. Hauling over material already placed shall not permitted until the material has been compacted thoroughly in the man specified, and allowed to cool to at morphemic temperature

Normally the surface course shall be laid in a compacted layer from 1 inch to 2 inches in depth when the surface course is to be constructed in thickness greater than 2 inches the course shall be placed in two or more layers.

- b) Machine spreading:** Upon arrival, the mixture shall be damped in to an approved mechanical spreader and immediately spread thereby to the width required. It shall be struck off in a uniform layer of such depth that, when the work is completed, it will have the required thickness a will conform to the grade and surface contour required. The speed of the mechanical spreader shall be regulated to eliminate the puling and tearing of the bituminous material.

Placing and compaction of the bituminous mixture shall progress in section. The bituminous mixture shall be spread, shaped, and finish with the power machine specified. The mixture shall be placed in strips of a minimum width of 10 feet or as directed by the Engineer. To ensure proper drainage, the spreading shall begin along the centerline of the Road or plinth or other areas on a crowned section or on the high side of the pavement with a one way slope or as directed by the Engineer. The 6 inches strip adjacent to the area on which future material is to be laid shall not be rolled until such material has been placed, but shall not be left unrolled more than 2 hours after being placed. After the first strip of width as completed, the second width shall be placed. Whenever the adjacent or second width cannot be placed within 2 hours, the 6 inches strip shall not be left unrolled. After the second strip the have been placed and rolled, a straight edge (minimum length of 10 feet) shall be used across the longitudinal joint to determine if the surface is to grade and contour.

Exposed vertical edges of paved strips shall be free of all accumulations of dirt or other foreign material before any mixture is spread in adjacent lane. If for any reason the spreading machine should drift away from adjacent length during construction the un filld space so made shall be careful filled with fresh hot mixture obtained from the hopper of the spreading machine or from the truck. Stealing mixture from that already spread to full up these areas shall not be permitted.

In limited areas where, on account of irregularities or unavoidable obstacles, the use of mechanical spreading and finishing equipment is impractical, the mixture may be spread by hand.

When hand spreading is permitted, the mixture shall be dumped upon arrival on approved dump sheets outside of the area on which it is to be spread and be distributed into placed immediately by means of hot shoves. It shall be spread with hot rakes in a uniformly loose layer to the full width required and of such depth that, where the work is completed, it will have the required thickness and will confirm to the grade and surface contour shown on the plans.

Contract surface shall be pointed with a thin uniform coat of hot asphalted material just before the mixture is placed.

4.08 COMPACTION OF MIXTURE:

After spreading, and as directed by the Engineer, the mixture shall be thoroughly and uniformly compacted by a power driver three wheel roller and tandem roller or rollers, weighting 10 tons or more. Rolling of the mixture shall begin as soon after spreading as it will bare the roller without under displacement or hair checking. When the first strip spread, rolling shall start in the centre and continue towards either edge. On subsequent strips laid, rolling shall start on the edge adjacent to previously laid material and continue towards the other edge.

Initial rolling shall be done longitudinally with tandem rollers / or three wheel rollers. The rollers shall overlap on successive strips .Alternate trips of the roller shall of slightly different lengths. The mixture shall be subject to diagonal rolling crossing and lines of the first after three or more lanes are constructed, but cross rolling shall not exceed more than ½ with of the runway.

The speed of the roller small at all times be slow enough to avoid displacement of the hot mixture, any displacement occurring as a result reversing the direction of the roller, or from any other cause, shall be corrected at once by the use of rakes, and of fresh mixture where required.

Sufficient rollers of the designated type shall be furnished to adequately handle the output of the plant. Rolling shall continue until roller marks are eliminated, until the surface is of uniform texture and true to grade and cross section, and until the density of at least 92 percent of the theoretical density is obtained. Field density tests shall be make at least twice daily.

The theoretical density shall be computed as follows:-

100

Density % mineral aggregate by weight # % bitumen by weight	
Sp. Gr. Mineral aggregate	Sp. Gr. Of bitumen

To prevent adhesion of the mixture to the roller, the wheels shall kept properly moistened, but an excess of either water or oil will not be permitted. The rollers shall be kept in good condition and shall be operated by competent and experience roller men. The roller shall be operated continuously as far as practicable and in such a manner that all parts of the pavement shall receive substantially equal compression and be free from objectionable roller marks.

When the Engineer has determined that conditions are such that adequate compaction or surface texture is not being obtained with the tandem or three wheel rollers, the contractor shall supplement those rollers with pneumatic rollers conforming to the requirements include above. The pneumatic rollers shall follow the steel-wheel rollers while course is still warm. The surface course only shall be rolled with pneumatic rollers; and the rolling shall continue until all the surface course has been subjected to at least three coverage.

At all p;aces not accessible to the roller the mixture shall be thoroughly compacted with hot hand tempers. Hand tempers still weight not less than 25 pounds and shall have a tamping face area of not more then 50 square inches. The surface of the mixture after compression shall be smooth and true to the established crown and grade

Any mixture which becomes loose and broken, mixed with dirt or in any way defective prior to the application of the finish coat shall be removed and replaced with fresh hot mixture which shall be immediately compacted to conform with the surrounding area, all to be done at the expense of the contractor. Skin patching on an area that has been rolled shall not be allowed.

4.09. JOINTS:

- A)** General. The mixture at the joints shall comply with the surface requirements and present the same uniformity of texture, dentil smoothness, etc. as other sections of the course. In the formation of all joints, provisions shall be made for proper hand with the adjacent course for the full specified depth of the course.

Joint shall be formed by cutting back on the previous day's run so as to expose the full dept of the course and the exposed edge shall be given a light paint court of as fault, or tar, if necessary. The fresh mixture shall be placed against the joint and will be compacted by rolling.

- B)** Transverse: The placing of the course shall be as nearly continuous as possible. The roller shall pass over the unprotected end of the freshly laid mixture only when the laying of the course is to be discontinued.
- C)** Longitudinal: The placing of the course shall be in the manner specified and so that the joint is exposed for the shortest period possible.

4.10. SHAPING EDGES:

While the surface is being compacted and finished contractor shall carefully true the outside edges of the pavement to the proper alignment. The edge so formed shall be beveled while still hot with the back of a rake or a smoothing iron and through compacted by tampers or by other satisfactory methods.

4.11. SURFACE TESTS:

Tests for conformity with the specified crown and grade shall be made by the contractor immediately after initial compression and any variation shall be corrected by removing or acting materials and continuing the rolling.

The finished surface shall be very more than $\frac{1}{4}$ inch for the wearing course when tested with a 16-foot straight edge applied parallel with or at right angles to the centerline.

After the completion of final rolling, the smoothness of the course shall again be tested: the humps or depressions exceeding the specified clearances of that retain water on the surface shall be immediately corrected by removing the defective work and replacing with new material, as directed by the engineer and at the expense of the contractor.

4.12. SAMPLING PAVEMENT:

For the determination by the Engineer of composition. Compaction and density of the pavement the Contractor shall remember be suitable size samples of the completed pavement. Samples for each day or fraction thereof shall be taken. The contractor shall replace the pavement samples are removed, and these replacements shall be installed by Contractor free of charge. If the deficiency in composition and compaction exceeds the limits of toleration from that specified satisfactory corrections shall be made.

4.13. BITUMINOUS AND AGGREGATE MATERIAL CONTRACTORS RESPONSIBILITY:

Samples of the bituminous and aggregate materials that the contractor propose to use together with a statement as to their source and character must be submitted and approval obtained before use of such material beg. The contractor shall require the manufacturer or producer of the bituminous and aggregate materials to furnish material subject to this all other pertinent requirements of the contract. Only those materials have been demonstrated by service tests as satisfactory for the intended use will be acceptable.

For checking the adequacy of the equipment in use inspecting the conditions and operation of the plant for the verification of weights proportions and character of materials and or the determination and checking of temperatures being maintained in the preparation of the mixtures the engineer or his authorized representative shall have access at any time to all parts of the paving plant.

METHOD OF MEASUREMENT

- 5.01** The bituminous paving as designated by the Engineer to be paid for shall be the number of hundred square feet of bituminous paving actually completed and accepted in accordance with the plans & specifications.

BASIS OF PAYMENT

Payment for quantities provided shall be made at the contract unit price P.Sq.M. for the bituminous as paving mixture required for various thickness of pavement. These prices shall be full compensation for furnishing all materials for all preparations mixing manipulations hauling placing compacting these materials and for all labour equipment tools and incidentals necessary to complete the work in full compliance with plans and specifications.



**CHIEF ENGINEER
K.P.T**

