

POST OCCUPANCY EVALUATION

TE KURA MANA MAORI O WHANGAPARAOA, NEAR OPOTIKI



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1 EXECUTIVE SUMMARY

1.1 SCOPE OF POST OCCUPANCY EVALUATION

The Ministry of Education (MoE) commissioned Opus International Consultants Ltd to undertake a Post Occupancy Evaluation (POE) of the buildings and immediate exterior at Te Kura Mana Maori o Whangaparaoa School, near Opotiki. The purpose of the review in accordance with the commissioning brief was to: -

Evaluate the effectiveness of the design and procurement *process*.

Evaluate the end *product* of the completed school facility in terms of its compliance with the MoE guidelines.

Evaluate the *performance* of the completed school as a suitable learning environment.

The aim of the evaluation survey is to identify the positive and negative aspects of the new school project and give recommendations that will increase the effectiveness of future school development projects. These aspects have been identified through an interview with key school staff, observations made by the survey team, and ad-hoc discussions with staff and users during the survey of the school. The key recommendations identified have been categorised into two sections, general and school specific.

This report and evaluation has been prepared based upon the MoE standards, the building code and relevant NZ standards in place at the time of the design and construction of the school. Comparing the school's design and specification to these sources provides comparative observations which will help inform the continued evolution of the MoE's guidelines.

1.2 BACKGROUND

Te Kura Mana Maori o Whangaparaoa is a small, rural, Maori Immersion school. The school grounds are situated amongst residential units in open countryside, 300m off the coast of Cape Runaway, Opitiki, and adjacent to State Highway 35. As a result of an amalgamation with nearby Te Kura o Omaio, Raukokore and Te Whanau o Apanui, a major redevelopment of the school was completed in 2014 for a maximum of 75 students ranging from Years 1-8. This redevelopment included refurbishment of existing buildings and the addition of a new teaching block and school hall.

Te Kura Mana Maori o Whangaparaoa School experienced an increase in enrolment numbers and now has a current roll of 108 students ranging from Years 1-13 due to the closure of a nearby senior school. Integrating senior students onto the site is proving challenging and has possibly effected some of the feedback received during this post occupancy evaluation.

1.3 CONCLUSION

The new build and refurbished education facilities at Te Kura Mana Maori o Whangaparaoa deliver a fresh, modern and inviting learning environment for the pupils. There is clearly respect for the facilities by the students and local community, evidenced by the high use but excellent condition of the building. The old and new buildings have been integrated successfully according to staff, creating a cluster of buildings that are practical, yet flexible, and respond well to the challenges of educating in remote locations with limited availability to resources.

The shortfalls observed in the facilities were, according to staff, the result of the recent school amalgamation and the subsequent increase in roll numbers and age ranges, putting pressure on the existing facilities. For example, staff reported an overall lack of space and storage. Spaces designated for teaching / admin / circulation are being used for storing equipment, as suitable storage facilities were not provided.

There were a number of health and safety hazards identified, such as the sharp angles on the boxed windows, covers for gas fired water heaters and adequate waterproofing between the entrance canopy and reception building require attention to prevent injury.

There is uncertainty among staff as to whether or not the building services are being managed effectively. There is a need to implement a stricter management / maintenance regime, and ensure relevant information and training is provided.

Overall findings from the survey, the interview and general staff discussions indicate that the schools needs are met. There are a few very minor issues which are capable of being rectified with alternative specification.

The staff and head of school reported that they find the facilities to be flexible and inviting, and are overall happy with the facilities. In particular staff have been impressed with the flexibility of the modern learning environment design, and there was very little in the overall design that they would change.



Figure 1

1.4 KEY OUTCOMES

A number of specific design elements were identified at Te Kura Mana Maori o Whangaparaoa School that show good practice. These include:

- Users reported that the outdoor toilet block works well at the school due to its central and easily accessible location. Being outside and providing natural ventilation above toilet doors eliminates the reliance on mechanical ventilation while ensuring the level of ventilation in the space is appropriate. An external lobby area provides shelter from wind and rain.
- The main reception area is well placed according to staff. The reception areas is adjacent to the main car parking area, with clear, accessible paved routes leading from the car parking areas making wayfinding simple.
- Users advised that the buildings and grounds provide good protection from adverse environmental conditions, citing that the implementation of wind buffers and siting of the buildings provides effective shelter from high winds. Staff advised that these features help to make the outdoor play and circulation areas very functional spaces.
- The central staff room provides a good oversight of the school and external recreation areas / parking area according to staff. They also mentioned good oversight into WC lobbies from adjacent areas, and particularly appreciated the location of the toilet lobby, which provides excellent opportunities for passive supervision.
- Staff believe that the new, modern learning spaces deliver open plan teaching areas which are flexible and practical and encourage collaborative work between classes. They stated that the spaces are comfortable and

inviting and provide good connection to outdoor spaces, which encourages the use of external areas as additional teaching space during the warmer summer months.

- Users found that the kitchen in the staff room provides good flexibility and efficient use of space. The space is utilised for food technology lessons and a breakfast club in addition to general staff use. It is also utilised as catering facilities for community led events.
- The head of school reports that she believes overall that the buildings provide a safe environment for staff, students and the community.

1.5 GENERAL RECOMMENDATIONS

A number of general recommendations have been identified as a result of the survey and interview at Te Kura Mana Maori o Whangaparaoa School. These include:

- The provision of an outdoor toilet block works well at the school according to staff.
- Users have found safety issues around the design of external features such as the location of exterior units of heat pumps and of boxed windows, which protrude out of the walls at a low level. The boxed windows have sharp edges and corners which are hazardous. The external heat pump units are installed at low level without protection and are accessible/climbable by students.
- The positioning of temporary site facilities (for example the dental bus) on the school site was less than ideal. Staff felt that these facilities obscured circulation routes on site and compromised wayfinding.
- The location of the reception in relation to the rest of the school buildings and grounds was considered highly successful by staff. Reportedly the reception location provides excellent opportunities for passive supervision as it provides good oversight of the school and the external recreation and parking areas.

1.6 TE KURA MANA MOARI O WHANGAPARAOA SCHOOL – SPECIFIC COMMENTS

A number of school-specific recommendations and comments were identified from the survey and discussions at Whangaparaoa School:

- Generally entrances into the buildings have verandahs and canopies which are weatherproof and provide good protection to the building and students from the wind and rain.
- Staff felt that the teacher work areas within the school were not quiet/private enough for their needs. As such these have been repurposed as pupil breakout space.
- Staff reported that doors in certain locations around the school often slam in high winds, causing a hazard to users. Door catches were not installed during construction, but were fitted later which has addressed the issue.
- Some plant items have been installed in such a way as to create health and safety hazards. Wall mounted electric heater panels are at a low level without protection, and would attain a surface temperature that may be unsafe to touch. The wall mounted gas fired water heaters are not covered or protected and can be tampered with. The external heat pump unit (on the exterior wall of the existing teaching block) is mounted at a height where students can climb.
- The kitchen in the staff room is utilised for food technology lessons and a breakfast club. It is also utilised as catering facilities for community lead events. This provides good flexibility and efficient use of space.
- Staff reported leaks or water tracking underneath the verandahs/canopies above the main entrance. This canopy is not adjoined to the building nor appropriately weatherproofed as per building code requirements. As a result, storm water drips down near the front entry door on wet days. This is being addressed by the addition of a flashing between the building and canopy.

2 SURVEY METHODOLOGY

The evaluation methodology is based on the UK Building Research Establishment (BRE) early stage POE methodology combined with specific MoE design requirements covering the procurement process from inception to completion, as well as relevant New Zealand and territorial requirements and standards. The three main assessment criteria used for the investigation are Process, Product and Performance.

PROCESS

This aspect of the POE seeks to identify how well the project performed using both a generic construction industry assessment framework and the MoE design requirements. The information will be collated from contract documentation provided by the MoE and interviews with MoE project representatives.

PRODUCT

This aspect of the evaluation seeks to understand the extent to which the facilities meet the core elements of the MoE design requirements.

PERFORMANCE

The final element of the evaluation seeks to determine the contribution that the facilities make towards the MoE goal of excellent educational outcomes. Three key elements of this assessment are functionality and fitness for purpose.

The information gathered under the above assessment criteria is collected by way of an interview with key school staff using a structured template of questions, one-to-one discussion with users of the school, and observations made during a survey of the buildings and grounds. The data is then collated under four headings in order to examine how specific building features perform and compare to the MoE design criteria for: -

- Accessibility
- Health & Safety
- Modern Learning Environments
- Sustainability



Figure 2

3 BACKGROUND OF THE SCHOOL

Te Kura Mana Maori o Whangaparaoa is a small, rural, Maori Immersion school. The school grounds are situated amongst residential units in open countryside, 300m off the coast of Cape Runaway, Opitiki, and adjacent to State Highway 35.

As a result of an amalgamation with nearby Te Kura o Omaio, Raukokore and Te Whanau o Apanui, a major redevelopment of the school was completed in 2014 for a maximum of 75 students ranging from Years 1-8. This redevelopment included refurbishment of existing buildings and the addition of a new teaching block and school hall.

The school has since experienced an influx of students due to the closure of a nearby senior school, and now has a current role of 108 students ranging from Years 1-13. Temporary accommodation has been brought onto the site to cater for these additional students until a new senior school is built nearby. Integrating senior students onto the site is proving challenging for the school, and this may have coloured some of the users perceptions expressed within this report.

The design of the school was heavily influenced by its coastal location. Experiencing frequent and severe coastal winds, the functionality of the outdoor play and circulation areas in the original design was disrupted. The new school blocks were strategically placed around the existing building and the central courtyard, providing a wind barrier to all sides of the courtyard and forming sheltered, functional outdoor spaces and protected circulation routes around the school and grounds.

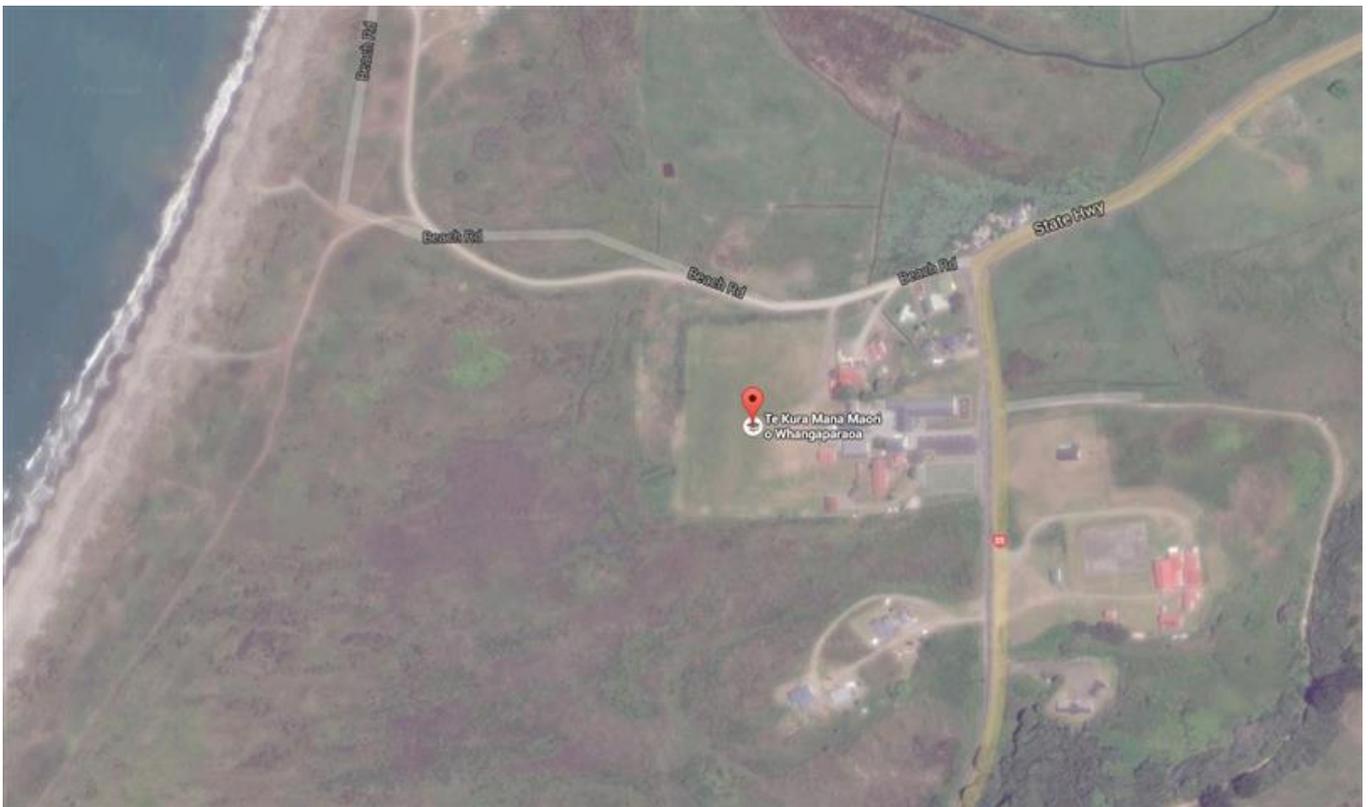


Figure 3

4 EVALUATION

4.1 ACCESSIBILITY

Positives:

- The School car parking facilities are off street and within secured school grounds. Staff car parking is located adjacent to the school buildings. See figure 4. Users report that the car parking areas work well.
- There are two buses and three vans transporting students to school, which staff advise is in order to keep site traffic to a minimum. Staff report that the school buses tend to drop students off at the school playing field entrance so the drivers can avoid contesting with cars in the drop-off zone, and that this has been working well in the start of the school day.
- There are separate drop-off zones for junior and senior Students at the front and back of the school. Staff report that this minimises congestion at busy times.
- The connecting pedestrian routes to school grounds are away from main vehicle routes and are accessible for disabled and high dependency users.
- There is access for emergency services to all areas of the buildings and grounds, including vehicle access to the rear playing fields.
- Staff report that there is a sufficient number of car parking spaces on site for both staff and visitors.
- An accessible parking space has been provided, which is in line with territorial requirements. This is located adjacent to the school buildings and within close proximity to the main entrance.
- The school grounds are relatively level and the buildings are all single storey - see figure 5. Staff advised that all areas of the school are accessible to those with special needs.
- There is at least one entrance into each learning space within the blocks that is accessible to high dependency users. These entrances are either ramped or via a level threshold.
- According to users, the outdoor toilet block is well placed. The toilet block is located centrally between teaching blocks and the hall. There is natural ventilation above toilet doors and an external lobby area which is sheltered from wind and rain- see figure 6.
- There are sufficient numbers of external light fittings to the school grounds and building perimeter. Users report that the light fittings to the car parking area, building entrances and around school grounds are successful at making routes safer and more identifiable in low light.
- The windows to all teaching blocks and hall are sliding and are set at a height accessible to students. Users reported (students and teachers) that the windows and doors are easy to operate.
- Staff have found that the circulation routes connecting the education and admin blocks and the hall are clear and accessible



Figure 4



Figure 5



Figure 6



Figure 7

to all. All pedestrian routes are paved and clearly identified, making wayfinding easy for all users.

- Users advised that the building services are well placed in and around the school grounds and do not protrude into spaces or circulation routes.
- The width of internal circulation routes and corridors meets minimum Building Code requirements for accessible / wheelchair users - see figure 7.
- There is a total of 3 Accessible toilets serving the school. This meets the requirement of the building code (in place at the time of the design). The toilets and shower facilities are centrally located and clearly identified.
- Staff advised that visitors find the main reception area easily. The main reception area is located adjacent to the main car parking area, with clear accessible paved routes safely leading from the car parking areas to the main entry.
- The main reception is accessed via steps and an accessible ramp. The ramp complies with the criteria of the building code in terms of slope and provision of handrails. There is ample space internally for wheelchair users and a seating area provided for visitors. See figure 8 of the accessible ramp.
- The entrances into the buildings have verandahs and canopies which provide weather protection to the building and students navigating the grounds. See figure 9 of an example canopy/verandah.

Negatives:

- The canopy above main entrance is not adjoined to building nor appropriately weatherproofed. Rainwater drips down near front entry door on wet days- see figure 10. This is being addressed by the addition of a flashing between the building and canopy.
- External doors were not provided with catches in the original build, which staff report makes building entrances problematic in high winds. Latches have since been fitted, which has resolved the issue.
- While not required under the standards applicable to this school, no high dependency unit hoist facilities are provided in the school's accessible bathrooms, and there is limited space for a hoist should one be desired by the school in the future.
- There are no emergency call buttons, alarm sounders or power points to allow for future install of a hoist provided in the Accessible WC's.
- Staff commented that the location of data and power points within teaching spaces are not practical for use.
- The approach to the school entrance is partially obscured due to the positioning of the service connections for the temporary dental bus. This reportedly makes wayfinding for users less than obvious at times when the dental bus is on site, which is reportedly a few days per month. See figure 11.



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12 – General Learning space

4.2 HEALTH AND SAFETY

Positives:

- Perimeter fencing identifies the site from State Highway 35 and neighbouring property boundaries. The staff perceive the boundary fencing to be more than adequate as a barrier to prevent students accessing the road adjacent to the school. There is security fencing between the car parking area and adjacent recreational areas and also to the school/road boundary.
- There is a panic alarm in the school to signal / alert an external security monitoring company in an emergency.
- Staff advised that ventilation is good within toilet facilities. All internal toilets are equipped with a mechanical extraction system. External bathrooms are naturally ventilated. See figure 13 of an internal bathroom with a wall mounted extractor fan.
- Teaching staff reported having good oversight of the school and external recreation areas / parking area from the teaching space and a central staff room. They highlighted the high level of oversight into toilet lobbies from adjacent areas.
- The wind buffers between the rear playing fields and school grounds effectively protect the site from the severe coastal winds according to staff. Staff believe that the outdoor play and



Figure 13

circulation areas are more functional spaces than they would have otherwise been as a result. See figure 14 of the wind buffers.

- There is adequate drainage to the WC's internally and in the external toilet block. Users reported no issues with waste drainage or foul smells.
- The buildings, grounds, the car parking areas and drop-off zone are well lit at night. Users perceive the perimeter lighting as effective. In addition, neighbours are able to see into the school grounds at all hours, potentially assisting with site security.
- Electrical switchboards and controls are installed so that they are lockable and protected from tampering.
- Power outlets are RCD protected throughout the school. This is in line with the MoE guidelines of the time.
- The head of school reports that she believes overall that the buildings provide a safe environment for staff, students and the community.

Negatives:

- There are no fixed sounder alarms in the temporary accommodation for emergencies (fire, tsunamis, and earthquakes). The head of school currently uses a hand held bell for alerting students which she reports is sufficient for a school of this size.
- The boxed windows to Block C protrude out of wall at a low level. The sharp edges and corners are hazardous. Staff report that this has caused accidents and currently traffic cones are placed beneath the window to warn pupils. See figure 15.
- There is no shelter or shade to outdoor areas or playing fields apart from verandahs on the buildings, and the staff felt shaded areas on school grounds were lacking.
- Wall mounted electric heater panels are at low level without protection. This is a hazard as they attain a surface temperature hot to the touch.
- The wall mounted gas fired water heaters are not covered or protected and can be tampered with.
- The external heat pump unit (on the exterior wall of the existing teaching block) is mounted at an unsafe height – students are able to climb on the unit.
- The internal bathrooms are on exterior walls yet natural ventilation is not provided. The windows are fixed panels at a high level and could be openable to provide natural ventilation. See figure 16.
- There is no dedicated exhaust vent for the main photocopy area located in the main administration block.



Figure 14



Figure 15



Figure 16

4.3 MODERN LEARNING ENVIRONMENTS

Positives:

- The new, modern learning spaces deliver large, open plan teaching areas which are flexible and practical and encourage collaborative work between classes, according to staff. See figure 17.
- Users report that the buildings and internal spaces are comfortable and inviting and provide good connection to outdoor spaces, encouraging the use of external areas as additional teaching space during the warmer summer months.
- The staff room is located in the new kitchen area which is utilised for food technology lessons and a breakfast club. It is also utilised as catering facilities for community lead events. See figure 18.
- Movable outdoor seating/tables were preferred by the school as opposed to fixed, as the flexibility it allowed encouraged the use of external spaces. See figure 19.
- The school is equipped with excellent IT and modern technology facilities which is beneficial to a small school in a remote location which has limited availability to resources.
- Multimedia facilities for video and audio are provided in general teaching areas as per MoE guidelines. Specialist teaching is provided through video conferencing with the wider Volcanics Schools Group.
- Staff reported that the rear playing fields and new external sports courts have been well used and appreciated by the both the school and local community, and have stood up well to use in all weather.
- Users report that the facilities and areas within the school that support project and wet work have stood up well to general use and mess/spills. The project room adjacent the new hall can be seen in figure 20.
- The school does not have a designated area for library facilities. There are book shelves within teaching spaces, but the majority of the information and resources used are stored digitally and accessed by staff and students via the cloud. According to the head of school this frees up valuable floor space and has worked very well.
- Staff believe the break out learning areas within the open plan teaching spaces work well and are very flexible in their use. They are often used for individual assessment / lessons, counselling sessions and visits from the district nurse. Staff reported that being located off the general learning areas allows a good level of oversight to either area, which was particularly helpful when working with several groups of students.
- The new school hall reportedly works well as additional teaching space and for group assemblies. The hall is also utilised by the local community, and is easily accessible to all users including those with special needs. See the hall in figure 21.



Figure 17



Figure 18



Figure 19



Figure 20

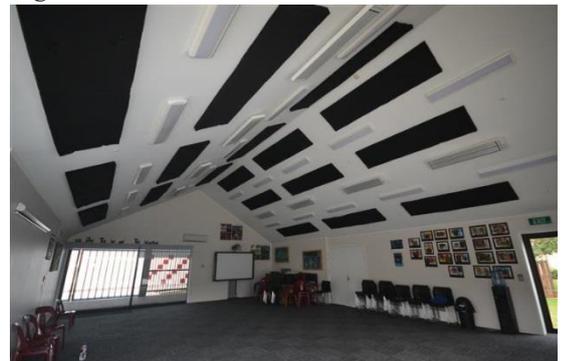


Figure 21

- The hall is located such that it is connected to both the rear playing fields and front courtyard, which staff found effective in providing an extension on the space available for physical education classes. See figure 22.
- All teaching spaces are naturally ventilated with manual controls to windows (a combination of winders and standard handles). Staff reported the indoor environment was easy to ventilate, and the simplicity of operation of window openings was appreciated.
- The power supply system is in line with the MoE guidelines of the time of design for general and specialist equipment within the teaching spaces.
- Floor finishes were reported by staff as appropriately varied for each type of space throughout the school. Hard wearing carpet is provided to the administration block and teaching spaces, and vinyl was installed to the project space and main circulation routes within the buildings.
- The School almost exclusively uses their own Wi-Fi network. Hard wired LAN data points are located and installed in accordance with the MoE guidelines in place at time of design. See figure 23.

Negatives: -

- Staff feel that the teachers work room did not provide enough privacy and quiet for their use, so this has been adapted for use as breakout rooms instead. The staff commented that there is no space available in the school and appropriate for use as teachers work rooms. See figure 24.
- There are no sheltered outdoor areas on school grounds or rear playing fields apart from verandahs on the buildings. According to staff sun shades were initially provided, but these did not last due to the extreme weather conditions experienced at the site. See figure 25 of a central location of the school, indicating the lack of shaded areas for students.
- There is no designated area for a sick bay. Staff advised that if a sick bay is required, the students are sent to wait in the staff room / kitchen, which is not ideal in terms of hygiene health.
- Staff believe that as the school was not initially designed as a high school, the adaptation has led to shortfalls in the availability of staff and student storage and overall space and facilities provided.
- There are two drinking fountains which the school staff believe to be an insufficient number due to their frequent use. See figure 27.
- Although heating and ventilation systems meet MoE guidelines, staff report that they do not cope as well in hot summer temperatures.
- There was no allowance for storage of cycles/scooters or community overstay equipment in the completed school, which staff felt was an omission that would have been useful.



Figure 22



Figure 23



Figure 24



Figure 25



Figure 26

- There is no system for after-hours monitoring of energy use, and as such no way to monitor energy use by external groups.



Figure 27

4.4 SUSTAINABILITY

Positives: -

- The school has a rainwater harvesting system with water storage tanks on the school grounds to feed sprinklers. The rainwater harvesting is supplemented by a local community bore. See figure 28 of the rainwater tanks.
- There is an emergency generator on the site for when the main power cuts, the head of school reported that this happens on quite a regular basis- see figure 29.
- Low glare twin fluorescent tube recessed light fittings (a standard and easily replaceable fitting) are installed throughout the school, with occupancy sensor (automatic) control for energy efficient operation.
- Building services systems able to be inspected comply with the requirements of the MoE in place at time of design/specification.
- Toilet areas reportedly have adequate floor drainage and are easy to clean, with waterproof floor and wall linings that are well sealed.
- Staff report that the buildings and grounds provide good protection from adverse environmental conditions such as the high winds experienced on site being mitigated through the implementation of wind buffers and siting of the buildings which create wind sheltered areas within the school grounds.
- Claddings meet MoE weather tightness and durability requirements in place at the time of design. The selected materials are durable and easy to maintain, and is readily available should it need repairing or replacing.
- The materials used for the external decking and paving is durable and fit for purpose. Staff perceived the finish as high quality. See figure 30.



Figure 28



Figure 29



Figure 30

Negatives: -

- The head of school reported that the wall mounted heating panels are not very effective for heating the teaching spaces and use a lot of power. Staff commented that heat pumps would have been preferable.
- The paved outdoor courtyard often floods. According to staff the drainage facilities are not adequate to cope with the high levels of storm water in the area. See figure 31.
- The head of school commented that the site's waste treatment plant has been problematic, with the need for continuous maintenance. See figure 32.
- The head of school reported that it is the responsibility of the School's staff to manage the maintenance regime of building services systems, however relevant training and information was lacking.
- There is no enclosure for the rubbish storage. Waste storage is completely exposed, which staff advise is less than ideal given the weather/wind in the area. MoE guidelines suggest but do not specifically require a rubbish enclosure, however without it this area is likely to become untidy. See Figure 33.



Figure 31



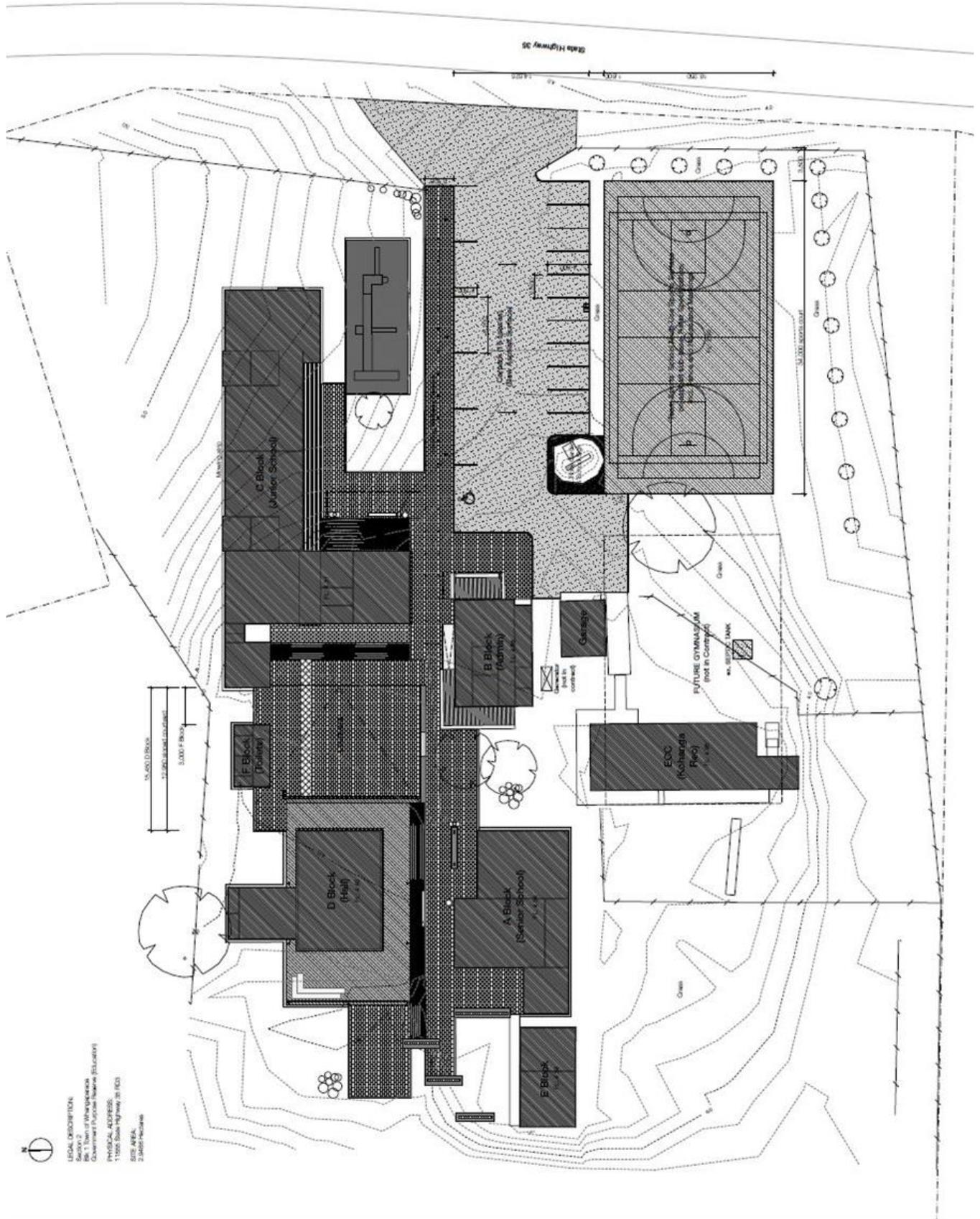
Figure 32



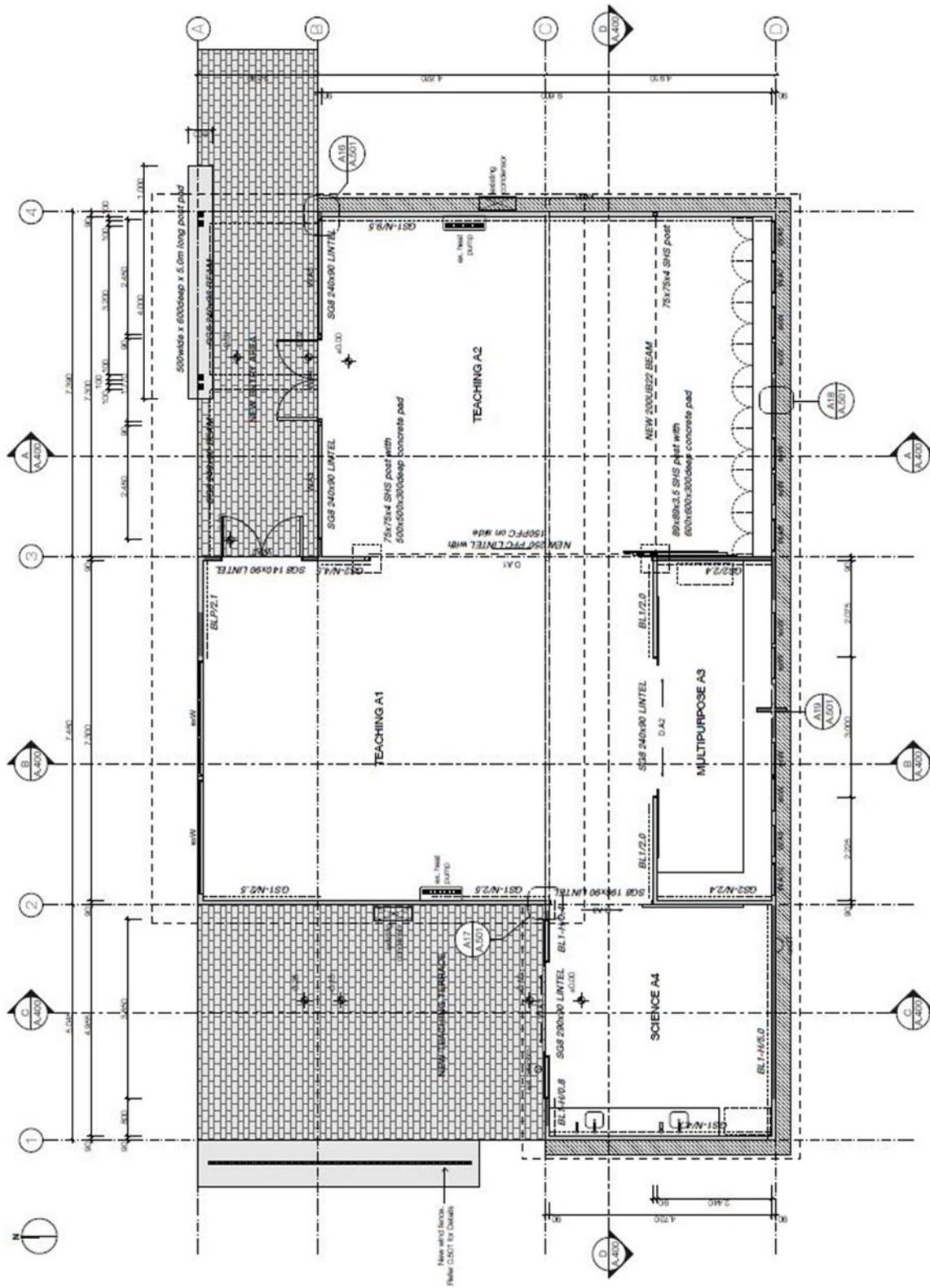
Figure 33

5 APPENDICES

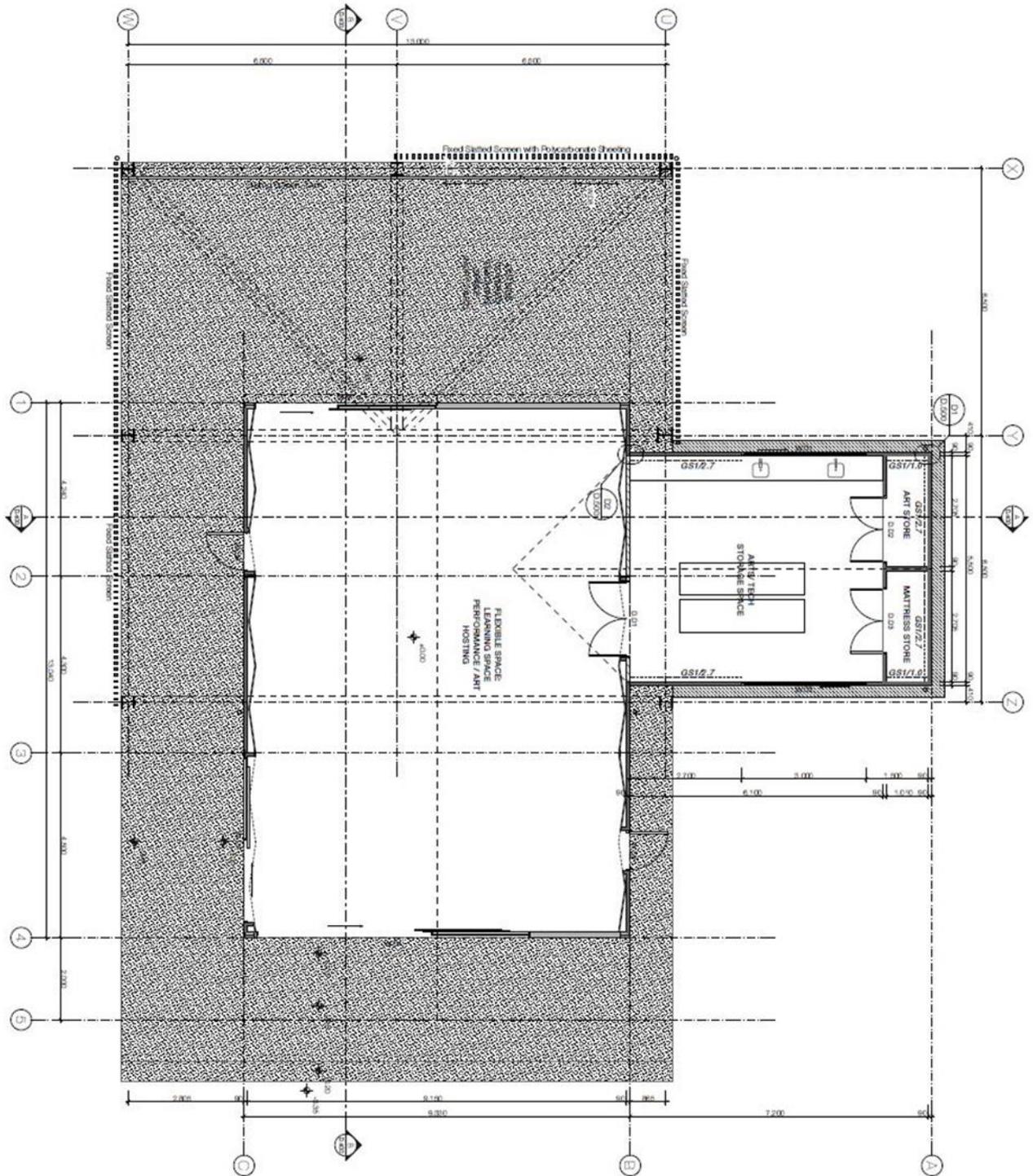
5.1 AS-BUILT SITE PLAN



5.2 DESIGN FLOOR PLAN – BLOCK A



5.5 DESIGN FLOOR PLAN – BLOCK D



5.6 CLIENT SUPPLIED INFORMATION

Information supplied by MoE –

- Funding Submission paper for the provision of Wharekura Facilities.
- Contractual Documents for redevelopment of Te Kura o Mana Maori o Whangaparaoa (Whangaparaoa)
- Contact details of contractors and MoE
- Architectural layouts issued
- Code compliance certificate (CCC)



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