

**FEASIBILITY STUDY OF PUNJAB CHINA ECONOMIC ZONE ON MOTORWAY M-2
At Kot Sarwar Interchange (Area 4300 acres)**

GEOTECHNICAL INVESTIGATIONS

ESTIMATED BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
A.	FIELD INVESTIGATIONS				
A1	Mobilization and demobilization of atleast two (2) straight rotary/percussion drilling rigs alongwith allied accessories at site including setting-up and shifting from one investigation point to another. The equipment shall be adequate in quantity to meet the time schedule.	L.S.	Job		
A2	Execution of five (5) boreholes up to a maximum depth of 15 m and ten (10) boreholes up to a maximum depth of 10 m in overburden soils below NSL by straight rotary drilling method including backfilling of boreholes to their original position by cement:sand:bentonite mix.	L.M.	175		
A3	Performance of Standard Penetration Tests (SPTs) in boreholes along with collection of SPT samples at 1 m interval in general, or as necessary, including their labelling, packing, storage & transportation to an approved testing laboratory.	No.	160		
A4	Collection of undisturbed soil samples from boreholes through Shelby/Denison/Pitcher samplers, including their waxing, labelling, packing, storage & transportation to an approved testing laboratory.	No.	15		
A5	Excavation of five (5) testpits up to a depth of 3 m and fifteen (15) testpits up to a depth of 1.5 m below top of ground including backfilling of pits to original condition.	L.M.	38		
A6	Collection of undisturbed block samples (30 cm*30cm*30cm) from testpits including their waxing, labelling, packing, storage & transportation to an approved laboratory.	No.	5		
A7	Performance of field density tests by sand replacement method in testpits generally @ 1-2 tests/pit at selected horizons, including determination of in-situ bulk and dry density and collection of small disturbed samples in moisture tins for moisture content determination in laboratory by oven drying method as well as labelling, packing, storage & transportation to an approved testing laboratory.	No.	40		
A8	Collection of composite bulk soil samples from testpits including their labelling, packing, storage & transportation to an approved laboratory.	No.	15		
A9	Collection of water samples (if encountered) from boreholes/testpits including their labelling, packing, storage & transportation to an approved testing laboratory.	No.	5		
	Sub-Total A	Rs.			
<p>Establishment of coordinates and ground elevations of all the boreholes and testpits using Total Station are included in the scope of work. The coordinates should be provided with reference to a permanent local bench mark.</p> <p>All soil samples must be labelled, stored and transported as per ASTM. The area ratio and clearance ratio of the thin walled tube, should be in strict compliance with relevant ASTM standard.</p> <p>The preferred method of drilling is straight rotary. Percussion boring will be allowed only in case of presence of excessive cobbles/boulders in the substrata.</p>					

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Sr. No.	Description	Unit	Qty.	Rate	Amount
B.	LABORATORY TESTING			(Rs.)	(Rs.)
B1	Sieve analysis	No.	50		
B2	Hydrometer analysis	No.	15		
B3	Liquid and plastic limits	No.	20		
B4	Bulk density & dry density	No.	15		
B5	Consolidation with Swell Potential Measurements	No.	5		
B6	Direct Shear	No.	15		
B7	Unconfined Compression	No.	15		
B8	Modified AASHTO Compaction	No.	15		
B9	3-Point Soaked CBR	No.	15		
B10	Sulphate content of soil	No.	7		
B11	Chloride content of soil	No.	7		
B12	Organic matter content of soil	No.	7		
B13	Complete chemical analysis of water samples i/c TDS, Cl, SO4 & pH	No.	5		
Sub- Total B				Rs.	

Name of Laboratory:

Total (A+B)=

Rs.	
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