TENDER DOCUMENTS

Tender Documents
For Repair Maintenance of Building
BCs/ BSNS under PNET

PAKISTAN NAVY EDUCATIONAL TRUST

TENDER DOCUMENT NO 4

REPAIR MAINTENANCE OF BUILDING OF BCs/ BSNSs UNDER PNET

Following standard instructions are to be adhered by the Bidders:

S#	Attribute	Details
1.	Name, Address & contact details of Purchaser	Pakistan Navy Education Trust (PNET) 9, Liaquat Barracks Shahrah e Faisal Karachi Tel: 021- 48506740
2.	Collection of Bidding Documents from	Accounts Department PNET 9, Liaquat Barracks
3.	Price of Bidding Documents	Rs.1000/- through Cash/ Pay order (Nonrefundable)
4.	Bid Submission Format	Bids must be submitted on above mentioned addresses through registered mail / courier only. Bids must be submitted on firm's letter head duly signed and stamped under sealed envelopes. Tender No and opening date must be marked on right corner of envelopes. Envelopes should be duly printed with the name and address of the firms. Rates must be typed / printed in figures as well as in words without any cutting/over writing only on the financial bid. Bids submitted without date/ stamp/ letter head may be considered non-responsive and may be rejected.
5.	Bid Validity Period.	Bid should remain valid for atleast 30 days from the closing date.
6.	Bid Price Quote	Price quoted must be in Pak Rupees, inclusive of all taxes / transportation / charges, etc if any. In case there is no mention of taxes, the offered / quoted price will be considered as inclusive of all taxes / transportation / charges, etc.
7.	Amount of Bid Security	Minimum 2% of likely financial proposal to be deposited in form of Pay Order in favour of PNET Account No. 2003-6350-1 by successful bidder within 02 days of opening of bid. Bid security will be separate for each tender. Bid security is refundable after 01 week of completion of work. Bidder is to give undertaking in writing in case of revoke from bid after winning bid. In such case bid security will be refunded within 01 week.
8.	Work/ Purchase Order	Work should be commenced soon after receiving work order within 07 days from the date of issuance of this work order and completion is made within 30 days.
9.	Payment Schedule	The partial payment will be made within 15 days of submission of bills. However, part payment is also allowed but not exceeding 4 in No of payment. All Taxes will be deducted or applied as per rule of FBR / Government Rules.
10	Quality and Inspection	Quality and quantity of supplied order will remain the responsibilities of supplier. All goods / items / raw materials to be supplied / installed / constructed, shall be inspected at College premises under the arrangement of supplier and if not found according to the specifications agreed by both parties in the contract, the contractor shall replace the defective material promptly entirely at his own cost.
11	Late Work	In case of late work PNET/ Purchaser shall have the right to take following actions:

		a. Cancel the contract and/or b. To work from elsewhere at the Risk and Expense of supplier.
12	In eligible Bidders	Bidders, who have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consultancy for the preparation of the design, specifications, and other documents to be used under this Invitation for Bids. Bidders under a declaration of ineligibility for corrupt and fraudulent practices.
13	Criteria for commercial bid evaluation.	a. Delivered Duty Paid (inclusive of all applicable taxes & transportation charges, if any) Price Only. b. A Bidder, if he so chooses, can bid for selective items from the list. c. However, Bidders cannot bid for partial quantities of an item. The bid must be for the whole quantity of an item required. d. The bidder has to quote only rate for item as per tender specification once and for all, no separate accessories will be accepted.
14	Percentage for quantity increase or decrease	The quantity/ area can be increased or decreased up to maximum of 15% as per Purchaser requirements for first/ subsequent order.
15	Further Order	Further orders can be given within 1 year at given prices, if required by the purchaser and agreed by the contractor.
16	Arbitration	The order / contract shall be construed according to the laws of Pakistan. Any difference of opinion or dispute arising between the parties in relation to the order / contract shall be settled amicably by both the parties. If not settled, the matter shall be referred to Secretary PNET as arbitrator whose decision shall be final and binding upon both the parties. No dispute once decided by the arbitrator shall be agitated in any Court of Law.
17	Liquidated Damages	Work should complete in 30 days after receiving the work order / Contract. If work is not completed within the stipulated time frame, 1% of the cost of entire order shall be applied as penalty for each day. If the work remains incomplete after 10 consecutive days of max time, PNET has the right to cancel the work order or carry out the work from lowest bidder on risk & expense of the 1st bidder.
18	Any other Condition	Any other condition specific to this procurement/ service order not included in this tender document can be included or communicated through work order, letter of intent which shall be served before concluding contract.
19	Distemper/ Paint	Distemper/ Paint of repair work

SPECIAL INSTRUCTIONS TO BIDDERS

S#	Attribute	Details
1	Name of Project	Tender – Repair Maintenance of Building Of BCs/ BSNSs under PNET
2	Tender Published on	15-11-2026
3	Medium	PPRA Website and Daily Newspapers
4	Source of Funds	PNET Revenue
5	Deadline for bid submission	01-12-2026 at 1100hrs
6	Financial bids of bidders will be opened on	01-12-2026 at 1300hrs PNET Head Office
7	Bidding Procedure	Single Stage Single Envelope Procedure shall apply
8	Acceptance of Goods / Work	A Committee of experts from PNET shall be constituted to inspect the work. The committee may use any sources, tool or technique to test the Work by supplier. Payment would be made on production of acceptance certificate issued by the committee / end user. The date of acceptance shall be reckoned as the date of completion.
9	Pre-bid meeting/visit to site	Interested parties must visit for preparation of bids, to seek information& physically witnessing of the site, any time before the closing date for bid submission. PNET Head Office & Site is open till 1700 hrs each day except Saturday/ Sunday or Public Holidays.
10	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA COLLEGE DHA CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S No	Scope of Work		Location/ Details	Qty/ Area
1	Concrete Repair Works	All loose, deteriorated, and unsound concrete where found shall be carefully removed until sound and intact concrete is exposed. The exposed reinforcement shall be thoroughly cleaned using a wire brush means to remove all corrosion products and contaminants. Reinforcement exhibiting a significant reduction in cross-sectional area to be replaced with equivalent reinforcement. Where the reinforcement diameter remains within acceptable limits, galvanized chicken wire mesh shall be provided to enhance the bond and integrity of the repair. Apply a suitable corrosion-inhibiting primer to the cleaned reinforcement, followed by the application of an approved bonding agent to the prepared concrete substrate. The affected areas shall then be reinstated using a polymer-modified repair mortar or non-shrink repair concrete only.	a. Main entrance internal side above the door. b. Principle room roof small patch. c. Corridor roof near female staff washroom at second floor. d. First floor staircase corner. e. 2x RCC tank dismantling work. f. External 5x Arch area. Area is 34' x 40' height. g. Corridor roof near washroom of first floor. h. Different spots Corridor roof at first floor. j. Corridor roof near library.	Lump sum
2	Block Masonry Joint Cracks Repair	All cracks observed in the block masonry shall be carefully widened and cleaned to remove loose material and debris. Use chicken-wire mesh at joints of RCC frame structure and block masonry to avoid future cracks. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar.	a. White board wall in 8th – A classroom. b. White board wall in 9th – A classroom. c. Side wall of 6-B of A block. d. Corridor Roof near 7th A. e. White board wall in 9th – C classroom at second floor. f. White board wall of 6-A of A block. g. Minor crack appears in different classrooms.	Lump sum
3	Column Jacketing/ Retrofitting	Structural strengthening and retrofitting measures corridor columns at Block A & B and 02 x periphery column of washroom at Block B secondary wing to restore the required load-carrying capacity and ensure the long-term safety and serviceability of the structure. The recommended strengthening methodology comprises reinforced concrete (RCC) column jacketing. All loose, deteriorated, and	**Columns Details**: a. Column Size: 9x13" b. Column height:9.6'' c. Each column distance: 10' **Block wise Ground Floor Columns:** a. No of Block-A columns:12	35 columns

		unsound concrete shall be removed until sound concrete is exposed. The exposed reinforcement shall be thoroughly cleaned to remove corrosion products. Reinforcement exhibiting a reduction in cross-sectional area beyond acceptable limits shall be supplemented or replaced with new reinforcement of equivalent grade and diameter parallel to the existing bars and securely anchored using steel studs. Moreover, use new 4#8 bars in addition to replacement bars, apply anti-corrosion primer shall be applied to all exposed steel surfaces. Therefore, suitable formwork (shuttering) shall be installed, and the jacket shall be using approved non-shrink repair concrete or structural-grade concrete of the 4000psi strength and also add admixture corrosion inhibitor to provide durability to concrete and reinforcement. The concrete shall be properly compacted, cured, and finished in accordance standards and relevant engineering standards to achieve the required structural performance.	b. No of Block-B columns:12 c. No of Block-C columns:11 **Periphery columns:** a. Column size:9”x13” b. Column height:40” c. No of periphery column: 2	02
4	Beam Jacketing/ Retrofitting: (Ground Floor)	Beam jacketing of corridor beams at block A and B is recommended. Use 3#5 bar at bottom longitudinal reinforcement with shear striupps use #3@4”C/C at 2h of the beam from column support and #3@6”C/C at mid span. Use aforesaid methodology for concrete pouring. Therefore, suitable formwork (shuttering) shall be installed, and the jacket shall be using approved non-shrink repair concrete or structural-grade concrete of the 4000psi strength and also add admixture corrosion inhibitor to provide durability to concrete and reinforcement. The concrete shall be properly, cured, and furnished in accordance standards and relevant engineering standards to achieve the required structural performance	**Beam Details:** a. Beam Thickness: 8” b. Beam height: 12”	375 running feet
4	Drainage System of Corridor	All drainage pipes passing through the corridor to be properly secured. The outflow pipes shall be properly routed and extended to the designated ground-level discharge points to ensure effective drainage and prevent uncontrolled discharge. Particular attention shall be given to the drainage	**Drain Pipe Details**: a. Pipe thickness:3 inch b. Length of corridor:135 c. No of corridor:10 ft d. Height of corridor:10 ft **Total Measurement**: **a. Block A front side:**	945 running Feet

		arrangements at the chajjas.	135 x 2 = 270 RFT **b. Block B front side:** 135 x 2 = 270 RFT **c. Block C front side:** 135 x 2 = 270 RFT **d. Second floor to Ground** 20 x 3 = 60 RFT **e. Extra for Connection:** 15 x 5 = 75 RFT	
5	Drainage System of Washroom	The drainage of washrooms/ pantry sink and AC drainpipe be properly secured. In addition, adequate grouting around the drainpipe to prevent any leakage or seepage into the surrounding structure. grouting of all washroom floor tiling where required to avoid anticipated seepage in beneath slab.	**Washroom Details:** a. No. of Washroom: 9 b. Area of washroom: 32 x 12 = 384 sq ft c. Each Big washroom consisting of 5 small washroom d. Total No of washroom: 45	3456 sq ft
6	Slab Jacketing/ Retrofitting	Structural strengthening and retrofitting measures at staircase slab where spalling of concrete is evident, to restore the required load-carrying capacity and ensure the long-term safety and serviceability of the structure. The recommended strengthening methodology comprises reinforced concrete (RCC) slab jacketing. All loose, deteriorated, and unsound concrete shall be removed until sound concrete is exposed. The exposed reinforcement shall be thoroughly cleaned to remove corrosion products. Reinforcement exhibiting a reduction in cross-sectional area beyond acceptable limits shall be supplemented or replaced with new reinforcement of equivalent grade and diameter parallel to the existing bars with properly lap with the continue bar and securely anchored using steel studs. Anti-corrosion primer shall be applied to all exposed steel surfaces. Thereafter, suitable formwork (shuttering) shall be erected, and the jacket shall be cast using approved non-shrink repair concrete or structural –grade concrete of the 4000psi strength. The concrete shall be properly compacted, cured, and finished in accordance relevant engineering standards to achieve the required structural performance.	Area: 65 x 40 = 2600 sq ft a. Cleaning and removing of loose concrete. b. Use new reinforcement of equal grade. c. Use steel studs. d. use chicken mesh. e. New concrete and plaster.	2600 sq ft
7	Repairing of Roof Treatment	Necessary re-grouting of marble flooring at the roof slab, particularly at locations exhibiting open joints, deteriorated grout, or potential pathways for water ingress. The	**Roof Details:** a. Covered Area of Block A,B,C,D & stairs roof: 23500 sq ft. b. Construction of 8x CC	23500 sq ft

		marble flooring shall also be properly aligned, leveled, and firmly bedded to ensure adequate adhesion, uniformity, and long-term serviceability. Moreover, foundation to be provided at fiber tank, the tank overflow arrangement properly installed and routed to a suitable discharge point with adequate provision to prevent water ponding accumulation.	types foundation for fiber tank.	
8	Repair Cracks College Wing	All cracks observed in the block masonry and purdi shall be carefully widened and cleaned to remove loose material and debris. Use chicken-wire mesh at joints of RCC frame structure and block masonry to avoid future cracks. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar.	**Detail of Work:** a. Repairing of crake on beam and block joint. b. 12 x P-Trap should be changed. c. Repairing of major crake in isolation room. d. Repairing of major crake in isolation of washroom.	Lump sum
10	Distemper/ Paint	Distemper/ Paint of repair work		

SCOPE OF WORKS AT BAHRIA COLLEGE HANIF CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
REPAIR MAINTENANCE OF BUILDING OF BCs/ BSNSs UNDER PNET		
1	Concrete Repair Works	All loose, deteriorated, and unsound concrete shall be carefully removed until sound and intact concrete is exposed. The exposed reinforcement shall be thoroughly cleaned using a wire brush means to remove all corrosion products and contaminants. Reinforcement exhibiting a significant reduction in cross-sectional area due to corrosion shall be replaced with equivalent reinforcement. Where the reinforcement diameter remains within acceptable limits, galvanized chicken wire mesh shall be provided to enhance the bond and integrity of the repair. Apply a suitable corrosion-inhibiting primer to the cleaned reinforcement, followed by the application of an approved bonding agent to the prepared concrete substrate. The affected areas shall then be reinstated using a polymer-modified repair mortar or non-shrink repair concrete only.
2	Repair of Floor	Floor to be excavated up to 1.5 ft depth and re-compacted it, layer wise compaction as per Engg standards to be carried out (i.e 90% compaction). Subsequently land floor tile/ marble at corridor of school building use proper safety while excavating the floor. Implement standard Engg practices to avoid any untoward incident.
3	Drainage System of Washroom	The drainpipe of washrooms sink shall be properly secured. In addition, adequate grouting around the drainpipe to prevent any leakage or seepage into the surrounding structure. Moreover, grouting of all washroom floor tiling out to avoid anticipated seepage in beneath slab.
4	Drainage System of Corridor	All drainage pipes passing through the corridor to be properly secured. The outflow pipes shall be properly routed and extended to the designated ground-level discharge points to ensure effective drainage and prevent uncontrolled discharge. Particular attention shall be given to the drainage arrangements at the chajjas. Any improperly terminated or unattended pipe outlets may result in water accumulation and prolonged moisture exposure on the chajjas, cause seepage, concrete spalling and further deterioration in reinforcement. Also, provide chemical proofing at all chajjas as per E-in-C's guidline.
5	Cracks Repair	All cracks observed in the block masonry (Particularly Room#48 store Room# 50, class A-1, and Room# 67) be carefully widened and cleaned to remove loose material and debris. Use chicken-wire mesh at joints of RCC frame structure and block masonry to avoid future cracks. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if cracks width is (0.3-1.0mm) for active crack (0.3-1.0mm) and for

		surface cosmetic crack used polymer modified cementite's repair mortar.
6	Roof Treatment	Carry out proper roof drainage slope with minimum 2% slope to avoid anticipated accumulation of water. Provide roof/ chemical treatment as per E-in-C's guidline.
7	Overhead Water Tank Repair	The deteriorated portions of the overhead water tank shall be repaired by removing all defective material and reinstating the affected areas using approved non-shrink repair concrete. The repaired surfaces shall be properly cured to ensure structural integrity. Moreover, on removing the concrete reinforcement exhibiting a significant reduction in cross-sectional area due to corrosion shall be replaced and concrete to be casted with strength of 4000psi.Furthermore, leakage in pipe fitting be rectify at the earliest to avoid any future deterioration in slab.
8	Sewerage Chamber	In order to avoid settlement in future, it is recommended to construct sewerage chamber at least 4-5 ft away from the building structure to avoid ant deterioration in building.
9	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA SUBH-E-NAU SCHOOL HANIF CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
1	Crack Repair Work	All cracks observed in the precast structure shall be carefully widened and cleaned to remove loose material and debris. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar. Moreover, all loose, deteriorated, and unsound concrete shall be carefully removed until sound and intact concrete is exposed at library. The exposed reinforcement shall be thoroughly cleaned using a wire brush means to remove all corrosion products and contaminants. Where the reinforcement diameter remains within acceptable limits, provide galvanized chicken wire mesh, to enhance the bond and integrity of the repair. A suitable corrosion-inhibiting applied to the cleaned reinforcement, followed by the application of an approved bonding agent to the prepared concrete substrate. The affected areas shall then be reinstated using a polymer-modified repair mortar or non-shrink repair concrete only. Furthermore, grouting of all washroom floor tiling to be carried out to avoid anticipated seepage in beneath slab.
2	Roof Treatment	Provide roof/ chemical treatment where required as per E-in-C's guild line.
3	Epoxy Filling at Base Plate	Fill base plate with epoxy/ non-shrinkage grout at room #3 of BSNS to avoid any structural damages.
4	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA COLLEGE EAB-2 MAJEED CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
1	Column Jacketing	The recommended strengthening methodology comprise **reinforced concrete (RCC) column jacketing at Room No 60A Second floor of Room No 50A. All loose, deteriorated, and unsound concrete shall be removed until sound concrete is exposed.** The exposed reinforcement shall be thoroughly cleaned to remove corrosion products. Reinforcement exhibiting a reduction in cross-sectional area beyond acceptable limits shall be supplemented or replaced with new reinforcement of equivalent grade and diameter parallel to the existing bars and securely anchored using steel studs. **Moreover, use new 6#8 bars in addition to replacement bars, apply anti-corrosion primer shall be applied to all exposed steel** surfaces. Thereafter, suitable formwork (shuttering) shall be installed, and the jacket shall be cast using approved non-shrink repair concrete or structural grade concrete of the 4000-psi strength and add admixture corrosion inhibitor to provide durability to concrete and reinforcement. The concrete shall be properly compacted, cured, and finished in accordance standards and relevant engineering standards to achieve the required structural performance.
2	CFRP Wrapping in Beam	CFRP be carried out at beam of 1st floor Room #6, Room #21, Room #25, 2nd floor Room #60, 2nd floor corridor beam and Room #8E. Remove loose/delaminated concrete, repair cracks, and damaged concrete. The concrete surface should be sound, clean, dry, and free from dust, oil, and laitance. Restore the concrete profile using a compatible modified polymer mortar or non-shrinkage grout and ensure adequate bond strength. Apply the specified epoxy primer/ resin and install CFRP fabric/laminate in the design orientation. • Longitudinal CFRP strips/ fabric for flexural strengthening. • U-wraps or transverse CFRP strips for shear strengthening and confinement. Provide adequate development length, anchorage, overlaps and termination detailing as provided by the CFRP designer. Verify surface condition, resin application, fiber alignment, bonding, curing, and workmanship. Apply a suitable protective coating where the CFRP system is exposed to fire, moisture or aggressive environmental conditions.
8	Slab Jacketing	Based on inspection, structural strengthening and retrofitting measures are recommended to restore the required load-carrying capacity and ensure the longterm

		safety and serviceability of the stair case slab structure and Room #32, 2nd floor, Room # 6, 1st floor. The recommended strengthening methodology comprises of reinforced concrete (RCC) slab jacketing. All loose, deteriorated, and unsound concrete to be removed until sound concrete exposed. The exposed reinforcement shall be thoroughly cleaned to remove corrosion products. Reinforcement exhibiting a reduction in cross-sectional area beyond accepting limits shall be supplemented or replaced with new reinforcement of equivalent grade and diameter parallel to the existing bars and securely anchored using steel studs. Anti-corrosion primer shall be applied to all exposed steel surfaces. Thereafter, suitable formwork (shuttering) shall be erected, and the jacket shall be cast using approved non-shrink repair concrete or structural grade concrete of the 4000psi strength. The concrete shall be properly compacted, cured, and finished in accordance standards and relevant engineering standards to achieve the required structural performance.
9	Plinth Protection	Plinth protection to be provided on the right side and where required to avoid seepage of water in to soil causing settlement in structure.
10	Block Masonry Joint Cracks Repair	All cracks observed in the block masonry shall be carefully widened and cleaned to remove loose material and debris. Use chicken-wire mesh at joints of RCC frame structure and block masonry to avoid future cracks. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar.
11	Rectification of Drainage System	All drainage pipes to be properly secured. The outflow pipes shall be properly routed and extended to the designated ground-level discharge points to ensure effective drainage and prevent uncontrolled discharge. Additionally, the drainpipe/ sink pipe of washrooms shall be properly secured. Moreover, adequate grouting to been sured around the drainpipe to prevent any leakage or seepage into the surrounding structure. Furthermore, carry out grouting of all washroom floor tiling required, avoiding anticipated seepage in beneath slab.
12	Roof Treatment	Roof drainage slope with aluminum 2% slope to ensure to avoid anticipated accumulation of water. Wherever feasible, pipe fitting/ services should be raised above the roof slab to an appropriate level and properly supported so that pipe fittings do not obstruct water flow or create areas of water accumulation.
13	Overhead Water Tank Repair	Remove all the unsound concrete and fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar.
14	Sewerage Chamber	In order to avoid settlement in future, it is recommended to construct sewerage chamber at least 2-3 ft away from the building structure to avoid any deterioration in building.
15	Purdi Cracks	All purdi cracks observed in the block masonry shall be carefully widened and cleaned to remove loose material

		and debris. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar.
16	Washroom Slab Concrete Repair Works	Inspect the slab thoroughly where localized spalling patches are evident, remove all loose, deteriorated and unsound concrete shall be carefully until sound and intact concrete is exposed. The exposed reinforcement shall be thoroughly cleaned using a wire brush means to remove all corrosion products and contaminants. Reinforcement exhibiting a significant reduction in cross-sectional area due to corrosion shall be replaced with equivalent reinforcement. Where the reinforcement diameter remains within acceptable limits, galvanized chicken-wire mesh shall be provided to enhance the bond and integrity of the repair. Apply a suitable corrosion-inhibiting primer to the cleaned reinforcement, followed by the application of an approved bonding agent to the prepared concrete substrate. The affected areas shall then be reinstated using a polymer-modified repair mortar or non-shrink repair concrete only. Visit all building where the same patches observed, use same methodology.
17	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA SUBH-E-NAU SCHOOL KARACHI CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
1	Cracks Repair	All cracks observed in the block masonry and purdi cracks be carefully widened and cleaned to remove loose material and debris. Use chicken-wire mesh at joints of RCC frame structure and block masonry to avoid future cracks. Fill cracks using polymer-modified repair mortar to restore the continuity and durability of the masonry. Use low-viscosity epoxy injection if crack width is (0.3-1.0mm), for active crack (0.3-1.0mm) and for surface cosmetic crack used polymer modified cementite's repair mortar.
2	Drainage System of Washroom	The drainpipe of washrooms sink be properly secured. Grouting around the drainpipe to prevent any leakage or seepage into the surrounding structure. Grouting of all washroom floor tiling.
3	CFRP Wrapping in Beam	**CFRP recommended to be carried out at beam of Room#3, Class 6B, Room#4 and Class 7B.** For a beam requiring CFRP strengthening, the typical procedure is: **a. Surface Preparation**: Remove loose/ delaminated concrete, repair cracks, and damaged concrete. The concrete surface should be sound, clean, dry, and free from dust, oil, and laitance. **b. Substrate Repair**: Restore the concrete profile using a compatible modified polymer mortar or non-shrinkage grout and ensure adequate bond strength. **c. CFRP Installation**: Apply the specified epoxy primer/resin and install CFRP fabric/laminate in the design orientation. i) Longitudinal CFRP strips/fabric: for flexural strengthening. ii) U-wraps or transverse CFRP strips: for shear strengthening and confinement. **d. Anchorage and Detailing:** Provide adequate development length, anchorage, overlaps, and termination detailing as provided by the CFRP designer. **e. Quality Control:** Verify surface condition, resin application, fiber alignment, bonding, curing, and workmanship. **f. Protection**: Apply a suitable protective coating where the CFRP system is exposed to fire, moisture or aggressive environmental conditions.
4	Column Jacketing/ Retrofitting	Based on inspection and test result, structural strengthening and retrofitting measures of above mentioned columns are recommended to restore the required load-carrying capacity and ensure the long-term safety and serviceability of the structure. The recommended strengthening methodology comprise reinforced concrete (RCC) column jacketing. All loose, deteriorated, and unsound concrete shall be removed until

		sound concrete is exposed. The exposed reinforcement shall be thoroughly cleaned to remove corrosion products. Reinforcement exhibiting a reduction in cross-sectional area beyond acceptable limits shall be supplemented or replaced with new reinforcement of equivalent grade and diameter parallel to the existing bars and securely anchored using steel studs. Moreover, use new 4#6 bars in addition to replacement bars, apply anti-corrosion primer shall be applied to all exposed steel surfaces. Thereafter, suitable formwork (shuttering) shall be installed, and the jacket shall be cast using approved non-shrink repair concrete or structural-grade concrete of the 4000psi strength and also add admixture corrosion inhibitor to provide durability to concrete and reinforcement. The concrete shall be properly compacted, cured, and finished in accordance standards and relevant engineering standards to achieve the required structural performance.
5	Concrete Repair Works	All loose, deteriorated, and unsound concrete be carefully removed until sound and intact concrete is exposed. The exposed reinforcement be thoroughly cleaned using a wire brush means to remove all corrosion products and contaminants. Reinforcement exhibiting a significant reduction in cross-sectional area due to corrosion shall be replaced with equivalent reinforcement. Where the reinforcement diameter remains within acceptable limits, galvanized chicken wire mesh shall be provided to enhance the bond and integrity of the repair. Apply a suitable corrosion-inhibiting primer to the cleaned reinforcement, followed by the application of an approved bonding agent to the prepared concrete substrate. The affected areas shall then be reinstated using a polymer-modified repair mortar or non-shrink repair concrete only. Same procedure to be implemented in staircase waist slab.
6	Provision of Haunch at Edges of Building	Provide concrete haunches/golla at the edges of the building to avoid ingress of water in soil. Moreover, floor to be excavated upto 2-3 ft, layer wise compaction of 90% be carried out to avoid future settlement at near vicinity of pump room.
7	Roof Treatment	Carry out proper roof damage slope with minimum 2% slope to avoid anticipated accumulation of water. Provide chemical treatment at roof slab. Provide base of fiber tanks, avoid directly contact of tank with RCC slab.
8	Repairing of Construction Joints	Remove loose concrete, damaged sealant, weak mortar and debris from the joint above the floor. Where the concrete edges have spalled or become weak, cut back to sound concrete with a clean, well-defined edge. Avoid damaging reinforcement, clean exposed reinforcement if corrosion is present and treat it with an approved corrosion-protection system where required. Reinstate the damaged concrete using a suitable polymer-modified repair mortar or structural repair material compatible with the existing concrete then properly cure the repair. Form inner side of slab install a closed-cell backer rod where appropriate. Consider pressure injection grouting, i.e PU (polyurethane) injection where appropriate.
9	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA COLLEGE KHALID CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
1	Column Jacketing	Spalling of concrete at external column of Principal Room.
2	Concrete Repair Works	Spalling in slab at various locations.
3	Fill all the Cracks	Cracks at the interface between block masonry and RCC frame structure.
4	Roof/ Chemical Treatment	Roof/ Chemical Treatment found in deteriorated condition.
5	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA COLLEGE EAB-1 MAJEED CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
1	Column/ Slab/ Beam Jacketing, CFRP wrapping in certain beams	Various locations exhibiting structural distress, including slabs, beams, and column.
2	Fill Cracks	Cracks at interface between block masonry and RCC frame structure.
3	Grouting of all washrooms and drain sink pipes	Deterioration of grout at all washrooms.
4	Roof/ Chemical Treatment	Chemical/ waterproofing treatment to be in deteriorated condition.
5	Construction of Joint Cracks	Use Polyurethane (PU) foam in expansion crack to avoid seepage/ dripping of water.
6	Drainage system of roof/ corridor drains pipes	Adequate drainage to be provided.
7	Distemper/ Paint	Distemper/ Paint of repair work

SCOPE OF WORKS AT BAHRIA COLLEGE KARIM CAMPUS

The Work schedule stipulates hereafter is a work completion period during which the work is required to be completed, tested and accepted.

S#	Description	Work
1	Retrofitting & Column Jacketing	Few Columns strength found inadequate
2	Concrete Repair Work	Spalling of concrete at various locations.
3	Fill the Cracks	Block Masonry cracks.
4	Chemical Treatment	Chemical treatment found in deteriorated condition.
5	Adequate Roof Drainage	Adequate Roof Drainage be ensured
6	Grouting of all Washrooms	Seepage at washroom slab and deteriorated of grout at all washrooms.
7	Distemper/ Paint	Distemper/ Paint of repair work