INFRASTRUCTURE ASSESSMENT AUDIT FOR SUVA – NAUSORI URBAN SCHOOLS

DEENBHANDHOO MEMORIAL SCHOOL (REG 2306)

SUMMARY REPORT

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1) INSPECTION SUMMARY

School Inspection Summary	
School name:	DEENBHANDOO MEMORIAL SCHOOL
Overall condition state:	GOOD
Key recommendations:	
- Overcrowding – 8 new classrooms required based on FNBC standards - WASH - 5 new toilet cubicles required for female students and 2 new toilet cubicles for male students. This is based on the student roll for year 2024 - Accessibility –All buildings require accessibility ramps, accessible doorways, railing support - Disaster resilience – Windows require cyclone shutters. Roof frame &cladding could not be determined as there were no access provided.	
Comments:	
Major defects were noted as follows: • Building 2 – Unstable floor (assumed to be floor framing) at office room. Require further investigation to determine condition. • Building 2 – Dry mould found at ECE and Staff room ceiling, due to water leaking from kitchen sink and heavy rainfall • Building 3 – Crack and damaged concrete ceiling at year 8 room. Require detail investigation to determine recommendation • Building 4 – inspected roof framing and connection were observed to be undersized. Require further investigation to determine recommendation	

Aerial view of school

General view of school

School type:	**Primary**	✓	**Secondary**		**Year levels**	ECE, 1,2,3,4,5, 6,7,8	
School address:	2 TOGANIVALU ST SUVA						
School enrolment and staff figures	**No. of Students (Male)**	**No. of Students (Female)**	**No. of Students with Disability**	**No. of Teachers (Male)**	**No. of Teachers (Female)**		
	248	277	0	4	12		
School building arrangement	TOTAL NUMBER OF BUILDINGS: **4** **B1-**2 storey | **B2-**2 storey | **B3-**2 storey | **B4-**1 storey (timber)						
Local government area:	TOGANIVALU STREET, SAMABULA						
Date of inspection:	06TH JUNE, 2024						
Inspection team:	DONNIS KAINAMOLI (DK)						

	MERELITA DUMUKURO (MD) ERONI AISAKE (EA)			
Data collection methods	Visual inspection	✓	Onsite measurement	✓
	Interviews with school staff	✓	Drone / aerial imagery	✓
	Survey form	✓	Desktop research	✓
	Other:	Correspondences via email and office landline calls		
Assumptions:	None			
Limitations:	Existing documentation from the school, such as infrastructure plan, budgeting plan, building plans, site plan, school background and history.			

2) ASSESSMENT OF OVERCROWDING

An assessment for overcrowding was undertaken based on FNBC standards and 2024 enrolment data. The table below summarises the data collected through visual inspection and interrogation of enrolment data and compares this against the FNBC standard student to classroom size ratio of 2 m^2 per student.

The results of the assessment are based on the recommended sizing (1.5m^2), according to 2024 data, an additional 8 classrooms are required across each year levels 2, 3,6, 7 for Deenbhandoo Memorial Primary School.

Year	Stream	Number of students	Current number of classrooms	Number of extra classrooms required based on FNBC on 2024 data
ECE	2	38		
1	101	34	2	0
	102	35		
2	201	36	2	1
	202	37		
3	301	40	1	1
4	401	34	2	0
	402	35		
5	501	36	2	0
	502	36		
6	601	44	1	1
7	701	41	1	1
8	801	39	2	0
	802	40		

3) EXISTING INFRASTRUCTURE CONDITIONS

Given the outlined procedure, the following observations were made:

Block Code	Length (m)	Width (m)	Height (m)	No. of Levels	Type	Room List
B1	30.90	12.20	6.5	2	Masonry building Timber frame roof Kliplok roofing iron sheets Roofing screws	**Ground Floor** Female toilets (4), Male toilets (4), Storage room, Year 101, Year 102, Year 201, Female staff toilet (1) **Top Floor** Year 401, Year 402, Year 501, Year 502,
B2	12.15	12.20	5.65	2	Masonry building Timber frame roof Kliplok roofing iron sheets Roofing screws	**Ground Floor** ECE (kindergarten class) **Top Floor** Office, Staffroom
B3	31	9.7	6.5	2	Masonry building Timber frame roof Kliplok roofing iron sheets Roofing screws	**Ground Floor** Year 801, Year 802, Storage room, Male staff toilet (1) **Top Floor** Library/Computer room, Year 301, Year 701, Year 601
B4	7.3	7.3	4	1	Timber frame building Timber roof framing Kliplok roofing iron sheets Roofing screws	Year 202

NOTE: Toilets mentioned refers to a set of cubicles.

Summary Table for Classrooms

This table provides a quick overview of the assessment findings, helping to identify areas that need immediate attention and those that are in good condition. The following criteria was used:

- Good - No additional works / no intervention required
- Fair - Remedial works required
- Poor - Demolition and replace with new.

Assessment Area	Criteria	Conditions
Structural Integrity	Walls, ceiling, floor, foundation and roofs	Fair
General upkeep	Exterior, interior, furniture and fixtures	Fair
Safety compliance	Fire safety, electrical safety,	Poor
Disability	Accessibility	Poor
Ventilation and lighting	Ventilations, Natural Lighting, Artificial Lighting.	Fair

Observations on Structural Elements

- **Walls and Ceiling**
  B1 – require further investigation on suspended slab at top floor (facing carpark area) pieces of concrete had fallen off, leaving the reinforcements exposed.
  B2 – ceiling at ECE and staffroom show sign of water leaking through, presumed to be water leak from Kitchen sink (above ECE) and heavy rainfall leak for staff room.
  B3 – detail investigation is required at concrete ceiling of year 8 room. At the time of inspection, the ceiling showed major cracks on the ceiling. Detail investigation is required to determine recommendation.
  B4 – timber frame walls were not able to be inspected, these were covered. Ceiling were in good condition.
- **Floors and Foundation**
  B1-B3 - Flooring at ground floor, were in good condition there were missing tiles at few areas. Finish floor surface at top floor were in good condition however (timber) floor framing were not able to be inspected due to inaccessibility. Foundation could not be determined as the buildings had mass concrete slab on ground.
  B4 –Floor frame and floor finishing were in good condition; however, floor framing was observed to be undersized with inadequate connections in accordance with current building standards. Foundation were 150/200mm timber posts on mass concrete foundation, integrity of the foundation could not be determined.

- **Roofs**
  B1-B3 – Roof framing were not inspected, due to inaccessibility, however roof cladding was of Kliplok type with roofing screws. These were in good condition.
  B4 – Roof framing members were undersized and will require upgrading to the current building standard.

- **Windows** – Windows were push out type of glazed window and louvre blade. They were in good condition, some classes had missing louvre blades

- **Earthquake –** N/A
- **Cyclone** –roof upgrading works and installation of cyclonic shutters required to increase cyclone resilient capacity of the structures.

Existing Conditions of Building and Maintenance

- **Exterior –** the building is in fair condition as the wall, beam, column, window seal, doors, most of eaves, fascia boards and gutters are intact and coated with paint. The school executes periodical maintenance.
- **Interior –** the building is in fair condition as the walls, beams, columns windows, doors and ceiling are intact and coated with paint. The school executes periodical maintenance. The classrooms were found to be clean with proper waste disposal.
- **Furniture and Fixtures –** the classrooms and offices have adequate furniture and fixtures that do not impede on the function of the buildings.

Safety and compliance with standards

- **Fire Safety –** the school does not possess adequate fire safety mechanisms. Present fire Extinguishers need maintenance and commissioning. No fire hydrants and alarm systems were found. The school has Emergency exit plan and designated assembly area provisioned.
- **Electrical Safety –** The school is connected to EFL Grid. The school has surface wiring with no fault outlets during the school visit. All electrical systems are observed to be safe.
- **Accessibility –** the school does not meet disability accessibility standards. The school does not have facilities such as ramps, handrails and accessible restrooms.

Lighting and Ventilation

- **Ventilation –** HVAC system (Heating, Ventilation, and Air Conditioning) is centrally located in the school, in particular, offices and Computer Labs. Otherwise ventilation in classrooms were natural.
- **Natural Lighting –** there are adequate number of windows installed in classrooms, that are regularly cleaned to allow natural light to enter into classrooms unobstructed.
- **Artificial Lighting –** it was found that all light fixtures are working and provides adequate illumination.

4) WATER SANITATION HYGIENE (WASH) FACILITIES

Condition of Toilets and Washrooms

Deenbhandoo Memorial Primary School have one (1) toilet block for female and male students. This is located in Building 1. The facilities have some minor defects such as:

- The floor minor damaged and missing tiles.
- The ceiling at female toilet block were partially damaged and missing.

The WASH facilities for both female and male students do not comply with the FNBC for the required toilet cubicle numbers. The table below provides data on wash facilities.

TOILET CUBICLE(S)	No. of Cubicles		Toilet Ratio (1 cubicle: students)		Compliance of Student to Toilet Cubicle Ratio (FNBC).	
Building Index	Female	Male	Female	Male	Female Requirement (1:20) Extra Toilets?	Male Requirement (1:30) Extra Toilets?
B1	4	4	69:1	62:1	10	4
HAND BASINS IN THE TOILET	No. of Hand Basins		Handbasin Ratio 1:#students		Compliance of Student to Hand Basin Ratio (FNBC).	
Building Index	Female	Male	Female	Male	Female Requirement (1:60) Extra Handbasins?	Male Requirement (1:60) Extra Handbasins?
B1	2	2	139	124	3	2
GENERAL OUTDOOR TAPS Building Index	No. of General Outdoor Taps		Outdoor Taps Ratio 1: #students		Compliance of Student to Outdoor Taps Ratio Requirement (1:60) (FNBC) Does it require additional hand basins?	
B1-B4	18		28:1		0	

5) DISASTER RESILIENCE ASSESSMENT

This infrastructure condition assessment aims to evaluate the architectural, structural, and non-structural features of the school to ensure it is resilient to natural disasters and provides a safe learning environment for students. The assessment also identifies areas for improvement and highlights the measures already in place to enhance overall resilience. FNBC 1990 and basic loading, wind and seismic AS/NZS codes typical details were utilized during and after inspection.

Architectural

- Cyclonic Roof: Not able to be determined due to inaccessibility of roof framing.
- Central Location: The school is centrally located, allowing easy access to main streets and relief services.

Structural

- Material Quality: The school buildings are constructed using reinforced concrete and presumed to follow acceptable engineering design principles.
- Structural Integrity: Buildings have demonstrated the capability to withstand and recover from natural disasters like earthquakes, category 3 cyclones, and floods.

Non-Structural

- Disaster Preparedness: Implementation of disaster evacuation plans, emergency exit routes, and safety protocols.
- Fire Safety: There were not sufficient and adequate fire safety equipment in the school. The school does have an assembly point; most classrooms have two external doors should there be an event of a fire.

6) ACCESSIBILITY ASSESSMENT

1. **Compliance with Accessibility Standards:**
   - Educational facilities did not meet accessibility standards, such as the Fiji Disable People Federation Access Audit Tool 1.0. This toolkit covers aspects like ramps, door widths, signage, and accessible routes, also the noncompliance extends beyond physical structures to digital accessibility.

2. **Facilities for Students with Disabilities:**
   - Classrooms did not have adjustable seating arrangements, clear sightlines, and adequate space for mobility aids also including accessible desks and adjustable podiums.
   - Libraries require accessible shelving, reading stations, and assistive technology (such as screen readers) to enhance library usability.
   - Restrooms (WASH facilities) are not wheelchair-accessible or have grab bars and sinks at an appropriate height.
   - Common Areas: the canteen spot and outdoor spaces are not designed inclusively. Benches, seating areas, and a pathways are not able to accommodate everyone.

3. **Access to Classrooms, WASH Facilities, and Common Areas:**
   - Classrooms do not have wide doorways and ramps to ensure access to classrooms. Additionally, acoustics are not considered for students with hearing impairments.
   - WASH Facilities do not have accessible restrooms with proper signage and a clear pathway to the wash facilities.
   - Common Areas like corridors, playground, and gathering spaces are not barrier-free and are without proper lighting and contrasting floor materials to aid navigation.

SUMMARY OF FINDINGS

The following summarizes the individual characteristics assessed during the Suva-Nausori school audit for Deenbhandoo Memorial Primary School:

Categories of Assessment	Existing Condition / State	Required as per Standards	Gaps Observed
Existing Infrastructure Condition	• Structural Integrity Columns, slabs, beams, rafters, purlins of adequate size. • General upkeep Minor irregular maintenance. • Safety compliance handrails at top floor only. • Disability no consideration when constructed. • Ventilation and lighting missing lights at some room of buildings.	• Structural Integrity Columns, slabs, beams, rafters, purlins sizes to follow FNBC 1990. • General upkeep routine check-up as per MOE policies with major defects requiring immediate intervention. • Safety compliance Handrails, extra doors and signage where necessary. • Disability To comply with FDPF Disability audit tool • Ventilation and lighting Adequate windows and doors required as per FNBC 1990.	• Structural Integrity Columns, slabs, beams, rafters, purlins sizes to follow FNBC 1990. • General upkeep When required in accordance with MoE policy • Safety compliance Safety handrails were only present in top floors to building 1, 2 and 4. FDPF requires signage to be placed for all rooms. • Disability Not fully compliant with FDPF Disability audit tool • Ventilation and lighting limitations in the count of windows and lightings compared to required FNBC.
Assessment of Overcrowding	The classrooms are accommodating an average of 525 roll/14 classrooms of 37.5 students.	FNBC 1990 requires classroom occupancy to have $2m^2$ per person. Based on that, the required roll per classroom was calculated.	4/14 classrooms were accommodating more roll than required. Given the recommended sizing ($1.5m^2$), an additional of 4 classrooms are required to address overcrowding in school.
Water Sanitation Hygiene (WASH) facilities	Toilets (students: Cubicle) Boys – 62:1 (4 cubicles) Girls – 70:1 (4 cubicles) Taps (students: tap) Students – 28:1 (18 taps) Menstrual Hygiene Rubbish bins were present in the female toilet block. However, this had no lid. Proper menstrual hygiene bins are required. 2 taps at main door entry. 2 showers partially working had no doors.	Toilets Ratio (students: Cubicle) - Boys – 30:1 (4 cubicles) - Girls – 20:1 (10 cubicles) Taps Ratio (students: tap) - Students – 60:1 (0 taps) **Please note: Above number of cubicles and taps are respective of 2024 enrolment numbers. Due to variation of ratio with student population in FNBC, the initial ratio is referred ONLY for reporting.** - Menstrual Hygiene to be present in every female washroom block	Male student toilet ratio was exceeded the FNBC 1990 ratio. This may continue later on with growing population. Male toilets have a total of 4 cubicles and will require extra 4 cubicles to meet the year 2024 total male roll. The girl's toilet ratio exceeded the FNBC requirement, indicating not enough toilet cubicles are in the school. Given the student roll for female, an extra 10 cubicles are required. The general outdoor tap ratio met the FNBC requirement.

Disaster Resilience Assessment	• columns, beams, slabs had hairline cracks. Ceiling at B3, year 8 require major crack, require further investigation. • Roof frame could not be inspected for B1-B3, however B4, will require upgrade works to meet cyclone requirements. • Glazed windows have 225 mesh shutters placed for burglary prevention reasons. Not all rooms have these shutters installed. • Roof cladding is rusted at B4.	Fiji Building Code 1990. Requirement is that roof cladding be free of rust and fastened securely with type 17 cyclonic screws with neoprene washers. Additionally, cyclone brackets to be fixed on every window frame.	Minimum to no shutters and proper connection contradicts achieving of a cyclone requirement. Inspection of the roof framing will be required to determine requirements to a cyclone certification is met or not.
Accessibility Assessment	Handrails are only found at top floors of B1, B3 and B4. Classrooms have typical door size of 0.75 – 0.85m width. Stairway – average 0.8-0.9m width.	**The following are requirements from Fiji Disabled People's Federation Access Audit Tool** - Ramps – required wherever elevation with minimum 1:8 maximum 1:20 - Walkway clearance - minimum 1.8m. - Handrails to be 0.76m to 0.9m. - Doors and Door size – minimum 0.9m. - Clearance required of 1.2m and tread width of minimum 310mm. (National Building Code Table D2.1)	The following facilities are missing. - Ramps and elevators for vertical access - Wide doorways and clear pathways - Proper signage - Wheelchair-accessible restrooms - Grab bars - Proper signage - Inclusive seating areas and pathways - Proper lighting - Contrasting floor materials

7) RECOMMENDATIONS

- In order to comply with the FNBC, the school will require the following:
  - Classrooms: An additional 8 new classrooms for students in years 1 to 8. This expansion aims to accommodate the growing number of students and provide them with an enhanced learning environment.
- WASH Facilities: An additional 10 cubicles for girls are required, equipped with up-to-date WASH facilities (handbasins), catering particularly to the needs of female students and 4 cubicles for male students. These new facilities are essential to ensure hygiene and comfort. The exact number could be discussed upon further analysis.

Weekly routine maintenance work and daily cleanup directive from MOE is also a critical component of the plan which includes:

- Regular roof repairs required for maintain longevity.
- New paint application on rails and walls

These maintenance activities are designed to address existing wear and tear and to ensure that the school buildings remain in good condition. It is recommended that maintenance be carried out at regular intervals, ideally every 12 months, to prevent deterioration and to maintain a safe and functional environment.

Accessibility: Prioritize building accessibility features, such as ramps and handrails, to ensure compliance with standards. These features are vital for providing all students, including those with disabilities, with equal access to the school's facilities.

8) COMPLIANCE

Upon inspecting Deenbhandoo Memorial Primary School, the following conclusions were drawn:

- **MEHA Compliance:** Compliant
- **WASH Facilities:** Not compliant. The school has ample taps. Additional 5 females and 2 male student toilet cubicles required to comply with FNBC 1990.
- **Land Availability:** There is sufficient land for additional blocks please refer to annex 3.
- **NFA Compliance:** Not compliant.
- **WAF Compliance:** Adequate water supply, but no backup system for water cuts.
- **FNBC Compliance:** Not fully compliant with the occupancy requirements as well as the category 3 cyclone standards based on the windows and roofing requirements.
- **NDMO Compliance**: Targeting NFA and NBC compliance for safety. The school is not listed as an evacuation centre.
- **EFL Compliance:** Assumed to be compliant with EFL standards.
- **DISABILITY Accessibility:** Not compliant.

9) APPENDIX

Appendix A - Site Inspection Report

Appendix B – Excel Scoring Sheet

Appendix C – Land Available for Expansion

Appendix A - Site Inspection Report

INFRASTRUCTURE ASSESSMENT AUDIT FOR SUVA – NAUSORI URBAN SCHOOLS

DEENBANDHOO MEMORIAL SCHOOL (2306)

SITE INSPECTION REPORT

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2.0 LIST OF TABLES

3.0 LIST OF ABBREVIATIONS

NRWM	NRW Macallan (Fiji) Pte Ltd
MOE	Ministry of Education
TT	Tetra Tech International Development Pty Ltd
DFAT	Department of Foreign Affairs and Trade (Australia)
FEG	Free Education Grant
OHS	Occupational Health and
NFA	National Fire Authority
WAF	Water Authority of Fiji
NBC	National Building Code
NDMO	National Disaster Management Office
EFL	Energy Fiji Limited

1) SCHOOL BACKGROUND

In 1930 the Indian Association of Fiji was formed by a group of prominent Indian Citizen of Fiji, Mr. A.D Patel B.A, Bar at Law. The school began functioning in the Indian reform league hall in Toorak in 1951 before the association obtained an ideal site in Bainiwai road Suva. The foundational stone was laid in August 1956 before the school began operation 1957. The school compound is about 7 hectares and this includes their sister school Jai Narayan College. The school is currently located in Toganivalu St Samabula, Suva.

Having being established in 1956 with the vision to provide quality education to students of the school, its mission is to prepare to meet the challenges of our modern and continuously changing society and to become honest, hardworking and respectable member of our multicultural community and the republic of Fiji.

At the time of inspection, the school has 4 main learning facility buildings, walkways to connect the buildings, 1 toilet block for both female and male students and playground areas. This report will focus on data collected on the day of NRWs site visit.

TABLE 1: SCHOOL DETAILS

NAME OF SCHOOL	**DEENBANDHOO MEMORIAL SCHOOL**
SCHOOL REGISTRATION NUMBER	2306
SCHOOL LOCATION	2 TOGANIVALU ST SUVA
SCHOOL TYPE	PRIMARY SCHOOL
FEEDER SCHOOL	JAI NARAYANI COLLEGE
DATE OF INSPECTION	6TH JUNE 2024
MILESTONE	1 (06 / 86 SCHOOLS)
INSPECTED BY (TEAM 3)	DONNIS KAINAMOLI (DK)
	MERELITA DUMUKURO (MD)
	ERONI AISAKE (EA)

TABLE 2: SCHOOL ENROLMENT FIGURES

Year of Enrolment	Number of Students			Students with Disability	Number of Teachers			Comments
	Male	Female	Total		Male	Female	Total	2024 (data collected)
2024	248	277	525	N/A	4	12	16	• Total number of classrooms – 14 classrooms • Student to stream average ratio - 525 total student roll / 14 classrooms 37.5:1 for 2024 school calendar. • WASH Ratio General Taps Total no. of taps: 18 Student to tap ratio: 28:1 Toilets Total no. of cubicles Female: 4 cubicles Female Students: 69 :1 cubicle Male: 4 cubicles Male Students: 62:1 cubicle • School is not an evacuation centre
2023	267	241	508	N/A	3	13	16	
2022	250	227	447	N/A	3	13	16	
2021	243	228	471	N/A	3	13	16	
2020	239	210	449	N/A	3	13	16	
2019	234	208	442	N/A	3	13	16	

TABLE 3: 2024 CLASSROOM 2024 ENROLLMENT DETAILS (ONLY CLASSROOMS)

GRADE	CLASS NUMBER	TOTAL STUDENT ROLL	NUMBER OF TEACHERS	DIMENSIONS (m)		ACCESS WAY COUNT		OVERCROWDING BASED ON (FNBC)
				LENGTH	WIDTH	NO. OF DOORS	NO. OF WINDOWS	
ECE	KINDERGARTEN	38	2	30.5m	11.8m	2	18	☐YES ☒NO
1	YR101	34	1	7.6m	7m	2	6	☐YES ☒NO
1	YR102	35	1	7.6m	7m	2	6	☐YES ☒NO
2	YR201	36	1	7.6m	7m	2	6	☒YES ☐NO
2	YR202	37	1	7.3m	7.3m	2	18	☒YES ☐NO
3	YR301	40	1	8m	7.2m	2	14	☒YES ☐NO
4	YR401	34	1	7.6m	7m	2	8	☐YES ☒NO
4	YR402	35	1	7.6m	7m	2	8	☐YES ☒NO
5	YR501	36	1	7.6m	7m	2	8	☐YES ☒NO
5	YR502	36	1	7.6m	7m	2	8	☐YES ☒NO
6	YR601	44	1	8m	7.2m	2	14	☒YES ☐NO
7	YR701	41	1	8m	7.2m	2	14	☒YES ☐NO
8	YR801	39	1	8m	9.7m	2	16	☐YES ☒NO
8	YR802	40	1	8m	9.7m	2	24	☐YES ☒NO

Note: Data above was taken on 6th August 2024 from the school.

Most of the classrooms, showed overcrowding according to the National Building Code of Fiji. At the time of school visit NRW was advised by the school that classes that have large student rolls were moved to the larger classrooms. For this year, year 2024, the classes with the large student roll were Year 301, 601, 701, 801 and 802. Years 3, 6 and 7 are classes that had one stream compared to the others. These 5 classes currently occupy Building 2.

2) SCHOOL SITE PLAN (DRONE IMAGERY OF THE SCHOOL)

Refer to annex 3 of this report for School site plan.

3) VISUAL INSPECTION RESULTS

a) EXISTING BUILDING INFORMATION

TABLE 4: BUILDING 1

Building Index	B1 : CLASSROOMS			Year built: 1957 (Age: 67 years old)
Type:	➢ Ground floor: 3 x Classrooms / 3 x toilets blocks ➢ 1st floor:4 x Classrooms			No. of Levels: 2
Dimensions	Length (m):30.90	Width (m): 12.20		Height (m): 6.5 (up to eaves)

Existing State of Building

REF. No.	Building Component	Good[1]	Fair[2]	Poor[3]	Structure Type [4]	Comments
1	Roof Lining		✓		Steel	Kliplok roofing sheets with screws fixed at every crest
2	Roof Structure	N/A	N/A	N/A	N/A	Roof structure access not available (N/A). Suspended slab near eaves height shows exposed reinforcing. Detailed investigation required for the safety of the children regarding possible falling of concrete chipping. Note, this is not a structural member.
3	Walls		✓		Concrete	200mm concrete walls, are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
4	Columns		✓		Concrete	Concrete column are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
5	Beams		✓		Concrete	Concrete beams are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
6	Floor		✓		GL– Concrete FF – Timber	Concrete flooring at bottom floor, in good condition with 300SQ tiles. Top floor, finish flooring was of T&G type, these were observed to be in good condition. Floor framing could not be accessed.
7	Handrails		✓		GL-None FF-Steel	Ground floor - No handrails for verandah / walkway. Top floor – Handrails at 1.2m high. Handrails are in good condition. No visible damages.
8	Walkway(s)		✓		Concrete	Walkway at building 1 comprises of steel post, timber roof frame, corrugated roofing sheets. Walkway is not structurally compliant.
9	Services – water supply		✓		WAF	Water services into the building is used for the following: GL- Outdoor handwashing taps, indoor taps on hand basins and showers at toilet blocks.

[1] Good - No additional works / intervention required
[2] Fair - Remedial works required – min CAT 3 standard
[3] Poor - Demolition and replace with new - min CAT 4 standard
[4] Type of structure - Timber/concrete/steel

						FF- Single taps on hand basin. At the time of the school visit, there was no issue with the flow of water, this was observed and also advised by the teachers.	
10	Available taps for general use		✓		WAF Outdoor taps	12no.s of taps at ground floor 2 no.s of taps at first floor	Student – tap ratio in building one = 17.57/(17): 1
11	Services – electricity		✓			Electrical service into the building is providing electricity to the classroom fans, lights, security camera and school intercom system. At the time of school visit we were advised that there hasn't been any issue with the current electricity flow.	
12	Services – communication (internet)		✓			The school is currently using TFL as their internet service providers. There is no internet supplied to building 1 from the school.	
13	Drainage		✓			At the time of inspection, we were advised that there has been no issue with building one drainage system.	

Comments

- **Overcrowding**
  Building 1 comprises of Years 101, 102, 201 and ground floor and Years 401, 402, 501 and 502 at top floor. Further to the data collected in the school and analysed against the National Building Code of Fiji. It is found that classes in Building 1 are overcrowded. FNBC states that each student is allowed 2sqm, therefore years 1, 2, 4 and 5 will each require an additional (one) classrooms for their streams to reduce overcrowding.

- **Disability accessibility**
  With limited to no access for disability in building 1, having a verandah width clearance of 3.3m is the only criteria that complies. Others such as, steps and landing, railings, pavement step down/ concrete did not meet the requirement.

- **Visual building defects**
  1. Concrete falling at suspended slab of first floor. This is located at eaves height, facing building 4.
  2. There were no fire extinguishers at any of the classrooms
  3. Hairline cracks on windows at first floor of building 1.

- **Other observations**
  Flooring at top level was not assessed at this phase. Given the building is approx. 67 years old at the time of inspection, client is requested to inspect for this in the future. At the time of inspection, there was not issue raised from the school.

TABLE 5: BUILDING 2

Building Index	B2 : CLASSROOM & ADMINISTRATION			Year built: 1957 (Age: 67 years old)
Type:	➢ Ground floor: Kindergarten ➢ 1st floor: Schools Office + Head Teacher office and Staff Room			No. of Levels: 2
Dimensions	Length (m):12.15	Width (m): 12.20		Height (m): 5.65 (up to eaves)

Existing State of Building

REF. No.	Building Component	Good[5]	Fair[6]	Poor[7]	Structure Type [8]	Comments
1	Roof Lining -		✓		Steel	Kliplok roofing sheets with screws fixed at every crest
2	Roof Structure	N/A	N/A	N/A	N/A	Roof structure access not available (N/A).
3	Walls		✓		Concrete	200mm concrete walls, are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
4	Columns		✓		Concrete	Concrete column are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
5	Beams		✓		Concrete	Concrete beams are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
6	Floor		✓		GL– Concrete FF – Timber	Concrete flooring at bottom floor, in good condition with 300SQ tiles. Top floor, finish flooring was of T&G type, teachers have advised that floor at top floor is weak, due to floor being "shaky" when walking aggressively. Some area of the floor (office) when walked on causes dust dropping at kindergarten room (below the office). NRW is not able to access floor framing at the time of the visit.
7	Handrails	N/A	N/A	N/A	None	Building 2 does not have handrails.
8	Walkway(s)	N/A	N/A	N/A	None	Building 2 does not have handrails.
9	Services – water supply		✓		WAF	Water services into the building is used for the following: GL- Single taps for general hand washing at the side of building (outside of kindergarten) FF- Taps at kitchen sink in the staffroom At the time of the school visit, there was no issue with the flow of water, this was observed and also advised by the teachers.

[5] Good - No additional works / intervention required
[6] Fair - Remedial works required – min CAT 3 standard
[7] Poor - Demolition and replace with new - min CAT 4 standard
[8] Type of structure - Timber/concrete/steel

10	Available taps for general use		✓		WAF Outdoor taps	2 no.s of taps at ground floor 1 no.s of taps at first floor	Student – tap ratio in building two = 59.5/(59): 1 Note: taps here are also used by Year 801 & 802 i.e. ground floor at building 3. Note: taps at first floor are only used by teachers & ancillary staffs.
11	Services – electricity		✓			Electrical service into the building is providing electricity to the classroom fans, lights, security camera and school intercom system. At the time of school visit we were advised that there hasn't been any issue with the current electricity flow.	
12	Services – communication (internet)		✓			The school is currently using TFL as their internet service providers. There is no internet supplied to building 2.	
13	Drainage		✓			At the time of inspection, we were advised that there has been no issue with building two drainage system.	

Comments

- **Overcrowding**
  Building 2 comprises of the early childhood educational students. They occupy the buildings ground floor whereas the school's administration office occupies the top floor. Further to the data collected in the school and analysed against the National Building Code of Fiji. It is found that classes in Building 2 (ECE) do not experience overcrowding. FNBC states that each student is allowed 2sqm and ECE student rolls falls within this category.

- **Disability accessibility**
  Building 2, do not meet the requirement for adequate or appropriate disability access. There are no existing ramps, railings, support for someone with disability.

- **Visual building defects**
  1. Unstable timber flooring at top floor (office), the ECE teachers have advised that when there is a load applied on a particular floor area in the office, there will wood particles (in dust form) dropping into ECE classroom. NRW is not able to visually inspect flooring at the school office, due to no access provided, however NRW team confirms the movement of timber flooring when load is applied on. NRW advises that the school investigate further to determine the issue.
  2. Corrosion at external door handle of the kindergarten room.
  3. Moulding observed on ceiling board at kindergarten room, presumed to be from kitchen sink at staffroom (first floor).
  4. Dry mould observed at staff room, presumed to be leakage from heavy rainfall. This was confirmed by teacher, that assisted the team.

- **Other observations**
  Flooring at top level was not assessed at this phase. Given the building is approx. 67 years old at the time of inspection, client is requested to inspect for this in the future.

TABLE 6: BUILDING 3

Building Index	B3 : CLASSROOMS & MALE STAFF TOILET	Year built: 1957 (Age: 67 years old)
Type:	➢ Ground floor: 2 x Classrooms / 1 x toilets blocks ➢ 1st floor:3 x Classrooms / 1 Library & Computer Room	No. of Levels: 2
Dimensions	Length (m):31	Width (m): 9.7	Height (m): 6.5 (up to eaves)

Existing State of Building

REF. No.	Building Component	Good[9]	Fair[10]	Poor[11]	Structure Type [12]	Comments
1	Roof Lining		✓		Steel	Kliplok roofing sheets with screws fixed at every crest
2	Roof Structure	N/A	N/A	N/A	N/A	Roof structure access not available (N/A).
3	Walls		✓		Concrete	200mm external concrete walls, are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit. 100mm timber walls at storage room (ground floor) shows partial wall damages.
4	Columns		✓		Concrete	Concrete column are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
5	Beams		✓		Concrete	Concrete beams are in good condition. There was no visible sign of defect nor were there issues raised by the school at the time of the visit.
6	Floor		✓		GL– Concrete FF – Timber	Concrete flooring at bottom floor, in good condition with 300SQ tiles. Tiles at ground floor were damaged at some area. Top floor, finish flooring was of T&G type, these were observed to be in good condition. Floor framing could not be accessed.
7	Handrails		✓		GL-None FF-Steel	Ground floor - No handrails for verandah / walkway. Top floor – Handrails at 1.2m high. Handrails are in good condition. No visible damages apart from peeled paint.
8	Walkway(s)		✓		Concrete	Walkway at building 3 comprises of steel post, timber roof frame, corrugated roofing sheets. Walkway is not structurally compliant.
9	Services – water supply		✓		WAF	Water services into the building is used for the following: GL- indoor taps on hand basins at toilet blocks and Year 8 sink.

[9] Good - No additional works / intervention required
[10] Fair - Remedial works required – min CAT 3 standard
[11] Poor - Demolition and replace with new - min CAT 4 standard
[12] Type of structure - Timber/concrete/steel

						FF- 1-Single taps on hand basin. At the time of the school visit, there was no issue with the flow of water, this was observed and also advised by the teachers.	
10	Available taps for general use		✓		WAF Outdoor taps	No taps at ground floor (students use tap at Building 2) 1 no.s of taps at first floor	Student – tap ratio in building one = 126: 1
11	Services – electricity		✓			Electrical service into the building is providing electricity to the classroom fans, lights, security camera and school intercom system. At the time of school visit we were advised that there hasn't been any issue with the current electricity flow.	
12	Services – communication (internet)		✓			The school is currently using TFL as their internet service providers. There is no internet supplied to building 3 from the school.	
13	Drainage		✓			At the time of inspection, we were advised that there has been no issue with building one drainage system.	

Comments

- **Overcrowding**
  Building 3 comprises of Year 301, 601, 701, 801 and 802, the school library n computer room is also located in Building 3. Further to the data collected in the school and analysed against the National Building Code of Fiji. It is found Years 301, 601, 701 and 802 experience overcrowding. Year 801, at the time of school visit meets the requirements. FNBC states that each student is allowed 2sqm. Each overcrowded grades, will require an additional (one) classroom to manage the overcrowding.

- **Disability accessibility**
  Building 3, do not meet the requirement for adequate or appropriate disability access. There are no existing ramps, railings, support for someone with disability.

- **Visual building defects**
  1. Concrete ceiling in room 801, show signs of possible cracking. Further investigation is required for this area. the school/ ministry is required to engage a structural engineer.
  2. Missing louvre blades
  3. Damaged and missing tiles
  4. Minor damage to timber walls, inside Year 801s storage room
  5. No fire safety equipment installed for this building

TABLE 7: BUILDING 4

Building Index	B4 : CLASSROOM (YEAR 202)		Year built: 1995 (Age: 29 years old)
Type:	➢ Ground floor: Classroom (Year 202)		No. of Levels: 1
Dimensions	Length (m):7.3	Width (m): 7.3	Height (m): 4 (up to eaves)

Existing State of Building

REF. No.	Building Component	Good[13]	Fair[14]	Poor[15]	Structure Type [16]	Comments
1	Roof Lining		✓		Steel	Kliplok roofing sheets with screws fixed at every crest. Roofing sheets observed to be rusted, this was noted on the underside when observing roof framing structure.
2	Roof Structure		✓			Roof frame at building 4 Roof framing members are undersized.
3	Walls		✓		Timber	Timber walls are timber frame with weatherboard T&G type. Walls were in good condition. No visible damages were noted. Wall framing were not accessible.
4	Columns	N/A	N/A	N/A	N/A	N/A
5	Beams	N/A	N/A	N/A	N/A	N/A
6	Floor		✓		Timber	Timber flooring are T&G timber slats and did not have any visible defects, floor framing could not be visually inspected, due to timbers and other materials stored under the building structure. Where floor framing is visual, it is noted that framing connections are not structurally adequate.
7	Walkway(s)	✓			Timber	Timber railing showed no damages. Height measured at 900mm.
8	Services – water	N/A	N/A	N/A	N/A	No water services
9	Available taps for general use	N/A	N/A	N/A	N/A	N/A
10	Services – electricity				N/A	2-working electrical fan, hung down from ceiling. 1-4ft tube light working.
11	Services – communication (internet)		✓			The school is currently using TFL as their internet service providers. There is no internet supplied to building 4 from the school.
12	Drainage	N/A	N/A	N/A	N/A	N/A

[13] Good - No additional works / intervention required
[14] Fair - Remedial works required – min CAT 3 standard
[15] Poor - Demolition and replace with new - min CAT 4 standard
[16] Type of structure - Timber/concrete/steel

Comments

- **Overcrowding**
  Building 4 is a timber single storey building that caters for, at the time, Year 202. After analysis is carried out it is founded that year 202 is also experiencing overcrowding. FNBC states that each student is allowed 2sqm, therefore year 202 (together with year 201) will require an additional (one) classroom to manage the overcrowding.

- **Disability accessibility**
  Building 4, do not meet the requirement for adequate or appropriate disability access. There are no existing ramps, railings, support, clearances for someone with disability.

- **Visual building defects**
  1. Existing roof framing are undersized and centred more than 1m apart and also have inadequate fixings or connections.
  2. Wall framing was covered with weatherboard and internal ply, this was not inspected.
  3. Floor framing, were not inspected due to limited access. However, NRW was able to determine a few floor frame connections which were rusted and of inadequate size.
  4. Fire extinguisher were not present in the classroom.

- **Other observations**
  1. Windows at building 4, were covered with 225 mesh.

b) EXISTING BUILDING AND TOILET BLOCKS ACESS INFORMATION FOR DISABILITY AUDITS

TABLE 8: DISABILITY AUDIT

Building Index	**Building 1 to Building 4**		
Type:	Description of each building can be seen in the previous tables above.		**No. of Levels: 2 max.**
Dimensions	**Length (m):** See building dimension in tables above	**Width (m):** See building dimension in tables above	**Height (m):** See building dimension in tables above

Existing State of Building							
REF. No.	**Building Component**	**Good** [17]	**Fair**[18]	**Poor**[19]	**Structure Type** [20]	**Dimensions (m)**	**Comments**
1	Ramps	N/A	N/A	N/A	N/A	N/A	N/A
2	Walkway clearance space		✓		B1&B3: Concrete B4: Timber	B1&B3: 2.2m-3.3m B4: 2m	
3	Handrails		✓		B1&B3: Steel B4: Timber	B1&B3: 1-1.2m height B4: 0.88m height	
4	Doors and Door Size (typical)		✓		B1-B4: Timber	B1:1.9mm door opening clearance B2:820mm door opening clearance B3: 850mm door opening clearance B4: 820mm door opening clearance	Interior Door: There are no interior doors in the classrooms. Exterior Door: All external doors in the school compound showed no sign of defects at the time of school visit.
5	Stairway		✓		B1-B4: Concrete		Building stairway is not accessible for disability. Current condition and size do not meet the requirements.

Comments

- Deenbandhoo Memorial School do not have any record on students with mobility access being enrolled into the school, this was confirmed by the school on the day of the visit.
- It is noted that there are steps going to first floor classrooms at a height of 3m (approx.…) whereas classrooms on ground level have a floor level drop of about 300-400mm to access their building, for building 1, 2 and 3 whereas building 4 has a floor rise of about 300mm from ground level. Ground floor classrooms will require ramps for better access.
- Building 1 and 3 do not have railing support at ground floor classrooms.

[17] Good - No additional works / intervention required
[18] Fair - Remedial works required – min CAT 3 standard
[19] Poor - Demolition and replace with new - min CAT 4 standard
[20] Type of structure - Timber/concrete/steel

c) TOILET BLOCKS (BOYS and GIRLS)

TABLE 9: TOILET BLOCK

Building Index	**B1 – Toilet Block in Building 1**						
Type:	• **3 x toilet blocks** ○ 1 Female Student Toilet & 1 Male Student Toilet ○ 1 - Female Staff Toilet (Facing Playing Grounds)					**No. of Levels: 2**	
Dimensions	**Length (m): 31.2**		**Width (m): 15.74**			**Height (m): 5.72 (up-to eaves)**	
Existing State of Building							
REF. No.	**Building Component**	**Good[21]**	**Fair[22]**	**Poor[23]**	**Structure Type [24]**	**Count[25]**	**Comments**
1	Toilet Bays – male		✓		Concrete	4	No defects were observed during the school audit
2	Toilet Bays – female		✓		Concrete	4	No defects were observed during the school audit
3	Toilet Partition between boys and girls.	✓			Concrete	3	No defects were observed during the school audit
4	Shower bay		✓		Concrete	2	Rust found on nozzle at the shower area. Presume to be not in use for some time.
5	Toilet Bays – accessible	✓			N/A	N/A	Yes, accessible for primary students.
6	Entry to toilet building		✓		N/A	N/A	No issue found at the entry to the toilet area.
7	Exit to toilet building		✓		N/A	N/A	There is only one door to access the toilet building. From the entry point.
8	Menstrual Hygiene facilities			✓	Plastic bins	1	Toilet bin at female toilet, is of plastic type and had no cover. At the time of the visit there was no soap at the tap area in the toilet.
9	Students to **WASH** ratio	Toilet taps:	2 at female toilet and 2 at male toilet		62:1	Male Student toilet cubicle ratio	69: 1 Female Student toilet cubicle ratio

Comments

- Overall condition, regarding the functionality of the toilets and its building is in good condition. There were no major issues observed at the time of the school and teachers present during the visit confirmed this. However, there were minor defects such as:
  - Paint on walls were peeled at some areas in the toilet;
  - Ceiling board was damaged near the entry of the female toilet;

[21] Good - No additional works / intervention required
[22] Fair - Remedial works required – min CAT 3 standard
[23] Poor - Demolition and replace with new - min CAT 4 standard
[24] Type of structure - Timber/concrete/steel
[25] Count - Used for identifying number of toilet bays and menstrual hygiene facilities

4.0 PHOTOGRAPHIC REPORT

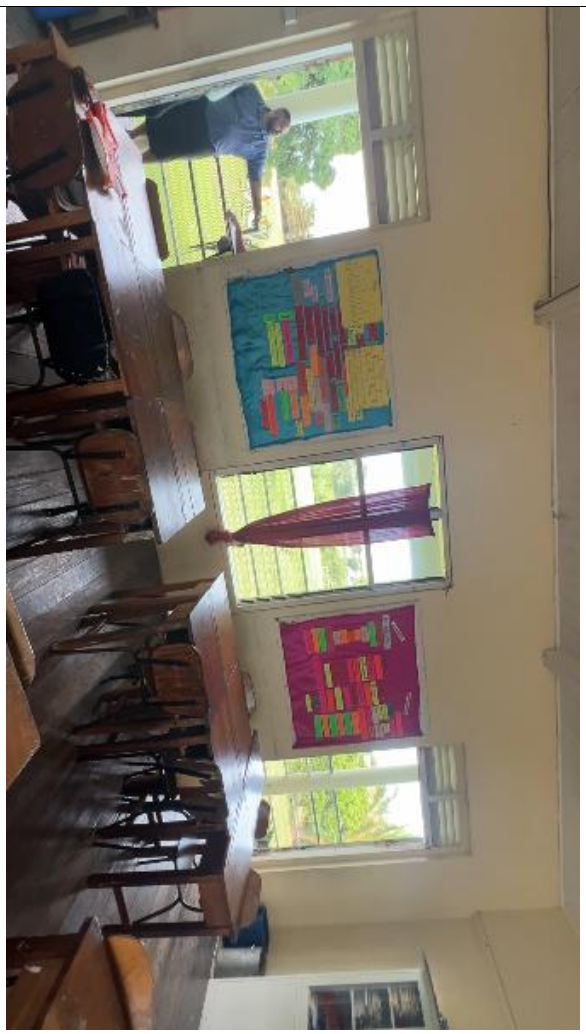
Client:	**TETRA TECH INTERNATIONAL DEVELOPMENT (PTY) LTD**	**School Name:**	**DEENBHANDOO MEMORIAL SCHOOL**
Project:	**INFRASTRUCTURE PLAN FOR SUVA – NAUSORI URBAN SCHOOL.**	**Building Index:**	**B1**

PHOTOGRAPH No. 1: FRONT

PHOTOGRAPH No. 2: LEFT SIDE

PHOTOGRAPH No. 3: BACK

PHOTOGRAPH No. 4: RIGHT SIDE



PHOTOGRAPH No. 5: INTERIOR PHOTO UPPER LEVEL

PHOTOGRAPH No. 6: ROOF LINING ON BUILDING ONE

PHOTOGRAPH NO 7 - TOILETS

PHOTOGRAPH NO 8 – TAPS AT FEMALE TOILET

Client:	TETRA TECH INTERNATIONAL DEVELOPMENT (PTY) LTD	School Name:	DEENBHANDOO MEMORIAL SCHOOL
Project:	INFRASTRUCTURE PLAN FOR SUVA – NAUSORIURBAN SCHOOL.	Building Index:	B2

PHOTOGRAPH No. 1: FRONT

PHOTOGRAPH No. 2: LEFT SIDE

PHOTOGRAPH No. 3: BACK – The rear end of building 2 is connected to Building 3 and supports the walkway that connects building 3 to building 1

PHOTOGRAPH No. 4: ROOF LINING BUILDING TWO

	
PHOTOGRAPH No. 5: INTERIOR VIEW. Shown here is the kindergarten room. This takes up the whole floor space at ground floor. Top floor includes, school office Principal's office and staff room.	PHOTOGRAPH No. 6: CEILING VIEW AT ECE CLASSROOM Shown here is the moulding that have dried up during the school visit. This was advised to be leaking during a heavy rainfall.

Note:

Roof frame members were not accessible, there was no provision of manhole in this building therefore roof space photograph cannot be provided.

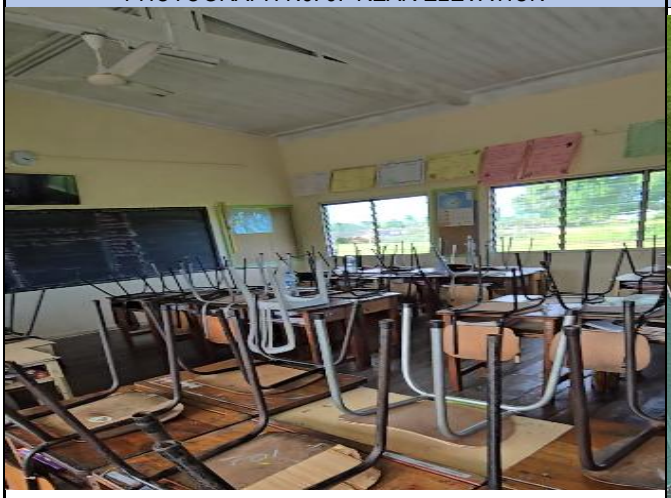
Client:	**TETRA TECH INTERNATIONAL DEVELOPMENT (PTY) LTD**	**School Name:**	**DEENBHANDOO MEMORIAL SCHOOL**
Project:	**INFRASTRUCTURE PLAN FOR SUVA – NAUSORI URBAN SCHOOL.**	**Building Index:**	**B3**

PHOTOGRAPH No. 1: FRONT ELEVATION

PHOTOGRAPH No. 2: SIDE ELEVATION

PHOTOGRAPH No. 3: REAR ELEVATION

PHOTOGRAPH No. 4: SIDE ELEVATION



PHOTOGRAPH No. 5: INTERIOR VIEW.
Shown here is Room 701, this is one of the rooms located on the top floor, which also includes, Room 301, library, computer lab

PHOTOGRAPH No. 6: ROOF LINING FOR BUILDING THREE

Client:	TETRA TECH INTERNATIONAL DEVELOPMENT (PTY) LTD	School Name:	DEENBHANDOO MEMORIAL SCHOOL
Project:	INFRASTRUCTURE PLAN FOR SUVA – NAUSORIURBAN SCHOOL.	Building Index:	B4

PHOTOGRAPH No. 1: FRONT ELEVATION

PHOTOGRAPH No. 2: SIDE ELEVATION

PHOTOGRAPH No. 3: REAR ELEVATION

PHOTOGRAPH No. 4: ROOF LINING

PHOTOGRAPH No. 5: INTERIOR VIEW.
Shown here is Room 202, this is a stand-alone building and is in front of the principal's residence.

PHOTOGRAPH No. 6: ROOF SPACE

Appendix B – Excel Scoring Sheet

	WEIGHTED CRITERIA		
1	**PART A - CLASSROOM OVERCROWDING (40%)** **Classrooms facilitating students beyond room capacity, determined through number of students per classroom and classroom size**		
	Good - zero to afew classrooms are accommodating students above capacity.	0 to 23	**13**
	Criteria Item Score		**13.0**
2	**PART B - WASH FACILITIES (20%)** **WASH- Student ratio based on the Fiji National Building Code (FNBC) Infrastructure Standards (10%)**		
	Poor - WASH-Student ratio for school toilet blocks falls below the ratio in the standard specified by FNBC.	8 to 10	**10**
2.1	**Quality of facilities and current condition such as funtionality and maintenance (10%)**		
	Good - generally school toilet facilities are maintanined well with minimal disturbances from the physical infrastructure to the end users.	0 to 5.9	**0**
	Criteria Item Score		**10.0**
3	**PART C - CONDITION OF INFRASTRUCTURE (20%)** **Building structure and condition of walls, floors, ceilings, overall structural integrity (10%)**		
	Good - most building structures are in good condition, however some may need repairs to improve structural integrity.	0 to 5.9	**5**
3.1	**Maintenance and assessment of the upkeep of facilities including painting and repairs (10%)**		
	Good - generally school facilities are maintanined well with minimal disturbances from the physical infrastructure to the end users.	0 to 5.9	**0**
	Criteria Item Score		**5.0**
4	**PART D - DISABILITY ACCESSIBILITY (10%)** **Accessibility features such as the presence of existing ramps, handrails, accessible toilets etc**		
	Poor - School buildings and facilities do not have accessibility features.	8 to 10	**10**
	Criteria Item Score		**10.0**
5	**PART E - DISASTER RESILIENCE (10%)** **Presence and quality of measures for disaster resilience of buildings including structural measures, cyclone shutters and fire safety systems**		
	Fair - some school building structures are not resilient to natural disasters and do not have safety systems in place.	6 to 7.9	**7**
	Criteria Item Score		**7.0**
	TOTAL CRITERIA SCORE		**45.0**

Appendix C – Land Available for Expansion

Australian Government
Department of Foreign Affairs and Trade

TETRA TECH

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EMAIL: info@nrwmacallan.com.fj

SCHOOL NAME:

(6) DHEENBHANDOO PRIMARY SCHOOL