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SUB-PROJECT COMPLETION REPORT

COMPONENT – I

RECONSTRUCTION & STRENGTHENING OF CRITICAL INFRASTRUCTURE

VOLUME – I

Date of Submission:-7th-October-2024

Prepared By: Lea Associates South Asia Pvt. Ltd.

Technical Assistance & Quality Audit Consultants

COMPONENT-I

VOLUME-I

PIU:-R&B KASHMIR

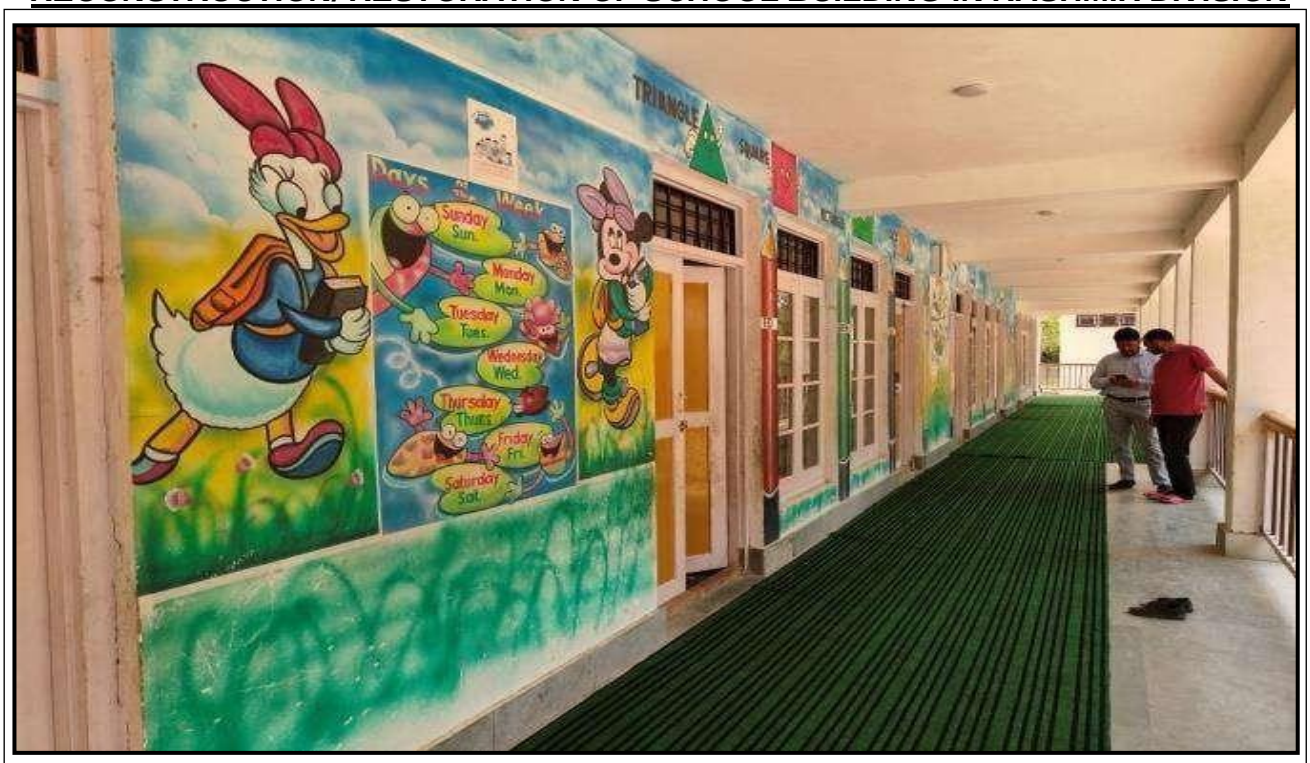
Total Number of Projects:- 41 ***(Including 5 College Buildings Hospitals and Fire & Emergency Building).Completion report of College Buildings, Hospitals, Fire & Emergency building are provide in Volume-II and Jammu Schools are provided in Jammu Project completion report.***

S.No.	Name of Projects	Status
1	(a) Construction of 2 classrooms at MS Shivpora, Srinagar. (b) Construction of 2 Class rooms at Batwara, Srinagar.	Physically and Financially Completed
2	a) Construction of 4 classrooms at HSS Samboora, Pulwama. (b) Construction of 4 classrooms at HS Dogripora, Pulwama. (c) Construction of 2 classrooms at GMS Rakhi Litter, Pulwama. (d) Construction of 2 classrooms at GMS Batpora Naina, Pulwama. (e) Construction of 2 classrooms at GPS Aghanjipora, Pulwama.	Physically and Financially Completed
3	(a) Construction of 2 classrooms at GBHS Nazneenpora, Shopian. (b) Construction of 2 classrooms at GUPS Melhura, Shopian. (c) Construction of 2 classrooms at GUPS Reban, Shopian.	Physically and Financially Completed
4	Const. of 4 classrooms in GMS Gund-i-kilam, Kulgam, with allied works	Physically and Financially Completed
5	Construction of 4 classrooms in GMS Kulhama, Bandipora, with allied works.	Physically and Financially Completed

6	(a) Construction of 2 classrooms in GMS Naikpora, Kulgam, with allied works (b) Construction of 4 classrooms, GGHSS Yaripora, Kulgam, with allied works	
7	(a) Construction of 2 classrooms GMS Arwani, Anantnag. (b) Construction of 4 class room in GHSS Arwani, Anantnag. (c) Construction of 2 classrooms in GMS Hafizabad, Anantnag. (d) Construction of 2 classrooms in GMS Subhanpora , Anantnag. (e) Construction of 4 classrooms in GBMS Tawella, Anantnag.	Physically and Financially Completed
8	(a) Construction of 2 classrooms in GHS Jablipora, Anantnag. (b) Construction of 2 classrooms in GHSS Wanpoh, Anantnag. (c) Construction of 2 classrooms in GMS Katriteng, Anantnag. (d) Construction of 4 classrooms in GBHSS Bijbehara, Anantnag. (e) Construction of 4 classrooms in GHSS, Bijbehara, Anantnag.	Physically and Financially Completed
9	Const of Govt Boys Higher Secondary School Jawahar.	Physically and Financially Completed

VOLUME-I

RECONSTRUCTION/ RESTORATION OF SCHOOL BUILDING IN KASHMIR DIVISION



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SUB-PROJECT COMPLETION REPORT JTFRP KASHMIR DIVISION

PMU JTFRP KASHMIR

1. Introduction

1.1 Project Background

In September 2014, Jammu & Kashmir experienced torrential monsoon rains in the region causing major flooding & landslides. The continuous spell of rains from September 2-6, 2014 caused Jhelum and Chenab Rivers as well as many other streams/tributaries to flow above the danger mark. The Jhelum River also breached its banks flooding many low-lying areas in Kashmir, including

g the capital. In many districts, the rainfall exceeded the normal by over 600%. The Indian Meteorological Department (IMD) records precipitation above 244.4 mm as extremely heavy rainfall and J&K received 558mm of rain in the June – September period as against the normal 477.4 mm. For example, the district of Qazigund recorded over 550 mm of rainfall in 6 days as against a historic normal of 6.2 mm over the same period.

Due to unprecedented heavy rainfall the catchment areas particularly the low lying areas were flooded for more than two weeks. Some areas in urban Srinagar stayed flooded for 28 days. Water levels were as high as 27 feet in many parts of Srinagar. The areas from the main tributaries of river Jhelum vis-à-vis Brenginallah, Vishavnallah, Lidernallah and Sandrannallah started overflowing due to the heavy rainfall causing water levels in Jhelum to rise. Subsequently, the discharge of the river Suran was 200 thousand cusecs as against an average of 50 thousand cusecs. With the excessive discharge of water, the river Suran affected the basin areas and also took a different course at various locations causing damages to the surrounding villages in the catchment area. Water levels also increased in the rivers of Chenab and Tawi, both of which were flowing above normal levels. Due to the rivers overflowing nearly 20 districts of the State were impacted.

A Joint team led by the Department of Economic Affairs (DEA), GoI, with representation from the World Bank visited J&K on October 21, 2014. Subsequently, GoI has sent a request to the World Bank on January 5, 2015 to field a joint Rapid Damage and needs Assessment (RDNA) Mission within the State. In response, a mission of the World Bank visited the State during February 1-6, 2015 in order to produce a rapid multi-sectored assessment report of the damages and needs. The RDNA estimates the total damages and loss caused by floods at about INR 211.975

Million, most of it to housing, livelihoods; roads and bridges which combined represented more than 70% of the damages in terms of value. Public service infrastructure and equipment of hospitals and education centers were also severely damaged and were still not fully operational.

The primary focus of the project "Jhelum & Tawi Flood Recovery Project" is on restoring critical infrastructure using international best practice of resilient infrastructure. Given the region's vulnerability to both flood and earthquakes, the infrastructure will be designed with upgraded resilient feature, and will include contingency planning for future disaster events. Therefore, a study followed by detailed reports on flood management aims at both restoring essential services disrupted by the floods and improving the design standards and practices resilience.

The Government of India has received a loan from the World Bank towards the cost of Jhelum &Tawi Flood Recovery Project (JTFRP) for Government of Jammu and Kashmir. The Disaster Management, Relief & Rehabilitation Department, Government of J&K has been appointed as the implementing agency. One Project Management Unit (PMU) has been set up under this implementing agency which is responsible for overall project management, coordination and reporting.

Based on the Rapid Damage Needs Assessment (RDNA): Results, restoration works underway and discussion with the GOJ&K, the project will focus on resorting critical infrastructure using international best practice on resilient infrastructure. Given the state's vulnerability to both floods and earthquakes, the infrastructure will be designed with upgraded resilient features and will include contingency planning for further disaster events. Therefore, the project aims at both restoring essential services disrupted by the floods and improving the design standard and practices in the state to increase resilience.

1.2 Project Development Objective: The Project Development Objective (PDO) is to support the recovery and increase disaster resilience in targeted areas of the state and increase the capacity of the state entities to respond promptly and effectively to an eligible crisis or emergency.

1.3 Project Components:

The project is comprised of the following seven components:

1. Reconstruction and strengthening of critical infrastructure .
2. Reconstruction of roads and bridges .
3. Restoration of urban flood management infrastructure.
4. Restoration and strengthening of livelihoods .
5. Strengthening disaster risk management capacity .
6. Contingent Emergency Response.
7. Implementation Support .

Total Amount is US$ 250 Million.

Component 1 –Reconstruction and strengthening of critical infrastructure.

The objective of this component is to support the reconstruction/restoration of damaged public buildings, such as hospitals, schools, higher and technical education buildings, fire stations, and selected block and district offices, and other important public buildings. It will include the restoration of partially damaged structures and the reconstruction of fully damaged structures, including equipment and furniture.

The component financed the rehabilitation and reconstruction of disaster-affected public infrastructure and equipment, along with structural upgrades to enhance resilience and compliance with applicable building and seismic standards. Comprehensive technical and structural assessments were conducted to determine the extent of damage, assess structural integrity, and identify retrofitting or reconstruction requirements. In the health sector, interventions focused on the replacement of damaged specialized medical equipment and the implementation of structural strengthening measures to support the installation and operation of heavy diagnostic and treatment equipment, including on upper floors. Where existing facilities were structurally inadequate, dedicated diagnostic and pathology units or extensions were constructed. Older hospital buildings underwent seismic retrofitting to meet updated safety and load-bearing standards. The component also supported the repair and reconstruction of higher education and technical institutions, fire stations, and other public buildings, including the procurement and installation of essential equipment and furniture.

VOLUME -I: SCHOOLS under Execution by PWD R&B (Kashmir) & JKPCC.

Under this Components 25 no's School buildings for Primary Schools, Middle Schools, High Schools and Higher Secondary Schools were constructed under the Supervision of PWD (R&B) Kashmir as PIU and one School under force account by JKPCC. All the Schools were identified by the PWD (R&B) authority and approved by the World Bank under JTFRP (J&K). 25 no of School buildings (including JKPCC School) completed and handed over to Education department.

2. Executive Summary:

- **Objective:**

  The objective of this subproject is to effectively restore and reconstruct damaged schools while integrating the Building as Learning Aids (BALA) technique. This approach not only focuses on repairing and rebuilding facilities to ensure safety and resilience against future disasters but also enhances existing structures to create

engaging educational environments. The project aims to foster activity-based and inclusive education for all children, addressing diverse learning needs and promoting a supportive atmosphere. By transforming traditional classrooms into dynamic spaces, we strive to encourage active participation, creativity, and collaboration among students. Ultimately, the goal is to establish child-friendly learning environments that empower every student to thrive academically and socially, ensuring that education is accessible and enriching for all.

- **Summary of Achievement:** The subprojects have successfully achieved its goal of restoring and reconstructing of 25 schools, into 8 distinct packages completed by the Public Works Department (R&B) of Kashmir as the Project Implementation Unit (PIU). Additionally, 1 package was completed by the Jammu and Kashmir Projects Construction Corporation (JKPCC) under the Force Account contract.

  All construction activities were completed within the approved budget and the framework of the granted time extensions. Each school was restored to comply with applicable safety standards and is now equipped to provide a safe and conducive learning environment for students. The completion of these schools represents a significant step toward strengthening educational infrastructure and resilience in the region, ensuring that all children have access to safe, inclusive, and supportive learning spaces.

  This outcome reflects effective coordination among multiple stakeholders and strict adherence to quality standards, contributing to an educational environment that addresses the diverse needs of the student population and promotes long-term learning outcomes.

- **2.1 Introduction & Background**

This subproject focused on the construction of 25 school buildings across various educational levels–Primary, Middle, High, and Higher Secondary. The initiative was managed by the Public Works Department (R&B) of Kashmir, acting as the Project Implementation Unit (PIU). In addition to the 24 buildings, one school was constructed by the Jammu and Kashmir Projects Construction Corporation (JKPCC) using the Force Account contract

The selection of these schools was carried out by the PWD (R&B), with subsequent approval from the World Bank as part of the Jammu and Kashmir Urban Flood Recovery Project (JTFRP). All 25 schools have been successfully completed. This subproject represents a significant step towards enhancing educational infrastructure in the region, addressing the urgent need for safe and accessible learning environments following recent flood events.

- **2.2 Sub-Project Detail**

The design of all school buildings followed a frame structure, tailored to the individual safe bearing capacity of the soil, ensuring resilience against seismic activity. The buildings incorporated the Building as Learning Aids (BALA) technique, promoting activity-based learning and fostering child-friendly and inclusive educational environments for all students.

The school constructed by JKPCC featured an auditorium on the ground floor, a library and classrooms on the first floor, and examination halls and additional classrooms on the second floor. This thoughtful design emphasizes both functionality and safety, providing a robust foundation for effective learning while withstanding the intensity of earthquake waves. Overall, the project not only addresses immediate educational needs but also prioritizes long-term safety and resilience in the face of natural disasters.

Technical Details of the Schools completed in Kashmir Division:

S.No.	Name of School	Size of Building (Mtr)	No. of Class Rooms/Hall	Size of Class Rooms/Hall(Mtr)	Capacity of Students per Class room	Type of Structure	Roofing
1	Const of 2 classrooms at MS Shivpora, Srinagar.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp.	Slab and Steel Truss CGI Sheets Roofing.
	Const of 2 Class rooms at Batwara, Srinagar.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp.	Slab and Steel Truss CGI Sheets Roofing.
2	Const of Govt Boys Higher Secondary School Jawahar Nagar (3-Storey Building)	29.04X10.75	1(Multi Purpose/Activity Area)	13.41X 7.3	-	Framed Structure with R.C.C Ramp.	Slab and Steel Truss CGI Sheets Roofing.
			1 (Library)	16.15X8.63	-		
			3	5.31X7.40/5.31 X7.40/8.4X7.40	33/33/55		

3	Construction of 4 classrooms at HS Dogripora, Pulwama.	31.15X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms at GMS Rakhi Litter, Pulwama.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms at GMS Batpora Naina, Pulwama.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms at GPS Aghanjipora, Pulwama	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
4	Construction of 2 classrooms at GBHS Nazneenpora, Shopian.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.

	Construction of 2 classrooms at GUPS Melhura, Shopian.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms at GUPS Reban, Shopian.	15.69X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
5	Construction of 4 classrooms in GMS Kulhama, Bandipora, with allied works.	31.15X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
6	Construction. of 4 classrooms in GMS Gund-i-kilam, Kulgam, with allied works	31.5X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
7	Construction of 2 classrooms in GMS Naikpora, Kulgam, with allied works	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.

	Construction of 4 classrooms, GGHSS Yaripora, Kulgam, with allied works	31.5X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
8	Construction of 2 classrooms GMS Arwani, Anantnag.	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 4 class room in GHSS Arwani, Anantnag.	31.5X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms in GMS Hafizabad, Anantnag	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms in GMS Subhanpora, Anantnag.	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 4 classrooms in GBMS Tawella, Anantnag	31.5X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.

9	Construction of 2 classrooms in GHS Jablipora, Anantnag.	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms in GHSS Wanpoh, Anantnag	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 2 classrooms in GMS Katriteng, Anantnag.	15.67X6.06	2	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 4 classrooms in GBHSS Bijbehara, Anantnag.	15.67X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.
	Construction of 4 classrooms in GHSS, Bijbehara, Anantnag	15.67X6.06	4	7.5X5.6	30 to 35	Framed Structure with R.C.C Ramp	Slab and Steel Truss CGI Sheets Roofing.

2.3 CONTRACT DETAIL (District Wise):

(A) District Srinagar

S.No.	Name of Sub-project	Name of Contractor	Revised Contract Cost (Cr)	Date of Start (NTP)	DOC within extended period.	Original Completion Period (Months)	Status of Work
1	(a) Const of 2 classrooms at MS Shivpora, Srinagar. (b) Const of 2 Class rooms at Batwara, Srinagar.	M/s Tarmac Road & Roof Builder	1.637	27.12.2019	31.07.2021	12	Completed & Handed over to School Education Department Kashmir.
2	Const of Govt Boys Higher Secondary School Jawahar Nagar	JKPCC (Under Force Account)	2.506	01-02-2018	31-12-2020	18	Completed & Handed over to School Education Department Kashmir.

(B) District Pulwama

S.No.	Name of Sub-project	Name of Contractor	Revised Contract Cost (Cr)	Date of Start (NTP)	DOC within extended period.	Original Completion Period (Months)	Status of Work
1.	(a) Construction of 4 classrooms at HSS Samboora, Pulwama. (b) Construction of 4 classrooms at HS Dogripora, Pulwama. (c) Construction of 2 classrooms at GMS Rakhi Litter, Pulwama. (d) Construction of 2 classrooms at GMS Batpora Naina, Pulwama. (e) Construction of 2 classrooms at GPS Aghanjipora, Pulwama.	M/s Tarmac Road & Roof Builder	4.755.	20.04.19	30.06.22	12	Completed & Handed over to School Education Department Kashmir.

(C) District Shopian

S.No.	Name of Sub-project	Name of Contractor	Revised Contract Cost (Cr)	Date of Start (NTP)	DOC within extended period.	Completion Period (Months)	Status of Work
1	(a) Consttruction of 2 classrooms at GBHS Nazneenpora, Shopian. (b) Consttruction of 2 classrooms at GUPS Melhura, Shopian. (c) Construction of 2 classrooms at GUPS Reban, Shopian.	M/s Tarmac Road & Roof Builder	2.425 Cr.	02.04.19	25.1.21	12	Completed & Handed over to School Education Department & Functioning

(D) District Bandipora

S.No.	Name of Sub-Project	Name of Contractor	Revised Contract Cost (Cr.)	D.O.S (NTP)	D.O.C within extended period	Completion Period (Months)	Status of Work
1	Construction of 4 classrooms in GMS Kulhama, Bandipora, with allied works.	Ashiq Hussain Bhat	0.964	7-02-2020	25.03.2023	29	Handed over to School Education Department. & Functioning.

(E) District Kulgam

S.No.	Name of Sub-Project	Name of Contractor	Revised Contract Cost (Cr.)	D.O.S (NTP)	D.O.C within extended period	Completion Period (Months)	Status of Work
1	Const. of 4 classrooms in GMS Gund-i-kilam, Kulgam, with allied works	Mohd Anwar Bhat.	0.942	26.12.2019	29.02.2024	12	Completed Handed over to School Education Department. & Functioning
2	(a) Construction of 2 classrooms in GMS Naikpora, Kulgam, with allied works (b) Construction of 4 classrooms, GGHSS Yaripora, Kulgam, with allied works.	M/s Tarmac Road and Roof Builders	1.865	11.04.2019	30.03.2022	36	Completed Handed over to School Education Department & Functioning

(F) District Anantnag

S.No.	Name of Sub-Project	Name of Contractor	Revised Contract Cost (Cr.)	D.O.S (NTP)	D.O.C within extended period	Completion Period (Months)	Status of Work
1	(a) Construction of 2 classrooms GMS Arwani, Anantnag. (b) Construction of 4 class room in GHSS Arwani, Anantnag. (c) Construction of 2 classrooms in GMS Hafizabad, Anantnag. (d) Construction of 2 classrooms in GMS Subhanpora , Anantnag. (e) Construction of 4 classrooms in GBMS Tawella, Anantnag.	M/s Construction Engineers	3.98	11.04.2019	01.01.2022	12	Completed Handed over to School Education Department & Functioning
2	(a) Construction of 2 classrooms in GHS Jablipora, Anantnag. (b) Construction of 2 classrooms in GHSS Wanpoh, Anantnag.	M/s Tarmac Road and Roof Builders	4.297	02.04.2019	30.06.2021	12	Completed Handed over to School Education Department. & Functioning

	(c) Construction of 2 classrooms in GMS Katriteng, Anantnag. (d) Construction of 4 classrooms in GBHSS Bijbehara, Anantnag. (e) Construction of 4 classrooms in GHSS, Bijbehara, Anantnag.						

DETAILS OF THE STAKEHOLDERS

1	Project Implementation Unit (PIU).	PWD (R&B) Department Kashmir./JKPCC (under force account)
2	Project Management Unit (PMU)	JHELUM TAWI FLOOD RECOVERY PROJECT (JTFRP)
3	Quality Audit Consultants	LEA ASSOCIATES SOUTH ASIA PVT LTD. (TAQAC)
4	Funding Agency	World Bank
5	Awarded Cost (INR Crores)	25.57 cr.
6	Completion Cost (INR Crores)	23.38 cr.

3. RESULTS

- **Deliverables:**

Construction of Schools: Successfully completed the restoration and reconstruction of 25 school buildings across Primary, Middle, High, and Higher Secondary levels. Also completed one additional school building for Govt boy's higher secondary school at Jawahar Nagar through JKPCC under the Force Account.

Implementation of the BALA Technique: Integrated the Building as Learning Aids (BALA) methodology in all school designs to promote activity-based and inclusive education.

Safety and Resilience Standards: All completed school buildings met established safety standards, including requirements for seismic resilience. Schools were equipped with essential facilities, including classrooms, libraries, and auditoriums.

Stakeholder Collaboration: Effectively engaged with various stakeholders, including the Public Works Department, local communities, and educational authorities, ensuring a participatory approach to school design and construction.

Enhanced Learning Environments: Developed child-friendly and inclusive educational spaces that cater to the diverse needs of students, promoting engagement and effective learning.

- **Performance Metrics:**

Safety Compliance: 100% of completed schools met established safety standards.

BALA Integration: All 25 completed schools incorporated the BALA technique.

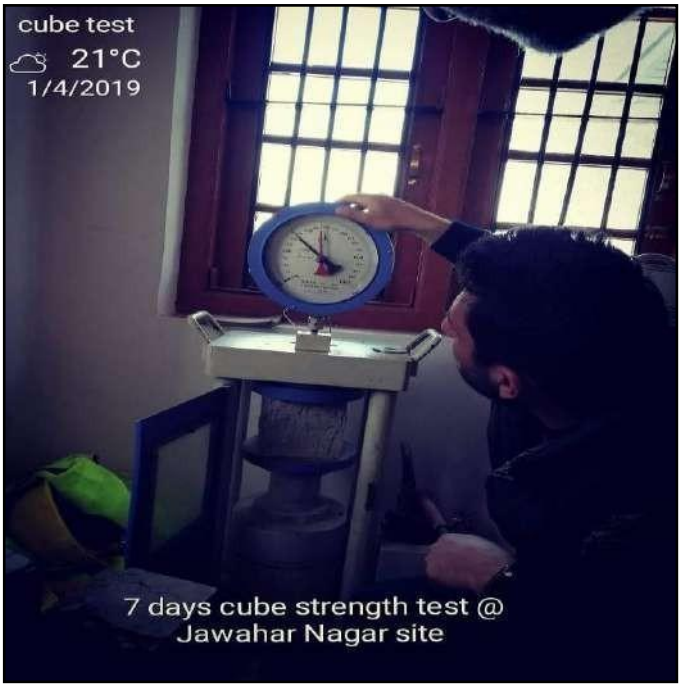
- **Quality Assurance:**

The quality assurance process for the subproject involved:

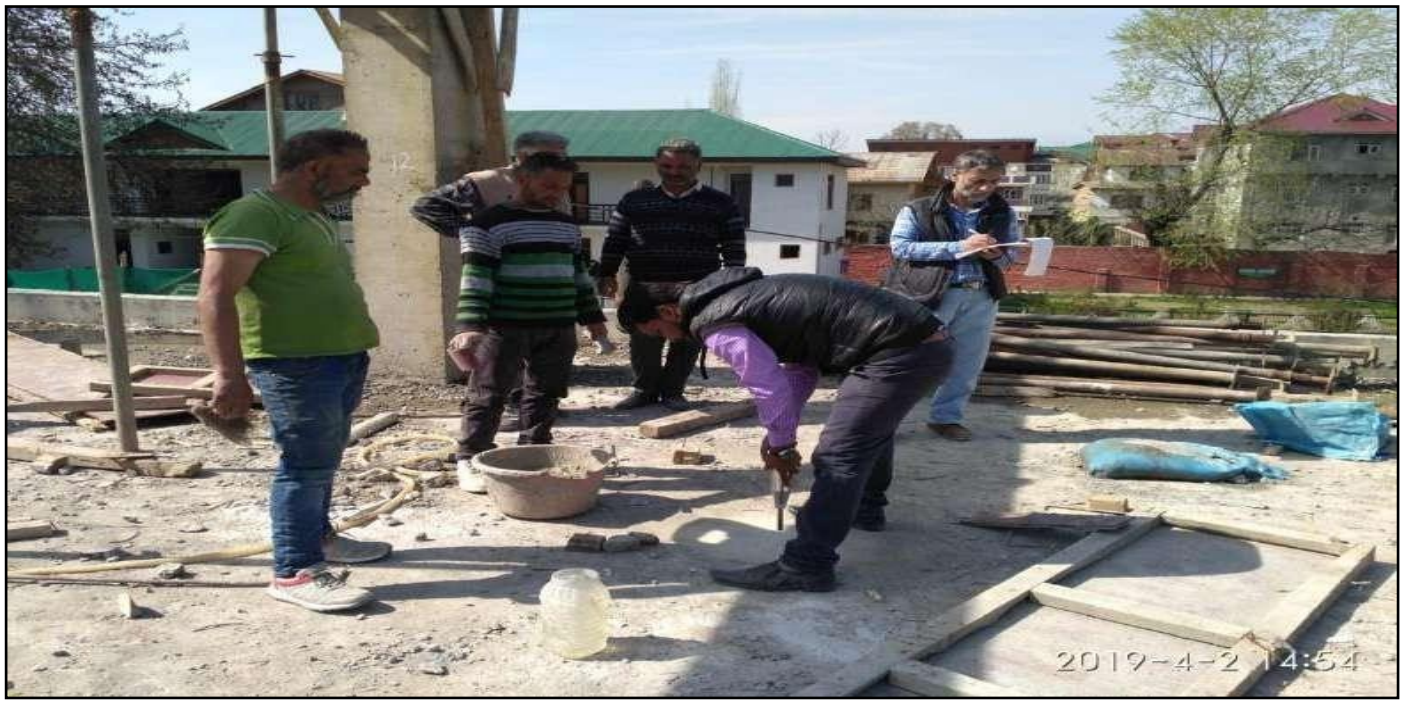
Compliance Checks: Regular inspections ensured that all construction adhered to safety and design standards.

Material Quality: Stringent testing and approval of materials used in construction to guarantee durability and safety.

Slump Test



Compressive test of Concrete.



Non-Destructive test

Stakeholder Involvement: Continuous feedback from stakeholders, including educators and community members, was incorporated to align project outcomes with educational needs.

Documentation and Reporting: Detailed documentation of construction activities, inspections, and compliance reports was maintained to ensure transparency and accountability.

Final Assessments: Comprehensive evaluations of completed schools confirmed that facilities met established quality benchmarks before handover.

4. LESSONS LEARNT:

- **Successes Summary**

The subproject achieved several key successes:

Effective Communication: Strong collaboration between the School Education Authority and the Public Works Department (R&B) facilitated clear communication, leading to efficient project execution.

Timely Completion: All 25 schools were completed within the approved budget and extended timeline, demonstrating effective project management.

High-Quality Construction: Rigorous quality assurance processes ensured that all schools met safety and design standards, resulting in durable and resilient educational facilities.

Stakeholder Engagement: Continuous feedback from educators and community members was actively sought and integrated, ensuring that the facilities addressed local educational needs.

Positive Impact on Enrollment: The completion of these schools has significantly increased student enrollment, reflecting the project's success in providing accessible and child-friendly learning environments.

- **Area of Improvement:**

Future Vertical Expansion: The designs of the school structures should have included provisions for future vertical expansion, allowing for increased capacity as student enrollment grows.

Campus Development: A comprehensive landscaping plan for the entire campus should have been proposed to enhance the aesthetic appeal and functionality of the school environment.

Beautification of Existing Structures: Consideration for the further beautification of older existing structures could have improved the overall learning atmosphere and community integration.

Enhanced Planning: Future projects should focus on more holistic planning that includes not only structural integrity but also the surrounding environment and potential growth needs.

5. CONCLUSION:

- **Impact:**

Increased Enrollment: The completion of earthquake-resistant school buildings equipped with the BALA technique has significantly boosted student enrollment by 20% to 40%, for different schools demonstrating the project's effectiveness in providing accessible and inclusive educational environments.

6. Enrollment of students

S No.	Name of School	Enrollment of Students before construction	Enrollment of Students after construction	Percentage Increased
1	Const of 2 classrooms at MS Shivpora, Srinagar.	75	93	19%
	Const of 2 Class rooms at Batwara, Srinagar.	30	45	33%
2	Const of Govt Boys Higher Secondary School Jawahar Nagar	250	310	20%
3	Construction of 4 classrooms at HS Dogripora, Pulwama.	80	103	22%
	Construction of 2 classrooms at GMS Rakhi Litter, Pulwama.	140	175	20%
	Construction of 2 classrooms at GMS Batpora Naina, Pulwama.	110	125	12%

	Construction of 2 classrooms at GPS Aghanjipora, Pulwama	55	80	31%
4	Construction of 2 classrooms at GBHS Nazneenpora, Shopian.	112	140	20%
	Construction of 2 classrooms at GUPS Melhura, Shopian.	60	82	27%
	Construction of 2 classrooms at GUPS Reban, Shopian.	74	90	18%
5	Construction of 4 classrooms in GMS Kulhama, Bandipora, with allied works.	160	218	27%
6	Construction. of 4 classrooms in GMS Gund-i-kilam, Kulgam, with allied works	180	240	25%
7	Construction of 2 classrooms in GMS Naikpora, Kulgam, with allied works	130	165	21%
	Construction of 4 classrooms, GGHSS Yaripora, Kulgam, with allied works	235	310	24%
	Construction of 2 classrooms GMS Arwani, Anantnag.	138	170	19%
	Construction of 4 class room in GHSS Arwani, Anantnag.	180	225	20%

8	Construction of 2 classrooms in GMS Hafizabad, Anantnag	165	193	15%
	Construction of 2 classrooms in GMS Subhanpora, Anantnag.	142	175	19%
	Construction of 4 classrooms in GBMS Tawella, Anantnag	170	215	21%
9	Construction of 2 classrooms in GHS Jablipora, Anantnag.	144	168	14%
	Construction of 2 classrooms in GHSS Wanpoh, Anantnag	235	280	16%
	Construction of 2 classrooms in GMS Katriteng, Anantnag.	135	190	29%
	Construction of 4 classrooms in GBHSS Bijbehara, Anantnag.	180	220	18%
	Construction of 4 classrooms in GHSS, Bijbehara, Anantnag	190	245	22%

Enhanced Learning Experiences: The integration of activity-based learning spaces promotes student engagement and supports diverse learning styles, fostering a more effective educational experience.

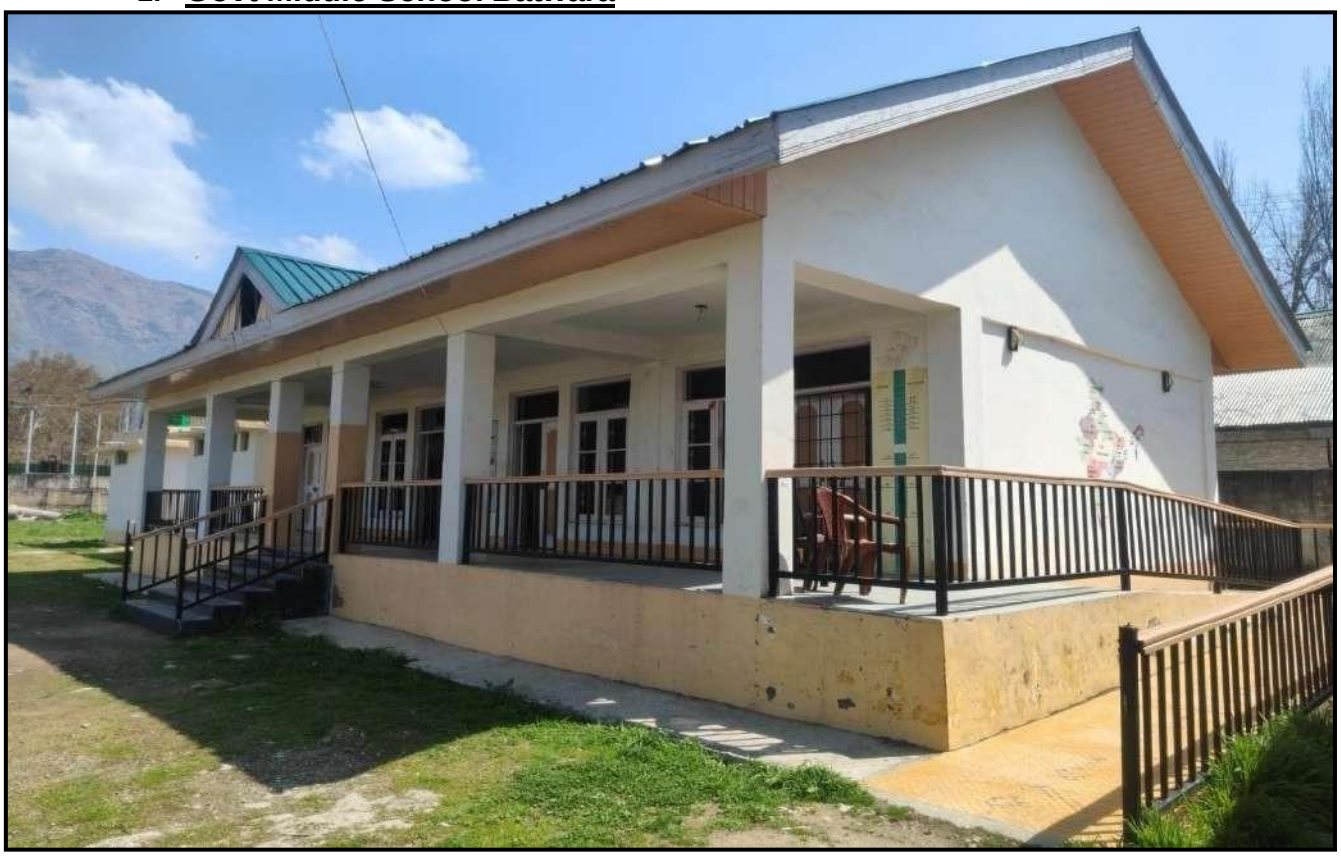
Community Resilience: The project contributes to community resilience by ensuring that schools are safe and equipped to withstand natural disasters, thereby enhancing the overall stability of the educational infrastructure in the region.

- **Summary:** The project successfully completed 25 school buildings in the Kashmir region, utilizing the BALA technique and adhering to modern earthquake-resistant design guidelines. This initiative has significantly improved educational infrastructure, creating safe and child-friendly environments that support diverse learning needs. The project has laid a strong foundation for future educational success in the region.

(A) Pictures of Completed Schools (District Srinagar):

1. Govt. Primary School Shivpora

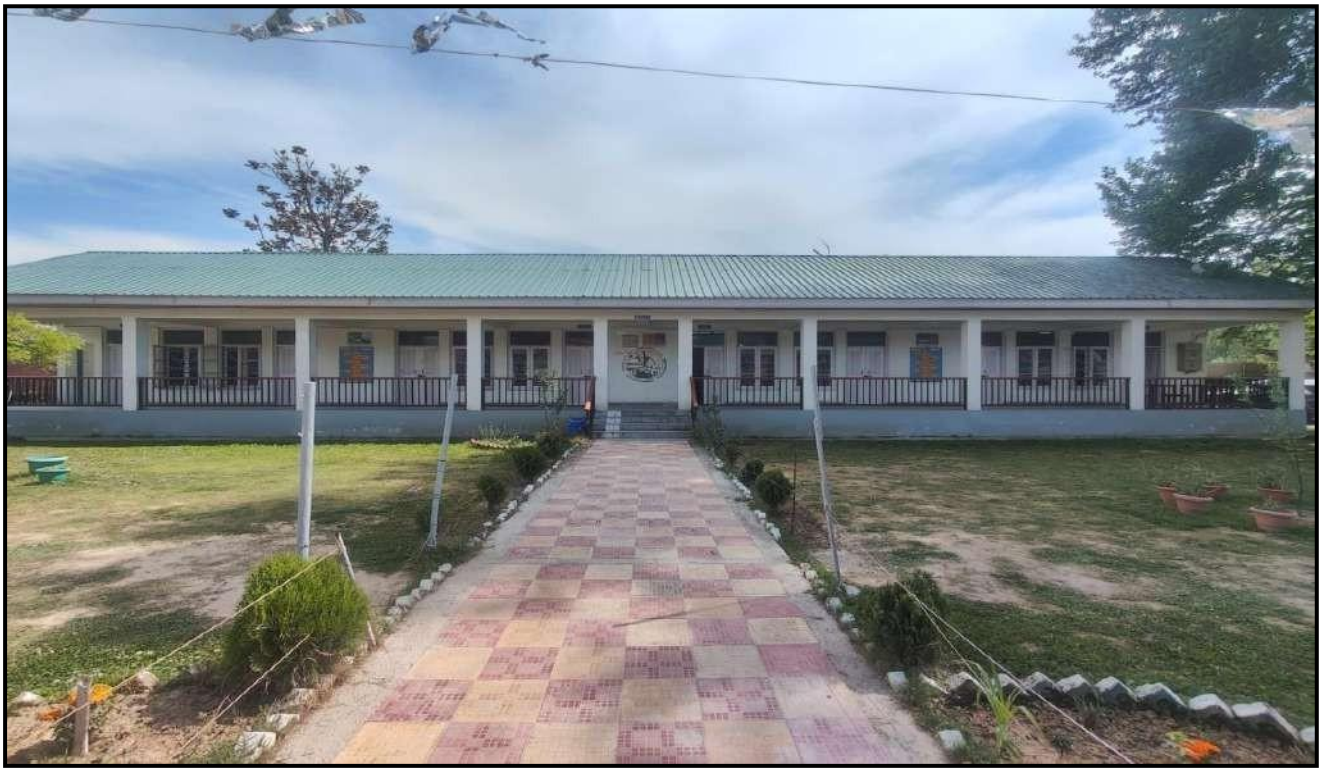
2. Govt Middle School Batwara



3. Govt Higher Secondary School Jawahar Nagar(JKPCC)

(B) Pictures of Completed Schools (District Pulwama):

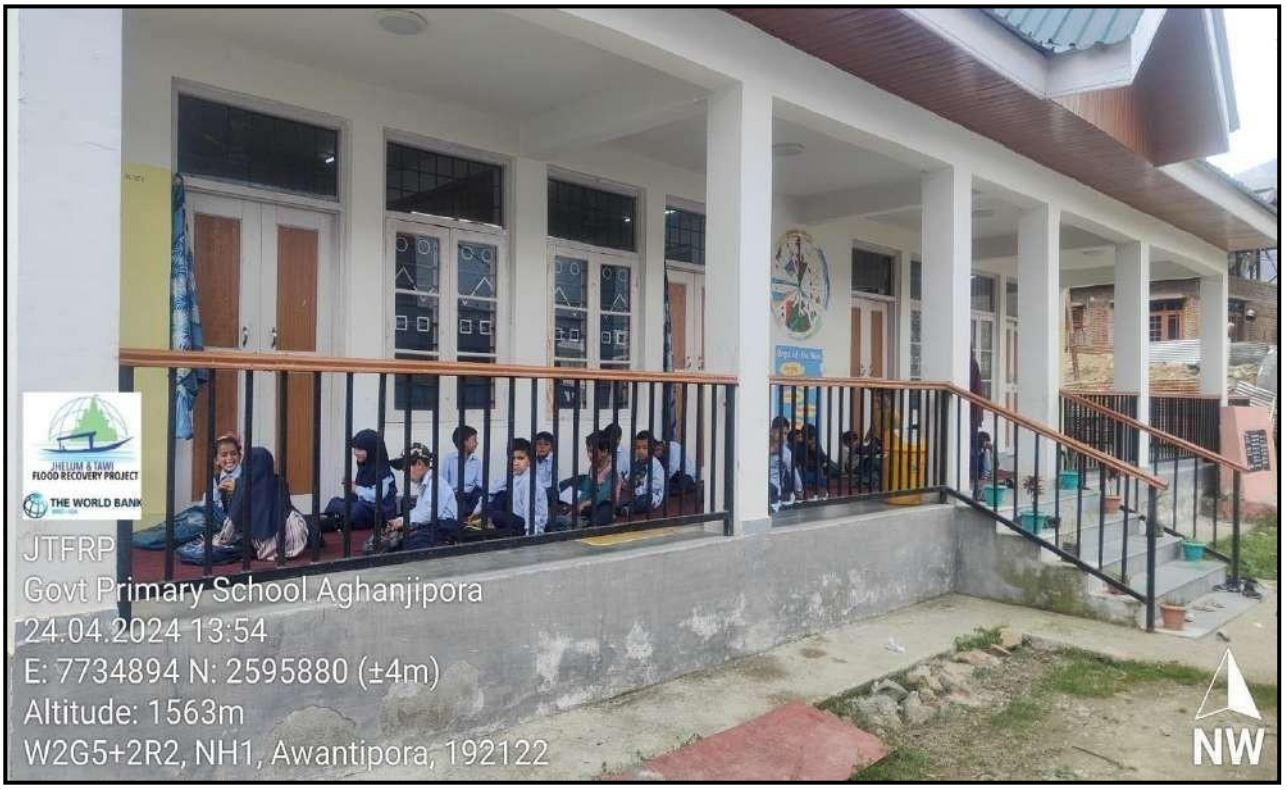
1. Govt Higher Secondary School Samboora



2. **Govt High School Dogripora**

3. **Govt Middle School Batpora Naina**

4. Govt Primary School Aghanjipora



(C). Pictures of Completed Schools (District Shopain):

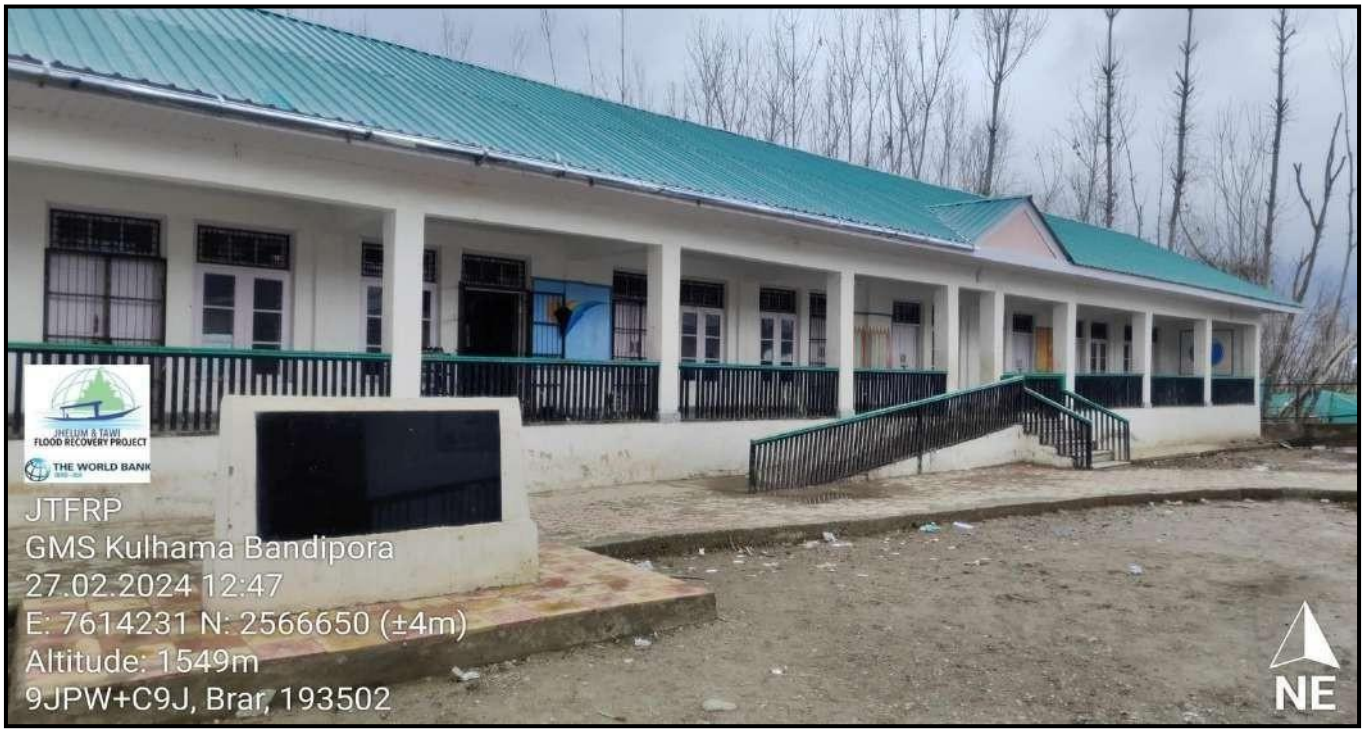
1. Govt Boys High School Nazneenpora

2. Govt Boys Middle School Melhura

3. Govt Boys Middle School Reban

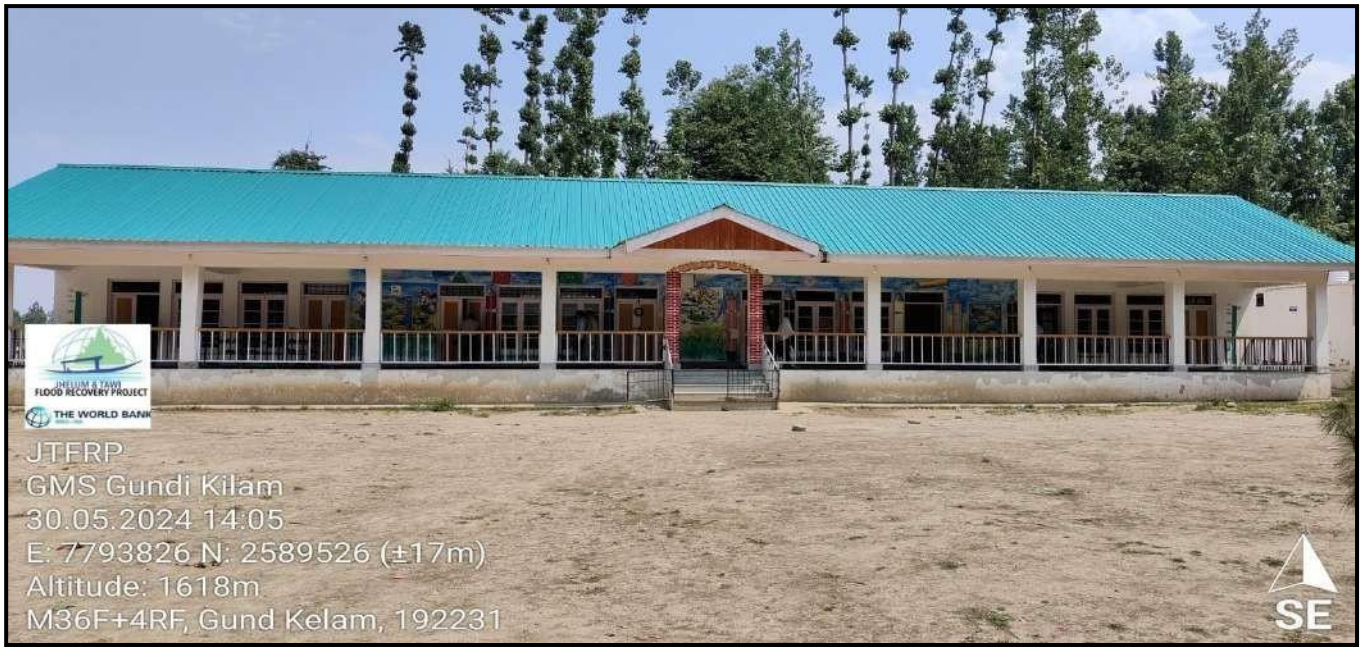
(D). Pictures of Completed Schools (District Bandipora):

1. Govt Middle School Kulhama

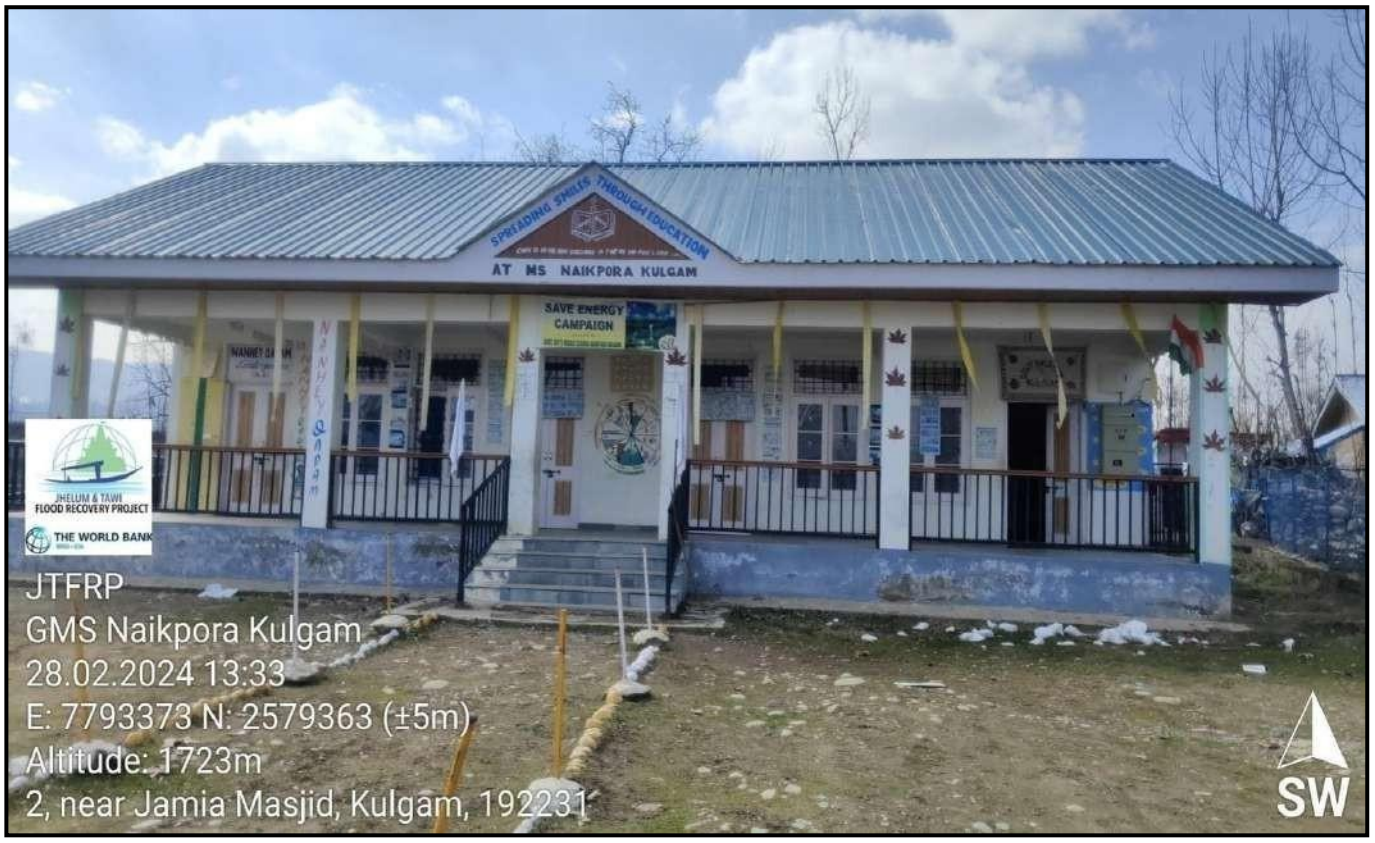


(E). Pictures of Completed Schools (District Kulgam):

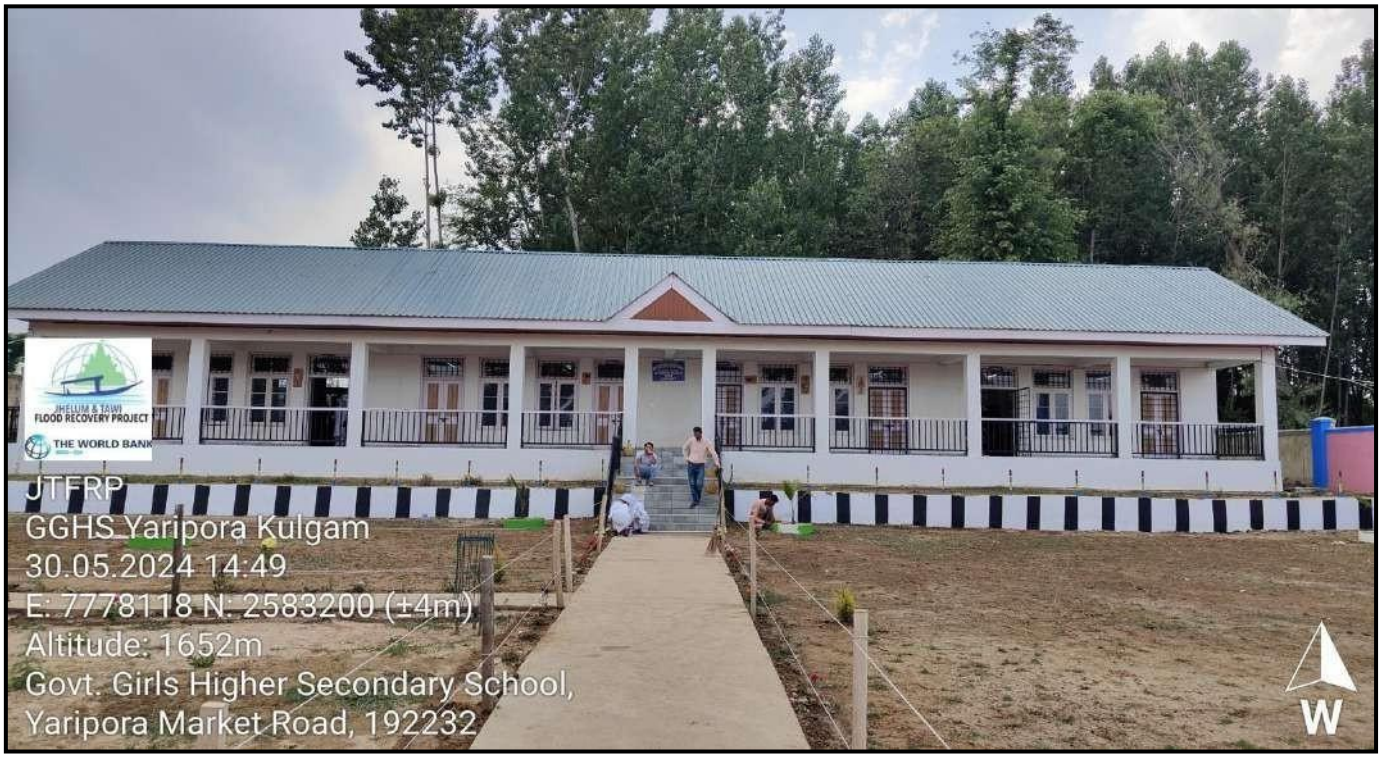
1. Govt Middle School Gund-i-Kilam



2. Govt Middle School Naikpora

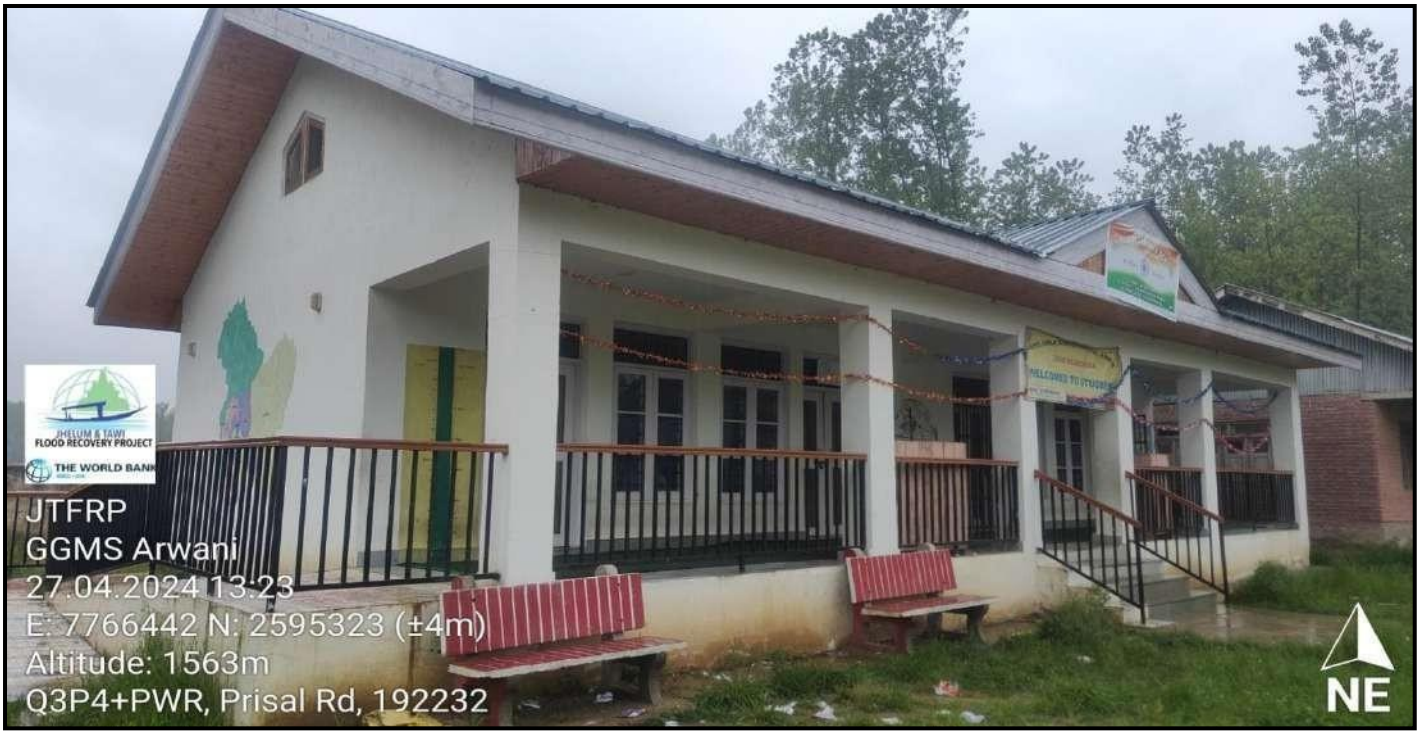


3. Govt. Girls Higher Secondary School, Yaripora.



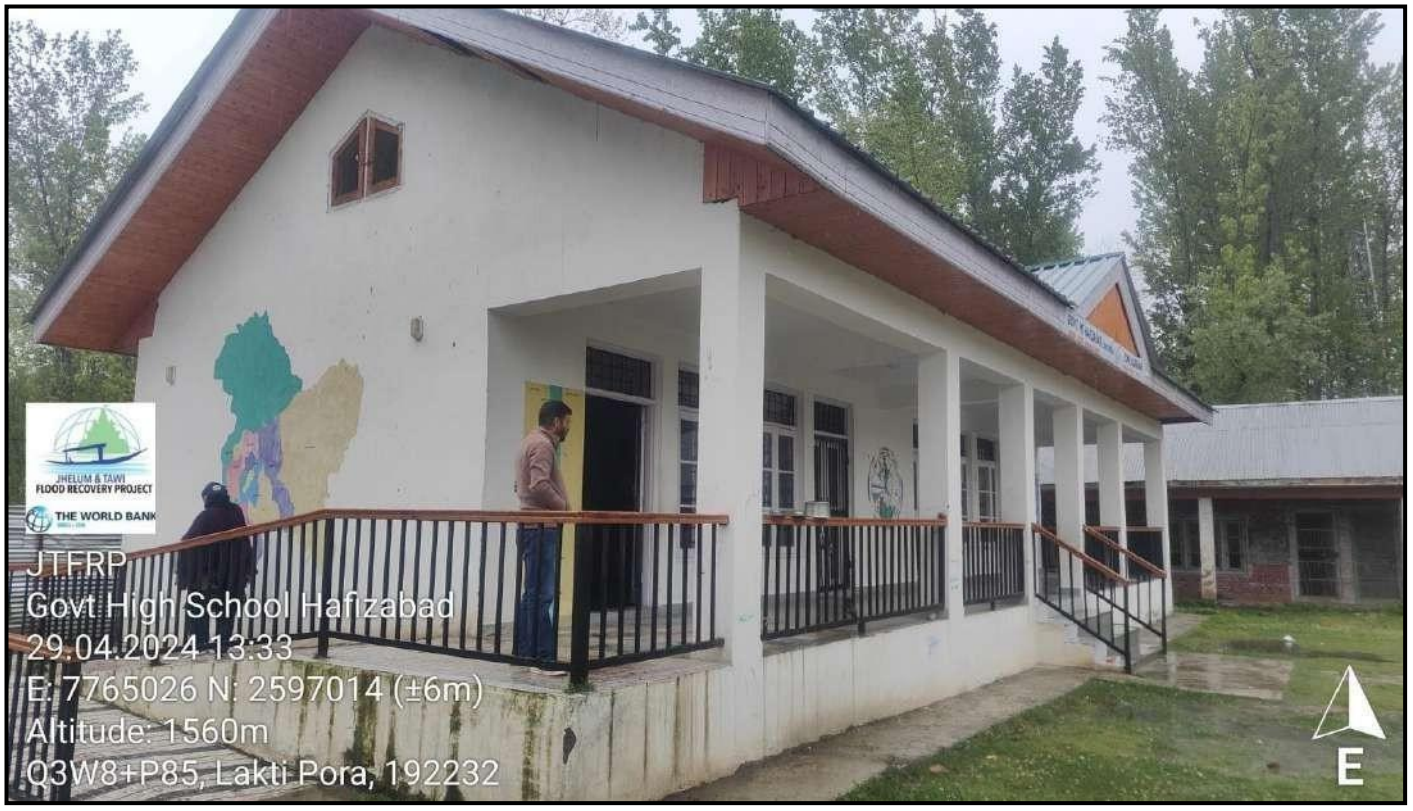
(F) Pictures of Completed Schools (District Anantnag)

1. Govt Middle School, Arwani.

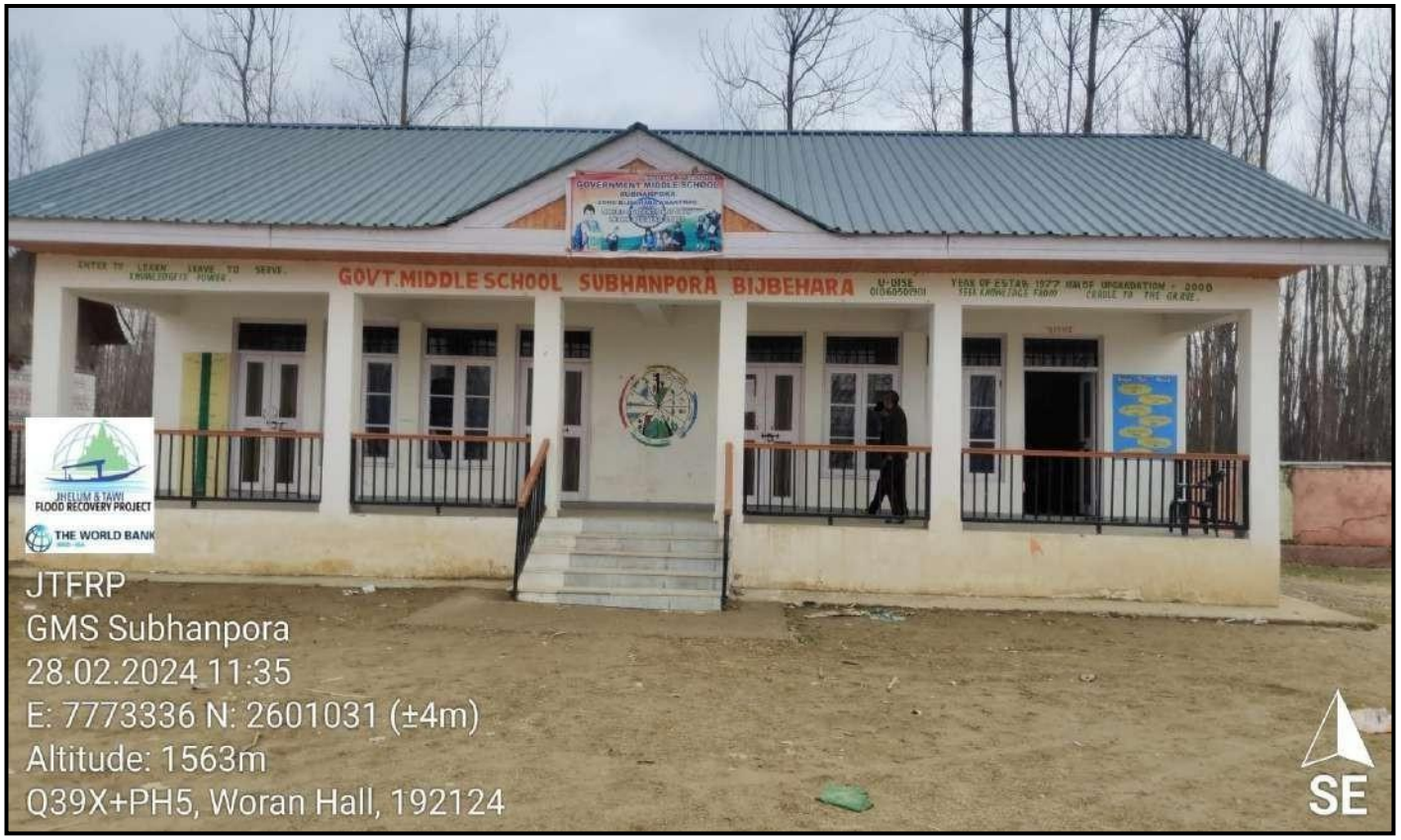


2. Govt Higher Secondary School, Arwani

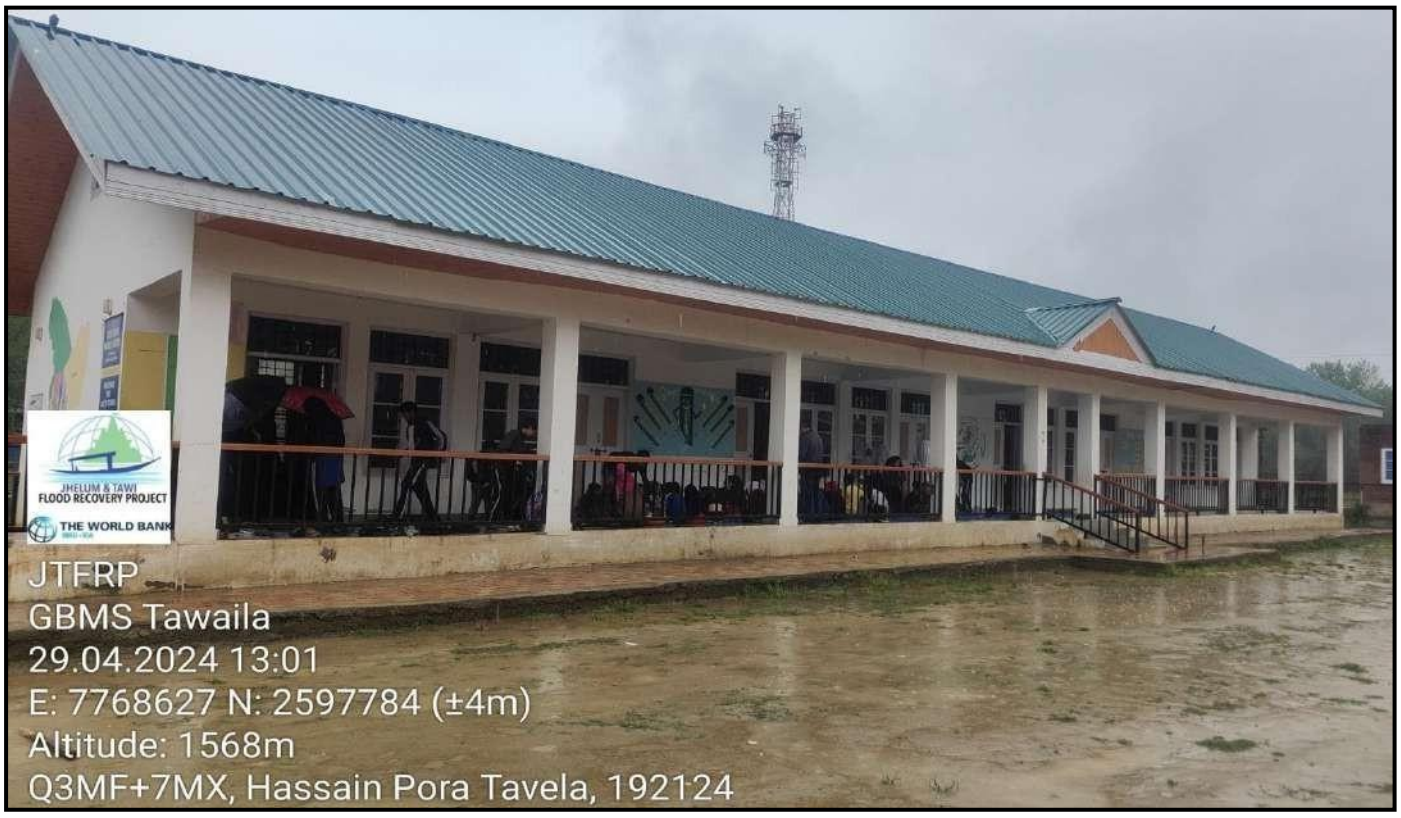
3. Govt Middle School, Hafizabad



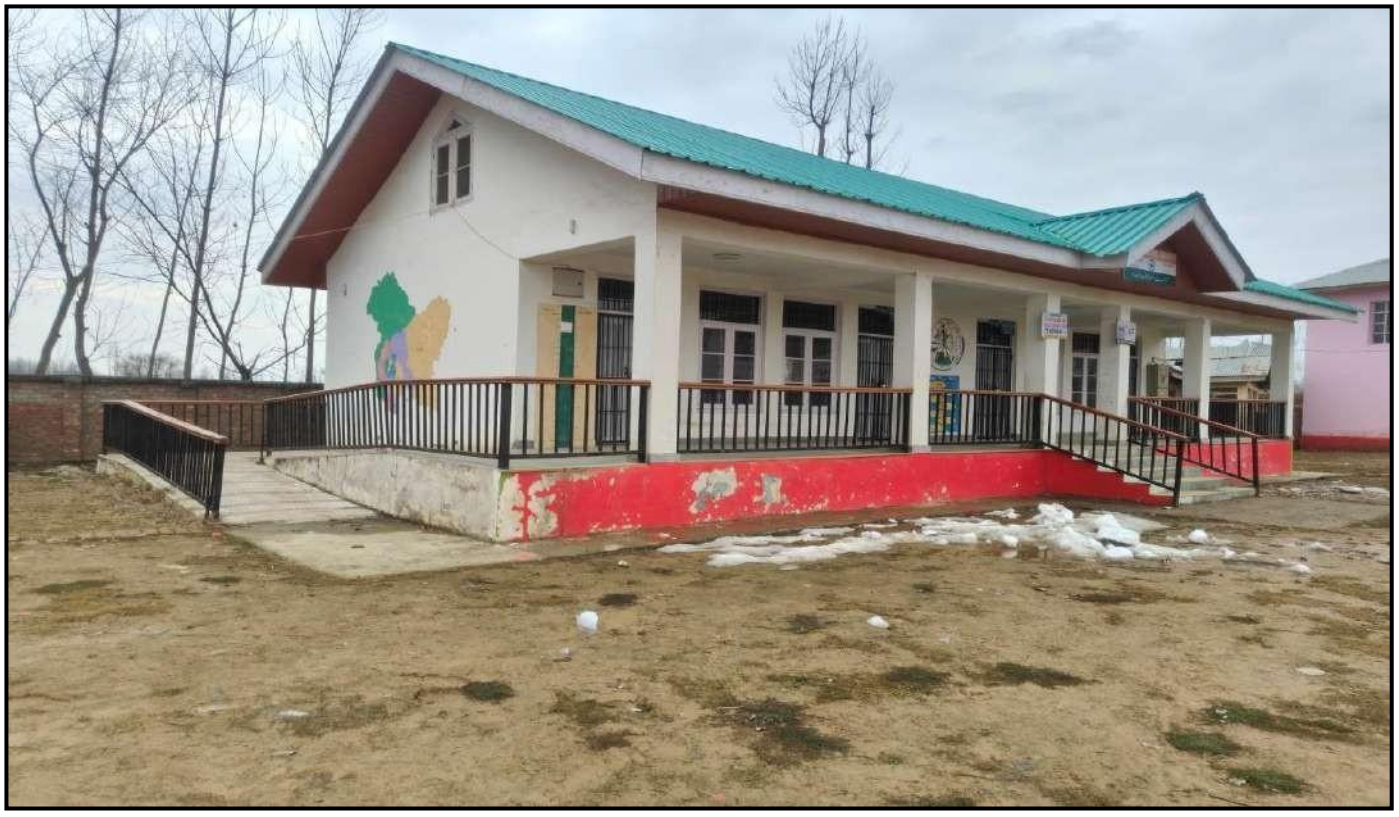
4. Govt Middle School, Subhanpora



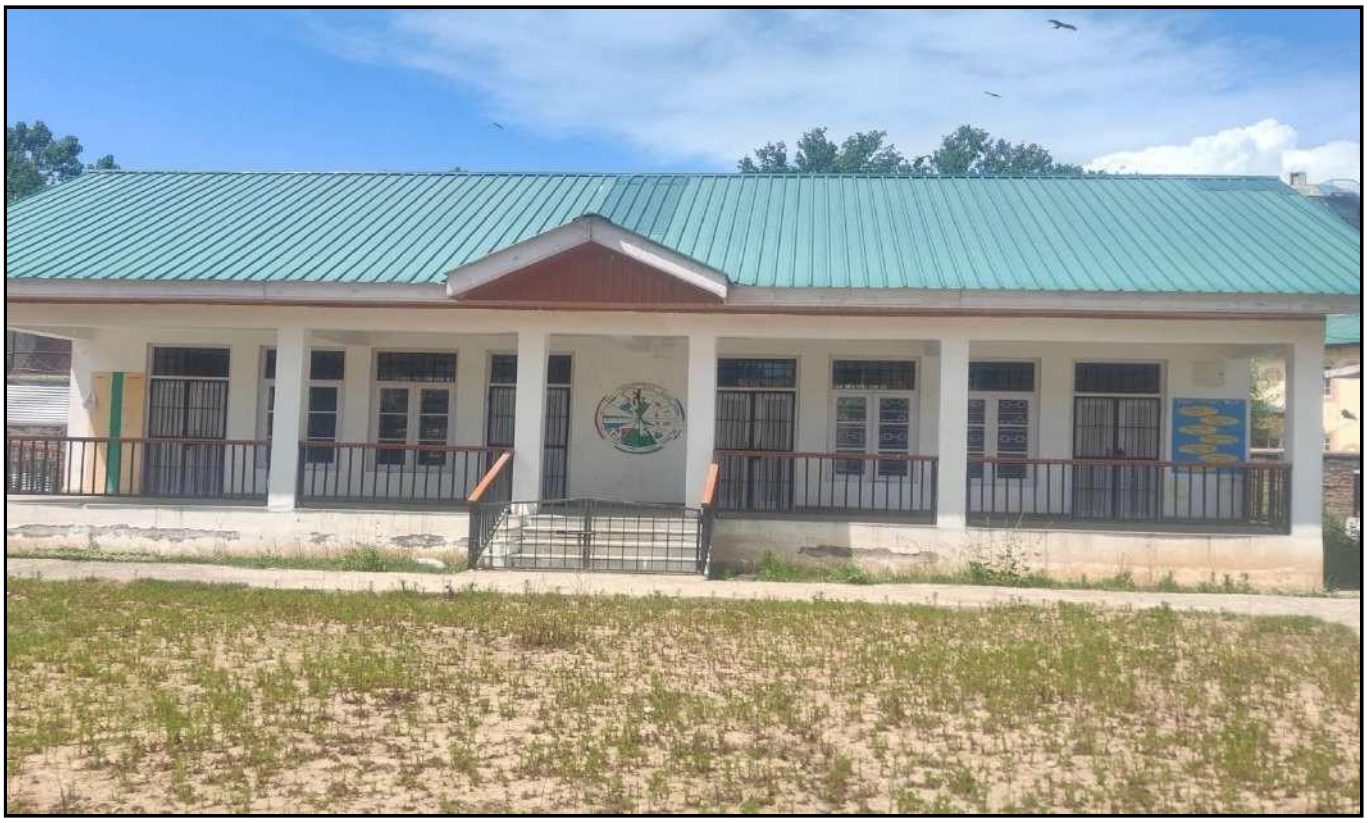
5. Govt Middle School, Tawella



6. Govt Middle School, Jablipora

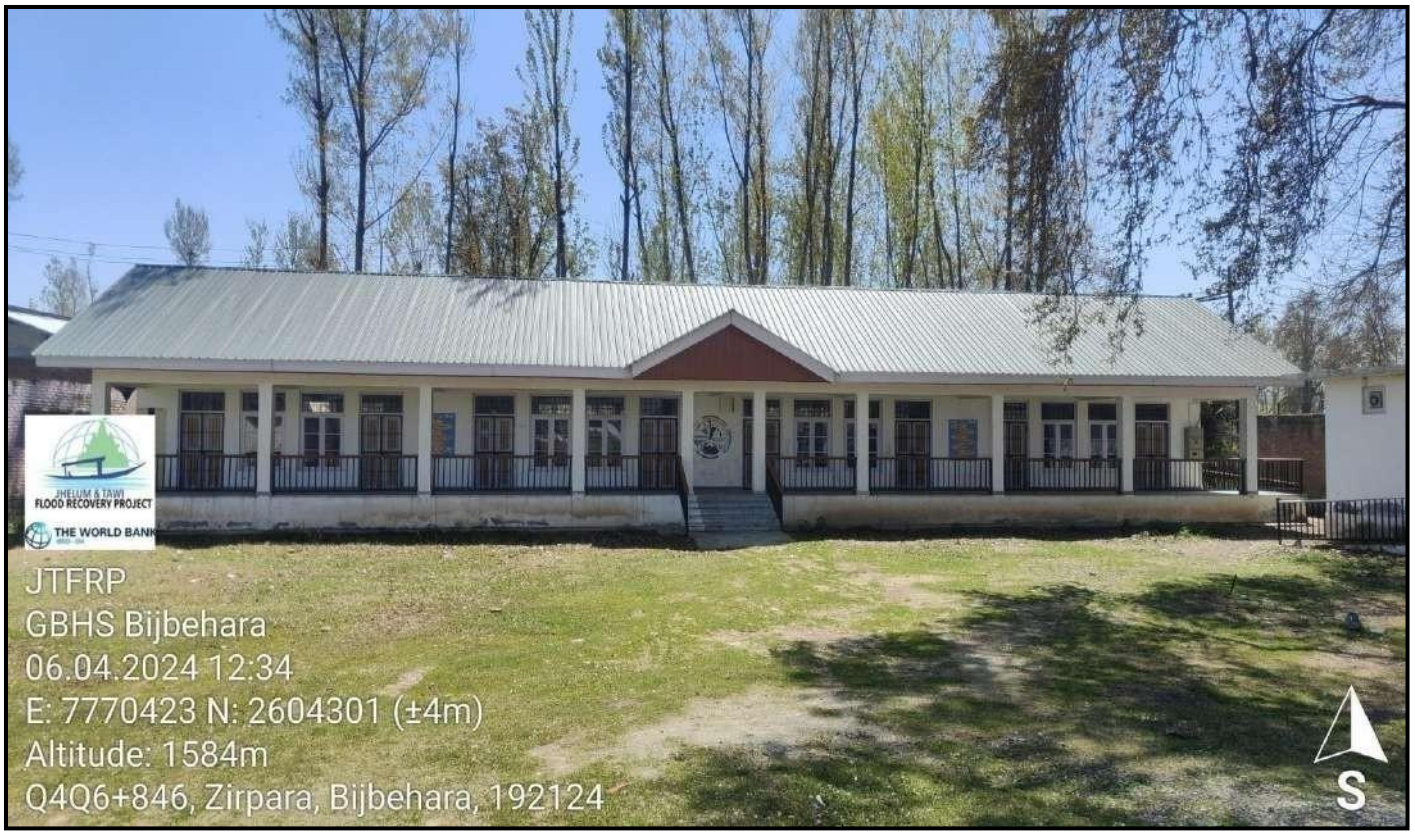


7. Govt Middle School, Wanpoh



8. Govt Boys Middle School, Katriteng

9. Govt Boys Higher Secondary School,Bijbehara.



10. Govt Girls Higher Secondary School,Bijbehara.

END OF REPORT

MOUNT GEO TECHNICAL SERVICES PVT. LTD.
Detailed Geotechnical (Soil / Rock) Investigations, Construction Material Testing, Mix design, In-Situ Rock Mechanics Tests, Rock Anchors, Grouting, Topographical Survey and Construction of Pile Foundations
ENGINEERS & CONSULTANTS

Ref. No: MGS/TAR/MD/19-01
Dated:

MIX DESIGN REPORT FOR M20 GRADE CONCRETE

Name of the Client: **TARMAC ROAD AND ROOF BUILDERS**
Address: **Srinagar**

Procedure of Mix design adopted: **IS Method**

Parameters for carrying out Mix design:

1. Characteristic compressive strength f_{ck} 20 N/mm²
2. Target mean strength: $f_{ck} + ks = (20 + 1.65x4) = 26.60$ N/mm²
3. Maximum size of coarse aggregate = 20mm
4. Degree of Workability = Medium (Compaction factor= 0.9)
5. Degree of quality control: Good
6. Exposure to Weather: Moderate
7. Type of cement: OPC 43 Grade (TCI MAX Brand)
8. Water-cement ratio: 0.45 approx.
9. Sand supplied by the client falls in Grading Zone III

As per IS recommendations and above data, number of trials for mix proportions were laid and successful trial works out as under

Cement = 400 kgs
Fine Aggregate = 604 kgs
Coarse Aggregate = 1209 kgs (20mm aggregate @ 75% = 907 kgs and 10mm aggregate @ 302 kgs) Water = 180 kgs

The proportion by weight of cement: coarse sand: coarse aggregate = **1: 1.51: 3.02**
The average cube strength of above mix observed after 7,14 and 28 days of curing is as under

S. No.	No. of days	Compressive Strength (observed Value) N/mm²	Compressive Strength (target Value) N/mm²	Remarks
1.	7	18.8	18.62	
2.	14	26.61	23.94	
3.	28	27.3	26.6	

NOTE: The fine aggregates to be used in concrete shall be free from organic matter and clay lumps and coarse aggregates shall be used after proper washing.

MOUNT GEO TECHNICAL SERVICES PVT. LTD.

Corporate Office:
Wathoora, Batapora, Chadoora, Budgam, J&K-191113, Tel : 01951 – 219863
E-Mail: mountgeotech@gmail.com,mgslaw@yahoo.in

Office of the Dean Research and Consultancy
National Institute of Technology Srinagar

NIT/Dean R&C/05

Dated: /2020

Assistant Executive Enginer
(PWD)(R&) Sub-Division
Khanbal.

Subject: - Test report of Structural Steel truss material.
Reference: - WB/P/346, Dated:

Dear Sir,

In reference to above subject please find enclosed the test report of Structural Steel sample for the truss design (Brand: Kamdhenu-A65-ISI-2062, 65x65x6) (50x50x6-A50 ISI) (Purlin ISMC 100x50). The tests have been performed by Civil Engineering Department of this Institute.

07.01.2020

(Prof. G. A. Harmain)
Dean R&C
Research and Consultancy
NIT Srinagar 190006

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
HAZRATBAL, SRINAGAR - 190006 (J&K)

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NIT Dean R&C/ 378
Dt 20/9/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division

Subject : Test of key construction materials
Reference: Your letter No: 186/S-9; Dated: 03-07-2019

Dear Sir,

Please refer to above subject and find below the test results report of desired steel samples received in our laboratory for testing purpose. The tests have been conducted as per relevant IS Code recommendations.

Table1: Test results for Jyoti Tempcore SD (Fe- 500D)

S. No.	Dia. (mm)	Yield Stress/0.2% Proof Stress (N/mm^2)		Ultimate Tensile Strength (N/mm^2)		Elongation (%)	
		Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)
1	20	553.07	500	669.05	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		546.17		661.44		23.0	
3		555.09		671.05		22.0	
1	16	510.81	500	614.94	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		523.16		636.11		24.0	
3		515.17		633.14		25.1	
1	12	561.84	500	681.14	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		554.30		676.14		18.36	
3		570.18		700.14		23.75	
1	10	480.96	500	595.02	Not less than (565.00 and 10% more than actual Proof stress)	20.0	16.0
2		495.51		600.12		21.0	
3		500.10		612.10		22.5	
1	8	595.63	500	695.77	Not less than (565.00 and 10% more than actual Proof stress)	22.50	16.0
2		598.17		718.94		21.25	
3		600.12		714.13		22.0	

24.7.19

DEPARTMENT OF CIVIL ENGINEERING
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NIT/Dean R&C/398
Dt 29/7/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division

Subject : Test of key construction materials
Reference: Your letter No: 186/S-9; Dated: 03-07-2019

Dear Sir,

Please refer to above subject and find below the test results report of **physical properties of TCI Max. Cement (Table 1) and Ambuja Cement (Table 2)** received in our laboratory for testing purpose. Both the samples are of OPC 43 Grade.

References

IS 8112:2013, Ordinary Portland Cement, 43 Grade -Specification
IS 4031-Part 1, Determination of Fineness by Sieving
IS 4031-Part 3, Determination of Soundness
IS 4031-Part 4, Determination of Consistency of Standard Cement Paste
IS 4031-Part 5, Determination of Initial & Final Setting Time
IS 4031-Part 6, Determination of Compressive Strength

Table 1: TCI Max Cement

	IS requirement	Test results	Units
Standard Consistency	Not Specified	28%	—
Fineness	<10	8%	%
Soundness (Le Chatelier's method)	≤10	5.4	mm
Setting time Initial Final	≥30 ≤600	100 160	Minutes
Compressive strength 7-days	≥33	33.0	MPa

26.7.19

29.7.19

DEPARTMENT OF CIVIL ENGINEERING
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NIT Dean R&C/398
Dt 29/7/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division

Subject : Test of key construction materials
Reference: Your letter No: 186/S-9; Dated: 03-07-2019

Dear Sir,
With reference to the above cited subject, kindly find herewith the test report of physical properties of 20 mm coarse aggregate received by the Structural Engineering Section of this Department. It is pertinent to mention here that the tests were conducted as per the procedure laid down in relevant I S codes.

Table 1: 20 mm nominal sized aggregate

S. No	Test Description	Results			
01	Sieve Analysis Report	IS Sieve Size	% weight of sample retained	Cumulative %age Retained	%age Weight Passing
		25 mm	1.8	1.8	98.2
		20 mm	7.0	8.8	91.2
		16 mm	45.7	54.5	45.5
		12.5 mm	38.0	92.5	7.5
		10 mm	5.0	97.5	2.5
		6.3 mm	2.5	100	0
		4.75 mm	0	100	0
		2.36 mm	0	100	0
		1.18 mm	0	100	0
		600 µ	0	100	0
		300 µ	0	100	0
		150 µ	0	100	0
		< 150 µ	0	100	0
02	Fineness Modulus	10.55			
03	Water Absorption	1.5 %			
04	Crushing Value	22 %			

29.7.19
Officer Incharge
Structural Engineering Section
29/7/19

Department Of Civil Engineering
National Institute of Technology Srinagar
Hazratbal, Srinagar- 190006 (J&K)

Phone (O): 0194-2422032
Fax: 0194- 2420475

No. NIT/Dept/R&C/05
Dated 07/01/2020

Subject : Testing of structural steel.
Reference : Letter No.WB/T/346 Dated: 16.12.2019

Test report of structural steel samples

S No.	Description	Tensile Strength (N/mm²) Test Value	Tensile Strength (N/mm²) IS Value (Minimum)	Yield Strength (N/mm²)	Percentage Elongation Test Value	Percentage Elongation IS Value (Minimum)
1.	Angle 65 x 65 x 6	578.58	410	411.80	25.71	23.0
		575.77		401.60	26.42	
		576.15		400.10	25.71	
2.	Angle 50 x 50 x 6	585.71	410	408.05	27.70	23.0
		588.49		407.38	27.03	
		570.91		388.55	27.12	
3.	ISMC 100	639.39	410	406.66	27.14	23.0
		637.61		401.77	25.72	
		635.40		400.16	27.37	

P S The structural steel, samples of which were tested, is found to be suitable for use in civil engineering works

Officer in Charge
Structures
Professor
Deptt of Civil Engineering
N.I.T. Srinagar

06/01/2020
Head, Civil Engg. Deptt.

Professor & Head
Department of Civil Engineering
National Institute of Technology
Hazratbal, Srinagar, Kashmir-190006

Table 2: Test results for Kamdhenu (Fe- 500D)

S. No.	Dia. (mm)	Yield Stress/0.2% Proof Stress (N/mm²)		Ultimate Tensile Strength (N/mm²)		Elongation (%)	
		Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)
1	20	381.04	500	524.64	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		406.91		600.51		30.0	
3		395.12		575.3		32.0	
1	16	375.79	500	528.01	Not less than (565.00 and 10% more than actual Proof stress)	38.0	16.0
2		395.32		536.11		30.0	
3		400.23		533.14		35.1	
1	12	487.32	500	621.14	Not less than (565.00 and 10% more than actual Proof stress)	18.0	16.0
2		478.40		629.85		19.0	
3		480.18		650.14		20.0	
1	10	502.43	500	666.39	Not less than (565.00 and 10% more than actual Proof stress)	20.0	16.0
2		505.51		630.12		19.0	
3		520.10		672.10		21.5	
1	8	595.63	500	700.43	Not less than (565.00 and 10% more than actual Proof stress)	17.50	16.0
2		597.17		693.59		16.0	
3		580.12		674.13		17.0	

29.7.19
Officer In-charge,
Structures

29.7.19

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
HAZRATBAL, SRINAGAR - 190006 (J&K)

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NIT Dean R&P/398
Dt 29/7/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division

Subject : Test of key construction materials
Reference: Your letter No: 186/S-9; Dated: 03-07-2019

Dear Sir,

With reference to the above cited subject, kindly find herewith the particle size distribution report of fine aggregate received by the Structural Engineering Section of this Department. It is pertinent to mention here that the tests were conducted as per the procedure laid down in relevant I S codes.

S. No	Test Description	Results			
		IS Sieve Size	% weight of sample retained	Cumulative %age Retained	%age Weight Passing
01	Sieve Analysis Report	4.75 mm	5.9	5.9	94.1
		2.36 mm	3.6	9.5	90.5
		1.18 mm	20.0	29.5	70.5
		600 μ	29.0	58.5	41.5
		300 μ	37.1	95.6	4.4
		150 μ	4.3	99.9	0.1
02	Fineness Modulus	2.98			
The Fine Aggregate falls in Zone II					

Officer Incharge 29.7.19
Structural Engineering Section

29.7.19.

NIT Dem Rec/309
Dt 26.7.2020

Table 2: Test results for Kamdhenu (Fe- 500D)

S. No.	Dia. (mm)	Yield Stress/0.2% Proof Stress (N/mm²)		Ultimate Tensile Strength (N/mm²)		Elongation (%)	
		Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)
1	20	381.04	500	524.64	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		406.91		600.51		30.0	
3		395.12		575.3		32.0	
1	16	375.70	500	528.01	Not less than (565.00 and 10% more than actual Proof stress)	38.0	16.0
2		395.32		536.11		30.0	
3		400.23		533.14		35.1	
1	12	487.32	500	621.14	Not less than (565.00 and 10% more than actual Proof stress)	18.0	16.0
2		478.40		629.85		19.0	
3		480.18		630.14		20.0	
1	10	502.43	500	666.39	Not less than (565.00 and 10% more than actual Proof stress)	20.0	16.0
2		505.51		650.12		19.0	
3		520.10		672.10		21.5	
1	8	595.63	500	700.43	Not less than (565.00 and 10% more than actual Proof stress)	17.50	16.0
2		597.17		693.59		16.0	
3		580.12		674.13		17.0	

29.7.2020
Officer In-charge
Structures
28.7.2020

Office of the Dean Research and Consultancy
National Institute Of Technology Srinagar

NIT/Dean R&C/399
Dated:-29-07-2019

Assistant Executive Engineer
P.W.D (R&B) Sub-Division
Bijbehara

Subject: - Test report of Key construction materials.
Reference: - 153/E-16, Dated: 19-06-2019

Dear Sir,

In reference to above subject please find enclosed the test report of the Cement Samples (TCI MAX 43 grade OPC) for the construction of School buildings under World Bank aid. The tests have been performed by Civil Engineering Department of this Institute.

(Prof. Aijaz Ahmad)
Dean R&C

DEPARTMENT OF CIVIL ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR

HAZRATBAL, SRINAGAR- 190006 (J&K)

Phone (O): 0194-2422032

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Reference: 153/ E - 16 Dated: 19.06.2019

Test report of Cement Sample (TCI MAX 43 grade OPC)

S. No	Test description	Test result	I S value
1	Normal consistency	Wt. of water required to obtain a paste of normal consistency = 29 %	Should be between 27 – 33% of the weight of cement.
2	Initial setting time	01hr. 30 min.	Should not be less than 30 minutes.
3	Final setting time	02 hr. 30 min.	Should not be more than 10 hours.
4	Compressive strength	After 7 days of curing Avg. value = 30.50 N/mm^2 After 28 days of curing Avg. value= Under process	Should not be less than 27.95 N/mm^2 Should not be less than 43 N/mm^2
5	Soundness	Average expansion= 2.0 mm	Should not be more than 10 mm
6	Fineness	4.0% retained on IS sieve no. 9 after 15 minutes of gentle wrist motion	Should not exceed 10% by weight of cement

Officer incharge
Structures

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
SRINAGAR

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No. NIT/CIVIL/19/
Dated: 24.06.2019

Subject : Testing of TMT steel to be used in construction of school building works under scheme of 'World Bank'

Reference : Letter No. AEE 153/E-16 Dated: 19.06.2019 &
No. TAR/WB/-19 Dated: 21.06.2019

Test report of steel samples

(A) Tensile Strength

S No.	Brand	Dia. (mm)	Yield Strength (N/mm^2)	Tensile Strength (N/mm^2) Test Value	Tensile Strength (N/mm^2) I S Value (minimum)	% age Elongation Test Value	% age Elongation I S Value (Minimum)
1.	Himalaya Platinum	10	547.4 535.5 555.0	618.8 612.4 618.2	Not less than 545 N/mm^2 and 8% more than actual proof stress	20.0 20.0 21.2	16.0
2.	Himalaya Platinum	12	516.3 510.2 517.3	603.0 615.7 604.2	Not less than 545 N/mm^2 and 8% more than actual proof stress	22.5 23.7 22.5	16.0
3.	Himalaya Platinum	16	535.2 521.1 516.8	608.6 623.8 614.0	Not less than 545 N/mm^2 and 8% more than actual proof stress	25.0 28.7 30.0	16.0
4.	Himalaya Platinum	20	527.4 536.1 538.5	613.2 627.3 620.4	Not less than 545 N/mm^2 and 8% more than actual proof stress	30.0 29.0 28.0	16.0

(B) Bend & Rebend Test

All the samples have passed bend & rebend test. No cracks were observed during the process of testing.

25.6.19

Officer in charge
Structures

Office of the Dean Research and Consultancy
National Institute Of Technology Srinagar

NIT/Dean R&C/399
Dated:-29-07-2019

Assistant Executive Engineer
P.W.D (R&B) Sub-Division
Pampore

Subject: - Test report of Key construction materials. Dated: 19-06-2019
Reference: - 153/E-16.

Dear Sir,

In reference to above subject please find enclosed the test report of Desired steel samples, physical properties of TCI Max Cement & Ambuja Cement and physical properties of Coarse & Fine aggregates for the construction of School buildings under World Bank aid. The tests have been performed by Civil Engineering Department of this Institute.

(Prof. Aijaz Ahmad)
Dean R&C

Phone (O): 0194-2422032
Fax: 0194-2420475

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division
Pampore

NIT Dean R&C/ 377
Dt 29/7/2019

Subject : Test of key construction materials
Reference: Your letter No: 153/E-16 : Dated:19-06-2019

Dear Sir,

Please refer to above subject and find below the test results report of desired steel samples received in our laboratory for testing purpose. The tests have been conducted as per relevant IS Code recommendations.

Table1: Test results for Jyoti Tempcore SD (Fe-500D)

S. No.	Dia. (mm)	Yield Stress/0.2% Proof Stress (N/mm^2)		Ultimate Tensile Strength (N/mm^2)		Elongation (%)	
		Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)
1	20	553.07	500	669.05	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		546.17		661.44		23.0	
3		555.09		671.05		22.0	
1	16	510.81	500	614.94	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		523.16		636.11		24.0	
3		515.17		633.14		25.1	
1	12	561.84	500	681.14	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		554.30		676.14		18.36	
3		570.18		700.14		23.75	
1	10	480.96	500	595.02	Not less than (565.00 and 10% more than actual Proof stress)	20.0	16.0
2		495.51		600.12		21.0	
3		500.10		612.10		22.5	
1	8	595.63	500	695.77	Not less than (565.00 and 10% more than actual Proof stress)	22.50	16.0
2		598.17		718.94		21.25	
3		600.12		714.13		22.0	

26.7.19

NIT Dem R&C/309
Dt 29/7/2019

Table 2: Test results for Kamdhenu (Fe- 500D)

S. No.	Dia. (mm)	Yield Stress/0.2% Proof Stress (N/mm²)		Ultimate Tensile Strength (N/mm²)		Elongation (%)	
		Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)	Test value	I.S. Value (Minimum)
1	20	381.04	500	524.64	Not less than (565.00 and 10% more than actual Proof stress)	25.0	16.0
2		406.91		600.51		30.0	
3		395.12		575.3		32.0	
1	16	375.79	500	528.01	Not less than (565.00 and 10% more than actual Proof stress)	38.0	16.0
2		395.32		536.11		30.0	
3		400.23		533.14		35.1	
1	12	487.32	500	621.14	Not less than (565.00 and 10% more than actual Proof stress)	18.0	16.0
2		478.40		629.85		19.0	
3		480.18		650.14		20.0	
1	10	502.43	500	666.39	Not less than (565.00 and 10% more than actual Proof stress)	20.0	16.0
2		505.51		630.12		19.0	
3		520.10		672.10		21.5	
1	8	595.63	500	700.43	Not less than (565.00 and 10% more than actual Proof stress)	17.50	16.0
2		597.17		693.59		16.0	
3		580.12		674.13		17.0	

29.7.19
Officer In-charge
Structures

29.7.19

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
HAZRATBAL, SRINAGAR - 190006 (J&K)

Phone (O): 0194-2422032
Fax: 0194-2420475

NIT/D-com R&C/399
Dt. 29/7/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division
Pampore

Subject : Test of key construction materials
Reference: Your letter No: 153/E -16; Dated:19-06-2019

Dear Sir,

Please refer to above subject and find below the test results report of physical properties of TCI Max. Cement (Table 1) and Ambuja Cement (Table 2) received in our laboratory for testing purpose. Both the samples are of OPC 43 Grade.

References
IS 8112:2013, Ordinary Portland Cement, 43 Grade -Specification
IS 4031-Part 1, Determination of Fineness by Sieving
IS 4031-Part 3, Determination of Soundness
IS 4031-Part 4, Determination of Consistency of Standard Cement Paste
IS 4031-Part 5, Determination of Initial & Final Setting Time
IS 4031-Part 6, Determination of Compressive Strength

Table 1: TCI Max Cement

	IS requirement	Test results	Units
Standard Consistency	Not Specified	28%	---
Fineness	<10	8%	%
Soundness (Le Chatelier's method)	≤10	5.4	mm
Setting time Initial Final	≥30 ≤600	100 160	Minutes
Compressive strength 7-days	≥33	33.0	MPa

29.7.19

29.7.19

Table 2: Ambuja Cement

	IS requirement	Test results	Units
Standard Consistency	Not Specified	31%	—
Fineness	≤10	7%	%
Soundness (Le Chatelier's method)	≤10	4.6	mm
Setting time Initial Final	≥30 ≤600	150 210	Minutes
Compressive strength 7-days	≥33	33.5	MPa

Officer in-charge,
Structures

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
HAZRATBAL, SRINAGAR - 190006 (J&K)

Phone (O): 0194-2422032
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NIT Srgr/R&C/399
Dt 29/7/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division
Pampore

Subject : Test of key construction materials
Reference: Your letter No: 153/E-16 : Dated:19-06-2019

Dear Sir,
With reference to the above cited subject, kindly find herewith the test report of physical properties of 20 mm coarse aggregate received by the Structural Engineering Section of this Department. It is pertinent to mention here that the tests were conducted as per the procedure laid down in relevant I S codes.

Table 1: 20 mm nominal sized aggregate

S. No	Test Description	Results			
01	Sieve Analysis Report	IS Sieve Size	% weight of sample retained	Cumulative %age Retained	%age Weight Passing
		25 mm	1.8	1.8	98.2
		20 mm	7.0	8.8	91.2
		16 mm	45.7	54.5	45.5
		12.5 mm	38.0	92.5	7.5
		10 mm	5.0	97.5	2.5
		6.3 mm	2.5	100	0
		4.75 mm	0	100	0
		2.36 mm	0	100	0
		1.18 mm	0	100	0
		600 µ	0	100	0
		300 µ	0	100	0
		150 µ	0	100	0
		< 150 µ	0	100	0
02	Fineness Modulus	10.55			
03	Water Absorption	1.5 %			
04	Crushing Value	22 %			

Officer Incharge 29.7.19
Structural Engineering Section

29.7.19

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
HAZRATBAL, SRINAGAR - 190006 (J&K)

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NIT Dean R&C/399
Dt 29/7/2019

Assistant Executive Engineer
P.W.D. (R & B) Sub-Division
Pampore

Subject : Test of key construction materials
Reference: Your letter No: 153/E-16: Dated:19-06-2019

Dear Sir,

With reference to the above cited subject, kindly find herewith the particle size distribution report of fine aggregate received by the Structural Engineering Section of this Department. It is pertinent to mention here that the tests were conducted as per the procedure laid down in relevant I S codes.

S. No	Test Description	Results			
01	Sieve Analysis Report	IS Sieve Size	% weight of sample retained	Cumulative %age Retained	%age Weight Passing
		4.75 mm	5.9	5.9	94.1
		2.36 mm	3.6	9.5	90.5
		1.18 mm	20.0	29.5	70.5
		600 µ	29.0	58.5	41.5
		300 µ	37.1	95.6	4.4
		150 µ	4.3	99.9	0.1
02	Fineness Modulus	2.98			
The Fine Aggregate falls in Zone II					

Officer Incharge 29.7.19
Structural Engineering Section

29.7.19

Office of the Dean Research and Consultancy
National Institute of Technology Srinagar

"NIT/Dean R&C/05"
Dated: 07/01/2020

Assistant Executive Engineer
(PWD) (R&B) Sub-Division
Pampore, Kashmir

Subject: - Test report of Structural Steel truss material.
Reference: - WB/P/346, Dated: 16-12-2019

Dear Sir,

In reference to above subject please find enciosed the test report of Structural Steel sample for the truss design (Brand: Kamdhenu-A65-ISI-2062, 65x65x6) (50x50x6-A50 ISI) (Purlin ISMC 100x50). The tests have been performed by Civil Engineering Department of this Institute.

07.01

(Prof. G. A. Harmain)
Dean R&C
Research and Consultancy
NIT Srinagar 190006

Department Of Civil Engineering
National Institute of Technology Srinagar
Hazratbal, Srinagar- 190006 (J&K)

Phone (O): 0194-2422032
Fax: 0194- 2420475

No. NIT/Dean/R&C/05
Dated 07/01/2020

Subject : Testing of structural steel.
Reference : Letter No. WB/P/346 Dated: 16.12.2019

Test report of structural steel samples

S No.	Description	Tensile Strength (N/mm^2) Test Value	Tensile Strength (N/mm^2) I S Value (Minimum)	Yield Strength (N/mm^2)	%age Elongation Test Value	%age Elongation I S Value (Minimum)
1.	Angle 65 x 65 x 6	578.58	410	411.80	25.71	23.0
		575.77		401.60	26.42	
		576.15		400.10	25.71	
2.	Angle 50 x 50 x 6	585.71	410	408.05	27.70	23.0
		588.49		407.38	27.03	
		570.94		388.55	27.12	
3.	ISMC 100	639.39	410	406.66	27.14	23.0
		637.61		401.77	25.72	
		635.66		400.16	27.37	

P S The structural steel, samples of which were tested, is found to be suitable for use in civil engineering works

06/01/2020
Officer in charge
Structures

Head, Civil Engg. Deptt.

Professor
Deptt of Civil Engineering
N.I.T. Srinagar

Professor & Head
Department of Civil Engineering
National Institute of Technology
Hazratbal, Srinagar, Kashmir-190006

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR
HAZRATBAL, SRINAGAR - 190006 (J&K)

"NIT/Dean Rec/71"
Dated: 14/02/2020

Phone (O): 0194-2422032
Fax: 0194-2420475

Assistant Executive Engineer
(R&B) P.W.D. Sub Div.
Pulwama

Subject :Testing of Brick for Brick Masonry
Reference: SD/PUL/378 ;Dated: 12-12-2019

Dear Sir,

Please refer to above subject and find below the test results report of brick samples (13D) received in our laboratory for testing purpose. The tests have been conducted as per relevant IS Code recommendations.

Sample No.	Dry Weight (Kg)	Wet Weight (Kg)	%age Water Absorbed	Size	Compressive Strength (N/mm²)	Efflorescence
Common Burnt Clay Bricks						
1	3.18	3.68	15.7 %	(228 × 105 ×75) mm³	11.36	Light
2	2.84	3.35	18.0 %		10.20	
3	3.12	3.62	16.0 %		9.52	

Officer-Incharge 13.2.20
Structures

13.02.2020

GOVERNMENT OF JAMMU & KASHMIR

OFFICE OF THE EXECUTIVE ENGINEER (R&B) DIVISION DALGATE SRINAGAR

Barbar Shah Bund Road Srinagar, Tele/Fax 2477073 e-mail xendalgatesgr@gmail.com

NO. EE/DAL/ADM/ 9121-24 DATED 16-03-2024

The Superintending Engineer,
PW (R&B) Circle Srinagar South

Subject:- **Completion Certificate for the work namely " Construction of 02 No Classrooms with allied works for GMS School at 1) Batwara Sgr & 2) Shivpora SGR Under JTFRP.**

Sir,

Enclosed kindly find here with the completion cerficate for the work namely "***Construction of 02 No Classrooms with allied works for GMS School at 1) Batwara Sgr & 2) Shivpora Sgr Under JTFRP***" for favour of information and further necessary action.

Yours faithfully

Executive Engineer,
(R&B) Division Dalgate,
Srinagar.

Copy to the : -

1. Chief Engineer PWD (R&B) Central Kashmir for favour of information please
2. Asstt. Exe. Engineer (R&B) Pantha Chowk Sub-Division Srinagar for information.
3. Master File.

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	CONSTRUCTION OF 2 NO CLASSROOM'S WITH ALLIED WORKS FOR GMS SCHOOL AT 1) BATWARA SGR & 2) SHIVPORA SHR UNDER JTFRP
Name of the Contractor	M/S TARMAC ROADS & ROOF BUILDERS, CHINAR COMPLEX, BUND SRINAGAR
LOA No & Date	SE/DB/22887-89 dt 27-12-2019
NTP No. & Date	208/CDII/20134-44 OF 2018-19 DT 1-3-2019 OF XEN CD 2ND Sgr
Type of Contract	Item Rate
Contract Period	12 months
Date of Commencement of Work	8-8-2020
Date of Completion as per Contract Agreement	31-1-2020
Extended Date of Completion of Work	31-7-2021
Actual Date of Completion	31-7-2021
Defect Liability Period	12 months
Allotted Cost	155.14 lacs
Revised Cost with approved variation from SE office	163.16 lacs
Expenditure Till Date	163.07 lacs
Remarks	HANDED OVER TO INTENDING DEPARTMENT IN SEP/OCT 2021

Asstt. Ex. Engineer,
Sub Division Pantha Chowk

Executive Engineer,
(R&B) Division Dalgate
Srinagar

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	Construction of two class rooms in Govt. Middle School Arwani 2) Two Classroom in Govt. Hr Sec School Hafizabad 3) Two Classrooms in Govt. Middle School Subhanpora 4) Four Classrooms in Govt. Hr Sec. School Arwani and 5) Four Class rooms in Govt. Boys Middle School HP Tawasia of Anantnag District with allied works
Name of the Contractor	M/S Construction Engineer Prop: Talib Hussain R/O: Srinagar
LOA No & Date	03-03-2019
LOI/NTP/Allotment No. & Date	255-59 Dt: 11-04-2019
Type of Contract	civil
Contract Period	12 Months
Date of Commencement of Work	26-03-2019
Date of Completion as per Contract Agreement	31-03-2020
Actual Date of Completion	01-01-2022
Defect Liability Period	3 yrs
Allotted/Awarded Cost	454.4 lacs
Completion Cost	398.4 lacs
Expenditure Till Date	398.4 lacs
Handover/Takeover Status	yes
Remarks if any	Physically & Financially Completed

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	Construction of :- i- *Four Class Rooms in GHS Samboora.* ii- *Four Class Rooms in GHS Dogripora.* iii- *Two Class Rooms in GPS Aghanjipora.* iv- *Two Class Rooms in GMS Rakh-Litter.* v- *Two Class Rooms in GMS Batapora Naina.*
Name of the Contractor	M/S Tarmac Road & Roof Builders.
LOA No & Date	No. : SE/PS/5975-78 Dt: 01/03/2019
LOI/NTP/Allotment No. & Date	No. : SE/PS/27-31 Dt; 02/04/2019
Type of Contract	Tendered
Contract Period	01 Year
Date of Commencement of Work	20/04/2019
Date of Completion as per Contract Agreement	21/04/2020 Followed by EOT : 30/06/2022
Actual Date of Completion	four No. schools completed on 24/03/2022 & one No. school on : 30/06/2022.
Defect Liability Period	01 Year
Allotted/Awarded Cost	450.51 Lakhs.
Revised Cost(variation if any)	490.95 Lakhs
Completion Cost	475.58 Lakhs.
Expenditure Till Date	475.58 Lakhs.
Handover/Takeover Status	Handed-over to the Intending Department (School Education)
Remarks if any	6% addl. GST released in favour of the Superintending Engineer PWR&B) Circle Pulwama/Shopian and the same has not been booked for expenditure as on date.

Executive Engineer,
PW(R&B) Dvn. Pulwama.

GOVERNMENT OF JAMMU & KASHMIR (UT)
OFFICE OF THE EXECUTIVE ENGINEER PW (R&B) DIVISION ZAINAPORA

Pin Code:- 192303
E-MAIL ADDRESS:- Xenrandbzainapora@gmail.com

No:- R&B/ZNP/DIV/ 70-71 Dated:- 06 /04/2024

The Superintending Engineer,
PW (R&B) Circle Pulwama-Shopian.

Subject:- Work completion certificates of :

1. **Two class rooms in Govt boys school in Nazneenpora.**
2. **Two class rooms in Govt UP school Melhura.**
3. **Two class rooms in Govt UP school Rebban of Shopian district with allied works.**

Sir,

Apropos to the subject cited above, kindly find enclosed herewith the work completion certificate of above mentioned works for financial closure on STEP Portal. The works stand physically completed on 25-11-2021 and have been handed over to Education Department.

Yours faithfully,

(Er. H.M Jahangir)
Executive Engineer
R&B Division Zainapora

Copy to the:

1. **Chief Engineer PW (R&B) Department South Kashmir for favour of information.**

WORK COMPLETION CERTIFICATE

TO WHOM IT MAY CONCERN

NAME OF WORK	CONSTRUCTION OF : 1. TWO CLASS ROOMS IN GOVT BOYS HIGH SCHOOL NAZNEENPORA. 2. TWO CLASS ROOMS IN GOVT UP SCHOOL MELHURA. AND 3. TWO CLASS ROOMS IN GOVT UP SCHOOL REBBAN OF SHOPIAN DISTRICT WITH ALLIED WORKS
NAME OF THE CONTRACTOR	M/S TARMAC ROAD AND ROOF BUILDERS
LOA NO AND DATE	SE/PS/5971-74 DATED: 01-03-2019
NTP/ALLOTMENT NO AND DATE	SE/PS/32-36 DATED: 02-04-2019
TYPE OF CONTRACT	EPC
CONTRACT PEROID	12 MONTHS
DATE OF COMMENCEMENT OF WORK	22-07-2019
DATE OF COMPLETION AS PER CONTRACT AGREEMENT	21-07-2020
ACTUAL DATE OF COMPLETION	25-11-2021
DEFECT LIABILITY PERIOD	1 YEAR
ALLOTTED/AWARDED COST	244.73 LACS
REVISED COST (VARIATION IF ANY)	NIL
COMPLETION COST	242.54 LACS
EXPENDITURE TILL DATE	242.54 LACS
HAND OVER/TAKE OVER STATUS	HANDED OVER TO EDUCATION DEPARTMENT
REMARKS IF ANY	

NO:- KEB/ZNP/DIV/70-71

DATE:- 06-04-2024

EXECUTIVE ENGINEER
PW(R&B) DIVISION ZAINAPORA

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	Construction of Four Class rooms at GMS Gund Kilam
Name of the Contractor	Mohammad Anwar Bhat
LOA No & Date	4516.21 Dtd: 26-12-2019
LOI/NTP/Allotment No. & Date	4516.21 Dtd: 26-12-2019
Type of Contract	Civil
Contract Period	12 Months
Date of Commencement of Work	16-08-2020
Date of Completion as per Contract Agreement	12 Months
Actual Date of Completion	02-2024
Defect Liability Period	24 Months
Allotted/Awarded Cost	100.01
Revised Cost (variation if any)	Nil
Completion Cost	94.28
Expenditure Till Date	94.28
Handover/Takeover Status	Taken over
Remarks if any	Project stands completed both physically & Financially

Executive Engineer
(R&B) Division Kulgam

NAME OF THE PROJECT IMPLEMENTATION UNIT (PIU): JTFRP

WORK COMPLETION CERTIFICATE

Name of the Work	*Construction of four Class Rooms in Govt. Middle School Kulhama with allied works at Bandipora District under JTFRP*
Name of the Contractor	*Ashiq Hussain Bhat*
Contract Agreement Signing Date	*02-2020*
Category *(Works/Goods/Service)*	*Works*
Contract Period	*365 days*
Date of Start of Work	*20-09-2020*
Date of Completion as per Contract Agreement	*09-02-2021*
Actual Date of Completion	*25-03-2023*
Defect Liability Period (Yrs)	*1.8 years*
Status of Defect Liability Period	*Over*
Allotted/Awarded Cost (INR Crore)	*1.1477*
Revised Cost (INR Crore)	*1.1477*
Completion Cost (INR Crore)	*0.9641*
Handover/Takeover Status	*Handed over*
Remarks if any	*Nil*

PIUs authorized Signatory with Stamp

Executive Engineer
R&B Division Bandipora

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	Construction of two Class rooms M/S Naikpora & GHSS Yaripora
Name of the Contractor	M/S TARMAK
LOA No & Date	11344-48 Dtd: 05-03-2019
LOI/NTP/Allotment No. & Date	250-54 Dtd: 11-04-2019
Type of Contract	Civil
Contract Period	36 Months
Date of Commencement of Work	11-04-2019 30-03-2022
Date of Completion as per Contract Agreement	30-03-2022
Actual Date of Completion	30-30-03-2022
Defect Liability Period	3 Years
Allotted/Awarded Cost	200.31 Lacs
Revised Cost (variation if any)	200.31 Lacs
Completion Cost	186.53 Lacs
Expenditure Till Date	186.53 Lacs
Handover/Takeover Status	Handed over to Education Department.
Remarks if any	Project stands compieted both physically & Financially

Executive Engineer
(R&B) Division Kulgam

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	Construction of two class rooms in Govt. Middle School Arwani 2) Two Classroom in Govt. Hr Sec School Hafizabad 3) Two Classrooms in Govt. Middle School Subhanpora 4) Four Classrooms in Govt. Hr Sec. School Arwani and 5) Four Class rooms in Govt. Boys Middle School HP Taweela of Anantnag District with allied works
Name of the Contractor	M/S Construction Engineer Prop: Talib Hussain R/O: Srinagar
LOA No & Date	03-03-2019
LOI/NTP/Allotment No. & Date	255-59 Dt: 11-04-2019
Type of Contract	civil
Contract Period	12 Months
Date of Commencement of Work	26-03-2019
Date of Completion as per Contract Agreement	31-03-2020
Actual Date of Completion	01-01-2022
Defect Liability Period	3 yrs
Allotted/Awarded Cost	454.4 lacs
Revised Cost (variation if any)	396.88 lacs 3.96 Cr.
Completion Cost	396.88 lacs
Expenditure Till Date	390.57 lacs Rexed
Handover/Takeover Status	yes
Remarks if any	Physically Completed but Financially incomplete

CAO(JTFRP)/PM(T)ERA(K)/ Nodal officer (R&B) K/J / Xen PMU) / APE

Sir as directed submitted for information

14.01.22

Executive Engineer
(R&B) Division Anantnag

JTFRP/PIT/94/K/8443-45
14-01-2022

Scanned with OKEN Scanner

WORK COMPLETION CERTIFICATE

To Whom It May Concern

Name of the Work	Construction of two class rooms in Govt. [illegible] with allied works 2) Two Classroom in Govt. Hr Sec. School Kampoh with allied works 3) Two Classrooms in Govt. Middle School Katriteng with allied works 4) Four Classrooms in Govt. Hr Sec. School Bijbehara with allied works and 5) Four Class rooms in Govt. Girls Hr Sec School Bijbehara with allied works
Name of the Contractor	M/S Tarmac Road and Roof Builders Pampore
LOA No & Date	05-03-2019
LOI/NTP/Allotment No. & Date	
Type of Contract	Civil
Contract Period	12 months
Date of Commencement of Work	26-03-2019
Date of Completion as per Contract Agreement	29-04-2020
Actual Date of Completion	30-06-2021
Defect Liability Period	3 years
Allotted/Awarded Cost	419.98 lacs
Revised Cost (variation if any)	429.69 lacs
Completion Cost	429.69 lacs
Expenditure Till Date	429.69 lacs
Handover/Takeover Status	yes
Remarks if any	Physically and financially completed

Executive Engineer
(R&B) Division Anantnag