WESTPORT CONNECTICUT
PARKS AND RECREATION DEPARTMENT
LONGSHORE CLUB PARK
260 SOUTH COMPO ROAD
WESTPORT, CT 06880

LEGAL NOTICE OF MEETING

Notice is hereby given that the Westport Parks & Recreation Commission will hold a special meeting on Monday, October 30, 2023 at 7:00 PM in the Westport Town Hall Auditorium, 110 Myrtle Avenue, Westport, Connecticut. The meeting will be livestreamed on www.westportct.gov and broadcast on Westport's Optimum Government Access Channel 79.

MEETING AGENDA

1. To take such action as the meeting may determine regarding recommendations made by the Long Lots School Building Committee related to the athletic fields and Community Gardens. (Discussion and potential vote)

Parks and Recreation Commission

It is the policy of the Town of Westport that all Town-sponsored public meetings and events are accessible to people with disabilities. If you need assistance in participating in a meeting or event due to a disability as defined under the Americans with Disabilities Act, please contact Westport's ADA Coordinator at 203-341-1043 or eflug@westportct.gov at least three (3) business days prior to the scheduled meeting or event to request an accommodation.

Parks and Recreation Commission

Meeting Date: October 30, 2023

Agenda Item: #1

To take such action as the meeting may determine regarding recommendations made by the Long Lots School Building Committee related to the athletic fields and Community Gardens. (Discussion and potential vote)

Background Information:

The Long Lots School Building Committee has provided their feasibility study and recommendation to the First Selectwoman. The Parks and Recreation Commission has been asked to provide a recommendation as it relates to the Concept C recommendation of the Long Lots School Building Committee.

Back-up Documents:

Long Lots School Building Committee Executive Summary and Recommendation dated October 16, 2023

Long Lots Elementary School Feasibility Report dated October 4, 2023 (including Appendix B – Full Size Civil Drawings)

Memo From Stuart McCarthy RE: Expansion of Community Gardens dated October 15, 2009

Memorandum of Understanding between the Town and the Long Lots Preserve Steering Committee dated May 13, 2022

Parks and Recreation Commission April 27, 2022, Meeting Minutes

Memo (including attachments) From Jennifer Fava RE: Property Review and Usage dated September 22, 2023

Staff Recommendation:

Staff supports the location of the athletic fields as shown on Concept C as recommended by the Long Lots School Building Committee and relocation of the Community Gardens as shown on Concept C or as otherwise determined by the Parks and Recreation Commission.

Resolution Format:

The Parks and Recreation Commission supports the recommendation of the Long Lots School Building Committee as follows: _____.

WESTPORT
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Long Lots School Building Committee

Long Lots School Building Committee
Executive Summary and Recommendation
October 16, 2023

The Long Lots Building Committee has completed the second phase of our work, the Feasibility Study. This report summarizes our progress to date and, importantly, it includes our single recommendation from six concepts on how we should proceed with this exciting project that will benefit Long Lots children for the next 50 years. Per our charge, our recommendation will be made to the First Selectwoman. Following the review by the First Selectwoman, review and approvals will be required by virtually every town body – and well it should. The Committee wants to thank everyone who provided guidance and feedback. It was heard and appreciated.

There are many complex requirements, constraints and limitations which impacted and shaped the design of the Long Lots School and site such as the topography, the need to keep the existing school operational during construction, the residential nature of the neighborhood, and town usage for other activities such as recreational athletics and gardening. We have done our best to accommodate every stakeholder and will continue to do so throughout the process. We are recommending moving forward with the feasibility concept that we believe best meets the educational needs of the school district and the town of Westport over the next 50 years, while balancing all other impacts of the project.

Long Lots Elementary School – Current Status

The Long Lots Elementary School is a two-story, approximately 109,000 square foot school that was constructed in 1953 with additions, renovations, and code upgrades in 1957, 1962, 1971, 1974, 1993 and 1994. The building is constructed on sloped grade. Two-story structures are in the northwest and southeast corners of the building in the sloped areas. The building is clad with a combination of brick veneer and stucco wall assemblies. Window systems are largely vintage to the era of construction and include single pane glass in most locations. The building's roof assemblies were replaced in 2008 and include a two-ply modified bitumen roofing membrane system which is still under warranty. The school building is centrally situated on a 28-acre multi-level site along with Athletic Fields (soccer/baseball), parking areas, bus loop, parent drop off lanes and a Community Garden. The site consists of several terraces of level areas with an overall elevation change of plus thirty feet from North to South as well as an undeveloped steep forested area to the West. The property was expanded in 2001 with the $4.2M purchase of an adjacent property to accommodate a parking lot expansion project and future municipal uses. The property was subject to a Phase I and Phase II investigation prior to the parking lot expansion project. The property is served by Town water and sewer. The building is overcrowded and in generally poor condition. As such, the Board of Education voted unanimously to request a new school to replace Long Lots.

The Long Lots Building Committee Charge

The Long Lots School Building Committee was established by the Westport RTM in the Fall of 2022 to meet the following goals while incorporating the BOE Educational Specifications:

1. In consultation with Building Envelope Engineers, MEP Engineers and other available reports and information, evaluate the existing conditions of the Long Lots Elementary School focusing on the building envelope, MEP systems and Site Conditions.
2. Provide feasibility studies for a renovate as new, renovate as new with additions and new build inclusive of cost and schedule.
3. Provide a recommendation to the First Selectwoman regarding a course of action for either a new build or renovate as new (the "Project").
4. Execute the Project as approved by Town Boards.

The Committee was additionally charged with providing for a school building with a minimum fifty (50) year life span as well as providing an option incorporating sustainable design features.

Phase I of the Charge

The initial task which the Committee addressed was the evaluation of the existing envelope and mechanical systems. The Committee retained the services of Wiss Janney Eltsner Building Envelope Engineers (WJE) to review the existing perimeter wall systems, existing roofing elements and the building's existing structural system. The Committee also retained the services of Kohler Ronan Engineers (KR) to evaluate the building's mechanical, electrical, plumbing, sprinkler, electrical and fire alarm systems. The two firms had previously been retained by the Town to both evaluate and design the upgrades for the Coleytown Middle School renovation project.

The consultants visited the school on multiple occasions in December and January to view existing conditions, review existing reports including the Antinozzi Report, Colliers Report, Tools for Schools, Maintenance Committee Reports as well as any available plans from the original 1953 construction and subsequent additions and upgrades. The Town arranged to have destructive holes opened in the perimeter exterior walls as well as on the existing roof for the consultants to examine the existing construction conditions and look for any signs of moisture incursion.

WJE and KR provided a scope of work which should be further explored for short-term repairs to keep the existing building functioning while a new building is built or when the existing building is renovated. The BOE would be responsible for existing school repairs should a new Long Lots be built; the Committee would manage all repairs in a Renovate scenario. WJE also reviewed the existing structure and concluded that vertical additions to the existing structure were not recommended.

The consultants met with the Committee on numerous occasions, on-site and in person, to review drafts of their report and discuss their findings. Their final reports are presented here:

- Kohler Ronan Report
- Wiss Janney Eltsner Report

Phase II of the Charge

In February of 2023, the Committee issued Requests for Qualifications (RFQs) for Architectural and Construction Manager services to provide a feasibility level report for both the school building and the entire site at 13 Hyde Lane. The Committee interviewed several Architects and Construction Managers and selected Svigals + Partners as the Architect and Newfield Construction as the Construction Manager (CM) for the feasibility Report.

The Feasibility Design Team was charged with developing drawings, schedules, and cost estimates to assist the Committee in evaluating three construction concepts: renovate the existing school as new, renovate the existing school as new with additions, or construct a new school. Through this Feasibility Study process, the Committee realized that there were several potential new school locations on the property, so the Committee chose to look at four (4) "new build" concepts for a total of six overall. These concepts are developed to better understand what is possible and limitations with the various elements on the property. In some cases, a concept(s) has been evaluated that is not a viable approach but is still provided in this Feasibility Study summary.

The Committee began meeting with the Feasibility Design Team in May of 2023. The Design Team and Committee members evaluated the Educational Specifications, visited the site and school building on multiple occasions, met with the Principals of both Stepping Stones and Long Lots, walked the site with the Parks & Recreation Staff, toured the Community Gardens, reviewed existing reports and drawings, and contracted for additional borings and soil testing. The Committee and Design Team conducted numerous public meetings from May to September to review floor plans and site layouts as well as drafts of the Feasibility Report.

Note that the space requirements and our plans used within the Feasibility Study are based on the Educational Specifications developed by the Westport Board of Education and approved in April of 2023. When a project is submitted for State reimbursement, the State requires enrollment projections and will base capacity on the 8-year enrollment projection. As a result, the Educational Specifications include a projected student population of 687 students over grades K-5 and the incorporation of an additional 98 Stepping Stones Pre-School students, for a total of 785 students.

Other Key Planning Considerations Impacting the Study & Recommendation by the Committee for the Feasibility Study

- Design the project (school and site) for a minimum 50-year life with considerations for future expansion of all site elements.
- Safety and Site Security for children and staff is paramount.
- Construction duration and phasing to minimize effect on the students and staff.
- Overall cost, including projected state reimbursement.
- Site Circulation and flow with an emphasis on drop off and pick up to alleviate backups onto Hyde Lane.
- Impact on neighbors during and following construction.
- Storm Water Management.
- Energy Efficiency and Sustainability goals of the Town.

- Best use of the existing site topography.
- Maintain or re-build Athletic Fields and Gardens.

The Six Concepts Considered by the Committee:

This concept approach to the analysis of the school and property was not an attempt to provide options, but a way to analyze and study the different site elements (building, parking, site access, Fields and Gardens) location on the property and their relationship to and effect on the school functions, security, stormwater management, cost, circulation, neighbors, energy efficiency and topography in order to provide a recommendation as to which concept to pursue for the best long-term value and direction for the property.

Note that more detail regarding each concept is included in the Feasibility Report that has been posted to the Town website.

Concept A – Renovate as New

Includes a full phased renovation of the existing Long Lots School building with a small addition at the rear of the building to accommodate the future schools increased enrollment and program as well as either a stand-alone or attached Stepping Stones preschool addition. This concept is the most disruptive to the students and staff as it requires extensive staging of construction activity. It has the longest duration at 30 months, a large spread-out floorplan of 154,000 sf, does not meet the BOE's Educational Specifications and shows Stepping Stones as a separate building (or an option to attach it to the backside of the school). At $107.5M it is the most expensive concept and Enhanced Sustainability is limited (limitation on PV being installed on existing roof portions due to structural capacity concerns). As with all renovations, unknown conditions could well add cost and time to the project. It does, however, maintain all Fields and the Gardens. The incremental Enhanced Sustainability cost is $7.4M.

Concept B – Renovate as New with Additions

Includes a full phased renovation of the existing Long Lots School building with a large addition to the North of the building on the middle level (Terrace #3) to accommodate a larger initial build with slightly more phasing than Concept A. This concept is also disruptive although less so than Concept A. Educational Specification is met but Concept B would result in the second largest footprint (143,000 sf) of all concepts and results in the largest amount of impervious surface (school and parking lots). This concept is the second most expensive at $105.7M and has a duration of 29 months. Like Concept A, unknown structural challenges are a risk. All Fields and the Gardens would be rebuilt. The incremental Enhanced Sustainability cost is $6.6M (again, limitation on PV being installed on existing roof portions due to structural capacity concerns).

Concept C – New Building on Terrace 3

This concept includes the construction of a new 126,000 sf school on the middle level (Terrace #3 on top of the current multi-purpose soccer and baseball field) to take advantage of the site topography allowing at-grade egress at both levels. The cost is $92.1M and the duration of the new building construction, prior to demolition of the old building and grounds, is 18 months. This concept meets all Educational Specifications, is the most efficient building footprint and

maintains all Fields and the Gardens on the Hyde Lane site. A key feature that was able to be evaluated in this concept as part of the Feasibility Study is a parking configuration that would allow for an extended parent drop-off loop to pull drop off/pick-up traffic off Hyde Lane. Furthermore, if pursued for the actual design, we would seek a design that increases the building's physical proximity away from Hyde Lane. This concept does require a move and rebuild of the large Multi-Purpose Field and Gardens as the project moves forward. The Lower Field would remain in its current location but would have to be rebuilt after construction of the school is completed. The incremental Enhanced Sustainability cost is $6.1M.

Concept C (Alternate)

This alternative to Concept C was evaluated as part of this Feasibility Study in direct response from listening to stakeholders at our public meetings. We sought to evaluate options if the Gardens were untouched and the impacts on the rest of the property in constructing a new school. This would also result in a new 126,000 sf school on the middle level currently serving the multi-purpose soccer and baseball field. All Educational Specification are met and the duration to completion prior to demolition of the old school is 18 months. Unlike Concept C, this concept would result in a full-size soccer field (though it is unable to be rotated for lawn maintenance and might increase the need for artificial turf) moving to the current parking lot by the old school; the baseball field would shift to the rear Terrace behind the old school. The cost to regrade the land in the rear terrace to accommodate a baseball field is $2.7M which contributes to the total project cost of $94.4M, $2.3M higher than Concept C. Similar to the unknown building challenges inherent with Concepts A and B, Concept C (Alternate) presents unknown challenges due to the substantial regrading of the terrain and its impact on drainage associated construction of a space required for a Multi-Purpose Field. The Lower Fields and the Gardens would remain where they are with this concept but based on feedback from the CM, we would likely need to be rebuilt based on construction staging needs, more on this below. The incremental Enhanced Sustainability cost is $6.1M.

Concept D – New Building on Terrace 4

This concept includes the construction of a new 126,000 sf school on the lower level (Terrace #4) to again take advantage of the site topography allowing access at both levels. This Educational Specifications compliant concept would also result in a similar footprint building although with a different layout than Concepts C and C-Alt. Built on the Lower Fields it requires a shift of all Fields and the Gardens. The cost is lower than both C Concepts at $91.8M with construction duration prior to demolition of 18 months. A flaw in this concept is water retention challenges and existing drainage piping in the area. There are further concerns about proximity to neighbors and limited expansion options if needed in the future. The incremental Enhanced Sustainability cost is $6.1M.

Concept E – New Building on Terrace 1

This concept, also in line with Educational Specifications, would create a 135,000-sf new school on the site of the Community Gardens. This would be a traditional 2-story building with a basement below (so egress only from one level), which is less optimal for delivering the Educational Program and results in a larger building. Like the other new building concepts, the construction duration would be 18 months prior to demolition of the old Long Lots. The cost of $91.4M is the least expensive concept. The Gardens would be rebuilt, and the Multi-

Purpose Field would be rebuilt largely in the area they currently occupy. This concept presents challenges relative to the proximity to neighbors, a lack of a separate bus loop and parent drop off and sub-optimal circulation. Again, this location limits the potential for expansion if needed in the future. The incremental Enhanced Sustainability cost is $7.0M.

As the Committee and our consultants deliberated these concepts, many considerations were raised. Two key considerations are described below:

1) For all the New School Concepts: Our construction strategies focused on two-story schemes which provide the required egress at-grade for young students as well as necessary proximity to entrances for assembly and administrative areas. Preliminary review by the Architects of a three-story approach reduced efficiency and access within the school and did not produce a notable reduction in school footprint given the large necessary ground floor footprint. Additionally, the Committee felt to impose a three-story structure in a small residential neighborhood directly adjacent to Hyde Lane was inappropriate.

2) In a preliminary review of construction staging by our CM consultant for this Feasibility Study, they have indicated that the site will be quite constrained to meet all the needs for construction while keeping the existing school fully functional (school building, parking lots, bus loop, and parent drop off). There will be the typical construction areas that are required (construction trailers, heavy equipment parking, trades parking, material storage, etc.). There will also be significant groundwork that will be required on the site and the excavated material will need to be stored on site to be utilized later as topsoil, backfill, etc. Further, to minimize the potential for material inflation costs, it would be advisable to purchase as much of the construction materials at the start of the project and store them on site. The CM has advised the Committee that all grounds outside of the school and parking lot are likely to be required for staging. Finally, if the Enhanced Sustainability package is pursued, the ground wells for the ground-source heat pumps will likely go in the lower field (Terrace #4). This would require the staging area to be shifted off this terrace for a period of time (estimated up to 5 months). Further evaluation is required, but this will require use of all the surrounding land on the property (Gardens and Fields) and a portion of the parking lot, if not already required at the start of the construction process, resulting in the disturbance of all elements on the site and closure of the site to all but the school and the construction personnel.

Cost Estimates for Concept A - E

The following table summarizes each of the six concepts considered by the Committee. The table provides a summary of costs, Enhanced Sustainability options, reimbursement potential, project duration, and the impact of construction on the Fields and Gardens.

($ million)	Option A *Renovate As New: 154,728 Sq Ft*	Option B *Renovate As New with Additions: 143,465 Sq Ft*	Option C *New Construction Middle Field: 126,355 Sq Ft*	Option C - Alt *New Construction Middle Field: 126,355 Sq Ft*	Option D *New Construction Lower Field: 125,665 Sq Ft*	Option E *New Construction Garden Area: 135,271 Sq Ft*
Construction Costs	$ 93.5	$ 91.9	$ 80.1	$ 82.1	$ 79.8	$ 79.6
Owner's Soft Costs	$ 14.0	$ 13.8	$ 12.0	$ 12.3	$ 12.0	$ 11.9
Total Project Costs	$ 107.5	$ 105.7	$ 92.1	$ 94.4	$ 91.8	$ 91.5
Enhanced Sustainability	$ 7.4	$ 6.6	$ 6.1	$ 6.1	$ 6.1	$ 7.0
Cost / Sq Ft	$ 695	$ 737	$ 729	$ 747	$ 725	$ 728
Reimbursement Rate *	21%	21%	11%	11%	11%	11%
Project Duration	30 months	29 months	26 months	26 months	26 months	26 months
Duration until Occupied	30 months	29 months	18 months	18 months	18 months	18 months
Ed Specs Met	No	Yes	Yes	Yes	Yes	Yes
Gardens Moved	No	Yes	Yes	No	Yes	Yes
All Fields Retained	Yes	Yes	Yes	Yes	Yes	Yes

* ***Rates shown are prior to deducting ineligible costs. New Construction rates begin at 11% but can go higher.***

Enhanced Sustainability Solution Benefits for Consideration

The charge from the RTM requests that the Committee investigate sustainable ideas for the design of the building to help the Town achieve its goal of NetZero 2050. To that end the Committee tasked the Design Team to provide additional information and narratives to assist the CM in estimating the construction cost related to an Enhanced Sustainability solution for the building.

Building towards a net-zero sustainable school not only represents a forward-thinking approach to education but also offers a host of tangible benefits. One of the most compelling advantages is reduced operating costs. With Enhanced Sustainability, utility expenses would plummet, with estimates indicating 80% lower than those of the existing school and 50% lower than a typical code-compliant school. These savings can be channeled towards enriching educational experiences, while the durability and ease of maintenance of the ground-source heat pump system further contribute to long-term cost savings. Simultaneously, the school's occupants experience a marked enhancement in indoor air quality. Balanced mechanical ventilation, advanced air filtration, superior insulation, and airtight construction, coupled with precise humidity control will collectively foster a healthier learning environment.

Moreover, a net-zero sustainable school becomes a nexus of enhanced productivity and educational opportunity. Meticulous attention to insulation and airtightness, coupled with state-of-the-art HVAC systems, guarantees thermal comfort for all within. Natural daylighting not only diminishes the need for energy-intensive LED lighting but also fosters an ambiance that uplifts mood and bolsters alertness. Beyond these immediate advantages, the school serves as a dynamic learning hub. Unlike conventional schools, it empowers students to explore clean energy and carbon reduction solutions through hands-on experiences. Teachers utilize the school as a real-world learning laboratory, instilling vital knowledge and skills crucial for a sustainable future. Furthermore, the school's all-electric approach aligns seamlessly with the town's and the region's efforts to combat climate change. With the potential addition of a

solar power bank, it could emerge as a resilient Community asset, capable of providing essential services and shelter during power outages, thanks to its ability to generate its own power. In essence, a net-zero sustainable school stands as a testament to sustainable living, a hub of learning and innovation, and a resilient cornerstone of the Community.

Note that the Committee visited a newly constructed elementary school in Mansfield, CT. The school, with a similar Enhanced Sustainability as being proposed for Long Lots, was a net producer of energy during our visit - although we did so while school was not in session. The Committee understands the costs involved with this investment and acknowledges that the energy codes that would be met with standard construction would far surpass what is currently in place.

Elements on Property outside of Long Lots School

The Committee has often stated that all areas on the Long Lots campus will be a construction zone for at least two years. Significant safety steps will be taken to ensure students, staff and parents have access to the school during that time. Every other part of the campus will be shut down, fenced, and likely used for construction purposes including staging and storage of materials.

The Athletic Fields

There are two (2) smaller soccer Fields and a Multi-Purpose Field (baseball and larger soccer field) on the current school property. While the school has access to and use these grounds during the school day, these Athletic Fields are not part of the elementary school program. They are town property and primarily serve as resources to Parks and Recs for youth sports. The Committee informed Parks and Recs that all Fields will be lost during the construction of a new school. And while it would impose a challenge on Parks and Recs, they understood that they would have to figure out alternative scheduling or accept usage limitations over a 2-year construction period. Parks and Recs has consistently communicated to this Committee that the loss of any Fields long-term would have a significant impact on the programs that serve thousands of children who participate in youth sports across the town. The concepts explored in this Feasibility Study all propose and estimate the Athletic Fields as natural grass fields without the addition of lighting on any of the fields.

Based on input from the community, the Committee requested a Property Review and Usage Report to be provided by Parks and Recs (which has been posted by the Town). A key aspect of the Committee's request was to evaluate other town property to determine the viability of relocating any elements (Athletic Fields and Gardens) that are currently on the property, exclusive of the Long Lots School. Forty-one (41) properties were reviewed. Two (2) potential locations for Fields were identified, but extensive earthwork would be required to accommodate a multi-purpose field, associated parking requirements, and utility upgrades to the property. Costs for these alternative locations were estimated by the CM to be in excess of the cost for the multi-purpose field that was priced out in Concept C-Alt, which was estimated at $2.7M, due to earthwork needs, adding parking, and running utilities.

The Community Gardens

The Community Gardens have been a part of the Long Lots property since the 2005 site plan at 13 Hyde Lane was approved. The Long Lots Community Gardens and Preserve occupy approximately two acres of the Long Lots School property. The Gardens provide gardening plots, typically raised beds and there is a pergola, bocce court and seating for socializing. The Gardens are accessible to only the 108 garden members and their guests, they are largely inaccessible to the general public with little or no room for growth should more Westporters be interested in using this particular part of our Parks and Recreation properties.

In 2009, the gardeners requested to expand their operation to allow for more plots. In a Parks and Recreation memo from October 15, 2009, (see LLSBC Updates page for document) approval of the request was granted. However, the memo stated that the expansion of the Gardens would not preclude any future conversion of the Gardens to Athletic Fields if the needs of the community dictate. The memo went on to say that the approval should not be viewed as an irrevocable decision.

Further, as recently as 2022, the gardeners requested to plant a Preserve around the perimeter of the Gardens. Permission was granted in April 2022, but the Town informed the Westport Community Gardens that a new Long Lots school would potentially be built and if the Town needed that property for the new school project, it would be reclaimed (meeting minutes link). The Memorandum of Understanding (see LLSBC Updates page for document) stated that, in the event the land was needed, any rights and privileges granted to the gardeners shall cease.

The Committee believes that leaving the Gardens in their current location in conjunction with the siting of the new school building leads to a sub-optimal layout of the site elements on the entire property. Furthermore, this may not even be possible based on construction staging space needs, as discussed earlier in this report. In the Committee's opinion, leaving the Gardens in their current location (as shown in Concept C-Alt) leads to the loss of a Multi-Purpose Athletic Field as the rear terrace location for the field is likely unsuitable and prohibitively expensive. While a larger soccer field is shown in the C-Alt plan next to the Gardens, it is limited to a single orientation, so would restrict lawn maintenance options for Parks and Recs.

The Recommendation

Concepts not selected:

- Concept A does not align with the Educational Specifications, compromising the intended learning environment. Moreover, the suggestion of a staged retrofit is worrisome, as it may place students in close proximity to a construction zone, raising safety issues related to potential exposure to hazardous materials given the building's age. The plan's requirement for students to relocate around the building several times during construction could lead to significant disruptions in their education. This concept allows for the lowest probability for any enhancements to the sustainability of the building.

Additionally, this concept is already the most expensive and there is a risk of unforeseen costs due to potential structural limitations not accounted for in the budget or schedule.

- Concept B extends the duration of the project and construction on the building while students are in school is disruptive. There are similar concerns with a staged retrofit as presented with Concept A. Finally, this concept would result in the largest percentage of impervious surfaces on the property, requiring the most stormwater mitigation of any of the concepts.

- Concept C-Alt eliminates a Multi-Purpose Field from the site although the plan shows a potential build in the rear terrace at a cost in excess of $2.7M with significant risk due to the topography. There is a large soccer field that can be added adjacent to the Gardens but cannot be rotated for lawn maintenance. Furthermore, as part of the site management plan, we will likely need to still figure out how to fix drainage issues around the Preserve and/or Gardens as well as the site restraints previously discussed for staging, parking, storage and stockpiling of materials. Given these challenges, rebuilding the Gardens will likely still be necessary.

- Concept D had several notable drawbacks to consider. Firstly, it has the potential to negatively affect the neighbors situated at the end of the property, primarily due to the proximity of Stepping Stone/staff parking. Moreover, the presence of drainage piping running between the lower and middle levels and at the perimeter presents an undesirable situation, with unclear associated costs for its management. Additionally, the car drop-off line could still lead to backups onto Hyde Lane, posing a potential traffic concern. The plan also imposes limitations on future expansion possibilities. Lastly, the placement of wells for ground-source heat pumps is likely to be at a considerable distance, which could result in increased piping and pumping costs.

- Concept E presents several significant concerns. Firstly, it greatly impacts numerous neighbors at that end of the property, given the proximity of the school and playgrounds to the property boundary. The two-story configuration poses a limitation by allowing egress only from the main level, potentially affecting accessibility and safety. Furthermore, it imposes restrictions on future expansion options, which may be necessary down the line. There is also the need for a re-evaluation of the parking lot layout to prevent conflicts between bus and car loops. Lastly, the placement of wells for ground-source heat pumps is likely to be quite distant, leading to increased costs related to piping and pumping.

<u>The Committee's Recommendation: Concept C with Enhanced Sustainability package</u>

The approach and focus of the Committee have been and will always be "School Centric." We are building an elementary school that will serve tens of thousands of children, their families, and staff for a minimum of the next fifty years. We cannot, however, ignore other needs on the site that are unrelated to Educational Specifications. This report is a feasibility level review, the earliest stage of the design process, providing several concepts for building siting, circulation, and site elements that the committee has analyzed and made their recommendation of Concept C to be further explored. It is the recommendation of this Committee that Concept C (below) with the Enhanced Sustainability package provides the best

solution heading into the Schematic Design Phase. Concept C provides the most efficient building and building footprint. It allows for a smooth bus loop, ample parking, and sufficient parent drop off lane to pull vehicles off Hyde Lane. Concept C provides a location on the site for all stakeholders, albeit relocated and addresses all of the design considerations the Committee considered at the outset of this study.

Concept 'C' Svigals + Partners

Concept C requires that we:

- Renovate the existing lower field to pre-construction condition (Terrace #4), as it will be one of the main staging areas and potential location for wells for the ground-source heat pump system.
- Construct a new two-story enhanced sustainability school on the middle level (Terrace #3) as far from Hyde Lane as is suitably possible.
- Construct a new bus loop off Hyde Lane in front of the new school on the middle level (Terrace #3) as far from Hyde Lane as is suitably possible, including screening of the buses.
- Construct new parking for staff and visitors in a similar location to the existing parking (Terrace #2) to accommodate an adequate parent drop-off loop to remove as many cars as possible off Hyde Lane during parent drop-off.
- Construct new student play areas accessible from the rear of the school (Terrace #2)
- Construct new multi-purpose field (baseball/soccer) straddling terraces #1 and #2 leaving enough room to accommodate spectators and the ability to rotate and re-line the soccer field in the outfield in multiple directions.

- Maintain as much of the Long Lots Preserve as possible.
- The Committee has great appreciation for the Community Garden and the gardeners. The Committee also believes that rebuilding the Community Garden is necessary and unavoidable to develop the optimal design plan for the school building and site layout. Please see the additional recommendation below with regards to the Community Garden to avoid missing a growing season.

Additional Recommendation

The Committee would also recommend an immediate review regarding the viability of moving the Community Gardens to the Barons South site area near the Senior center (see image below). The area highlighted in the aerial diagram is the former site of the Barons Gardens. This move would be beneficial in that it would: eliminate the loss of two growing seasons for the gardeners due to construction (and potential Garden damage due to construction staging) and remove access restrictions that are currently in place at the Gardens. The area at Barons South under consideration is larger than the current location so it could allow for the growth of the Gardens footprint for more people in town to share the gardening experience.

The Committee believes that Barons South adjacent to the Senior Center is an ideal location to rebuild the Community Gardens to flourish over the next 50 years; there is already a small garden, they recently expanded their parking areas, they can provide both restrooms and access to utilities with easy access to the Center for senior gardeners and will make use of an underutilized Town asset (Barons South). The Senior Center provides a synergy with the Gardens that is unavailable anywhere else in Town. It is further recommended that Parks and Recs and Community Garden representatives are included in this review.

While raised as a concern during public comments at public meetings, the Committee has reviewed the 2020 Supplemental Soil Investigation and Preliminary Risk Assessment Report completed by Thunderbird Environmental, LLC. The consultant concluded that after remediation of this area, "based on a statistical analysis of the recently collected site-wide soil data, arsenic concentrations in soil at the Site appear typical of arsenic concentrations in soil

throughout New England." Furthermore, it is expected that any rebuilding of the Gardens at this location would require the removal of 3" of soil as part of the earthwork to rebuild a new Garden.

The Committee's recommendation is that the cost of such a move should be borne by the Town. It is understood that this cost, like the Fields on the Long Lots Site, would not be eligible for partial reimbursement from the State.

Recommendation Summary

The Committee unanimously approved this Recommendation to be presented to the First Selectwoman. The Committee looks forward to answering any questions the various governing bodies of Westport have through this initial approval phase and is excited to move into full design and eventually construction phases to deliver a showcase school for the town of Westport.

Option 'C' if Gardens were to be relocated to Barons South Svigals + Partners

Respectfully submitted,

The Long Lots School Building Committee

John Broadbin, Liz Heyer, Jay Keenan - chair, Don O'Day, Srikanth Puttagunta, Joe Renzulli, Tim Wetmore, Susan Chipouras

Long Lots Elementary School
Feasibility Report

October 4, 2023

SVIGALS + PARTNERS

SVIGALS + PARTNERS

SLR

BVH

MHAI

Newfield CONSTRUCTION

Acknowledgments

Long Lots Elementary School
13 Hyde Lane, Westport, CT 06880

Phase I Feasibility Report
Prepared for the Town Of Westport
October, 2023

In consultation with Long Lots School Building Committee (LLSBC):

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Liz Heyer, Board of Education, Ex-Officio
Susan Chipouras, Owner Representative
Jay Keenan, Chair
Srikanth Puttagunta
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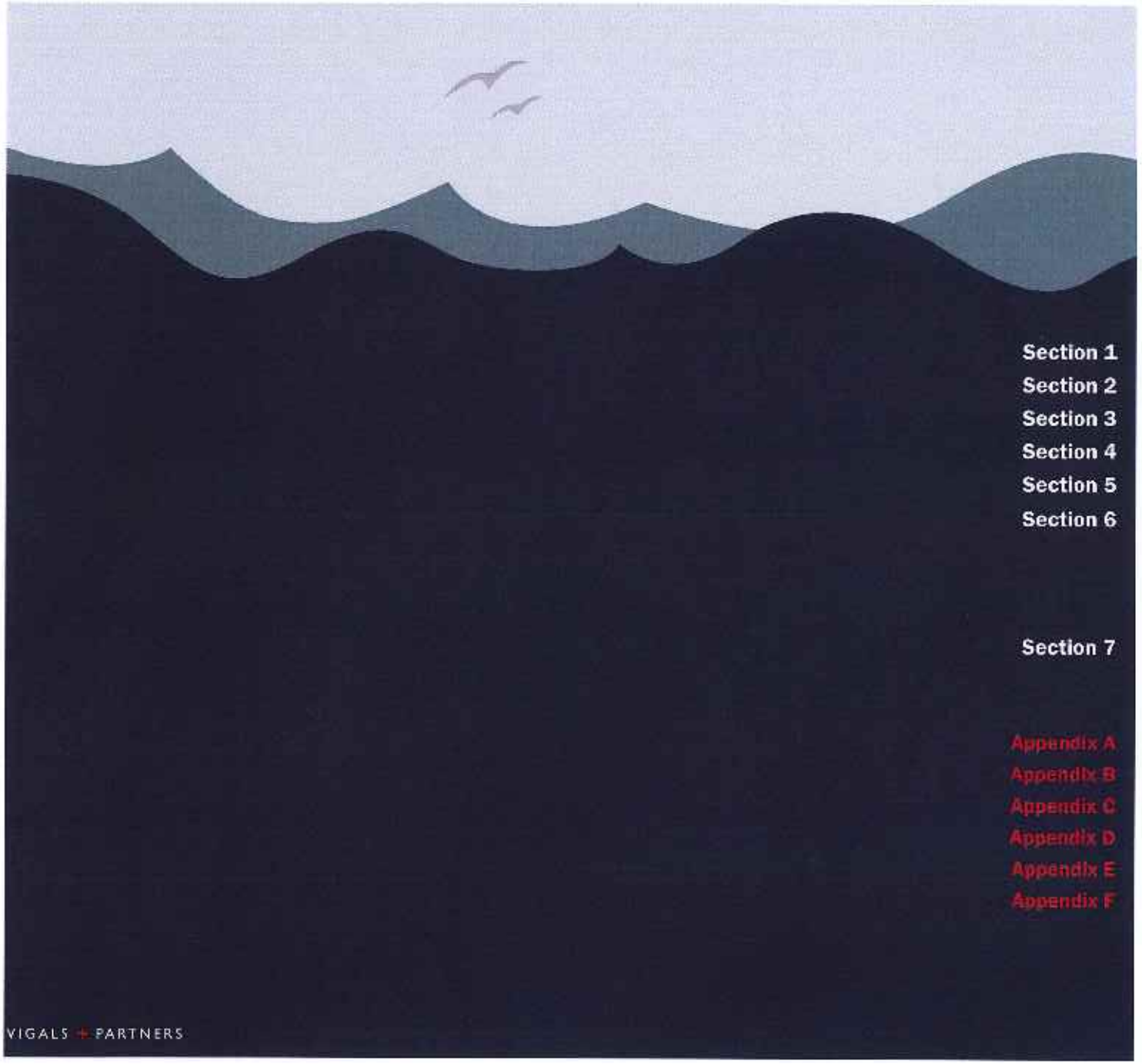
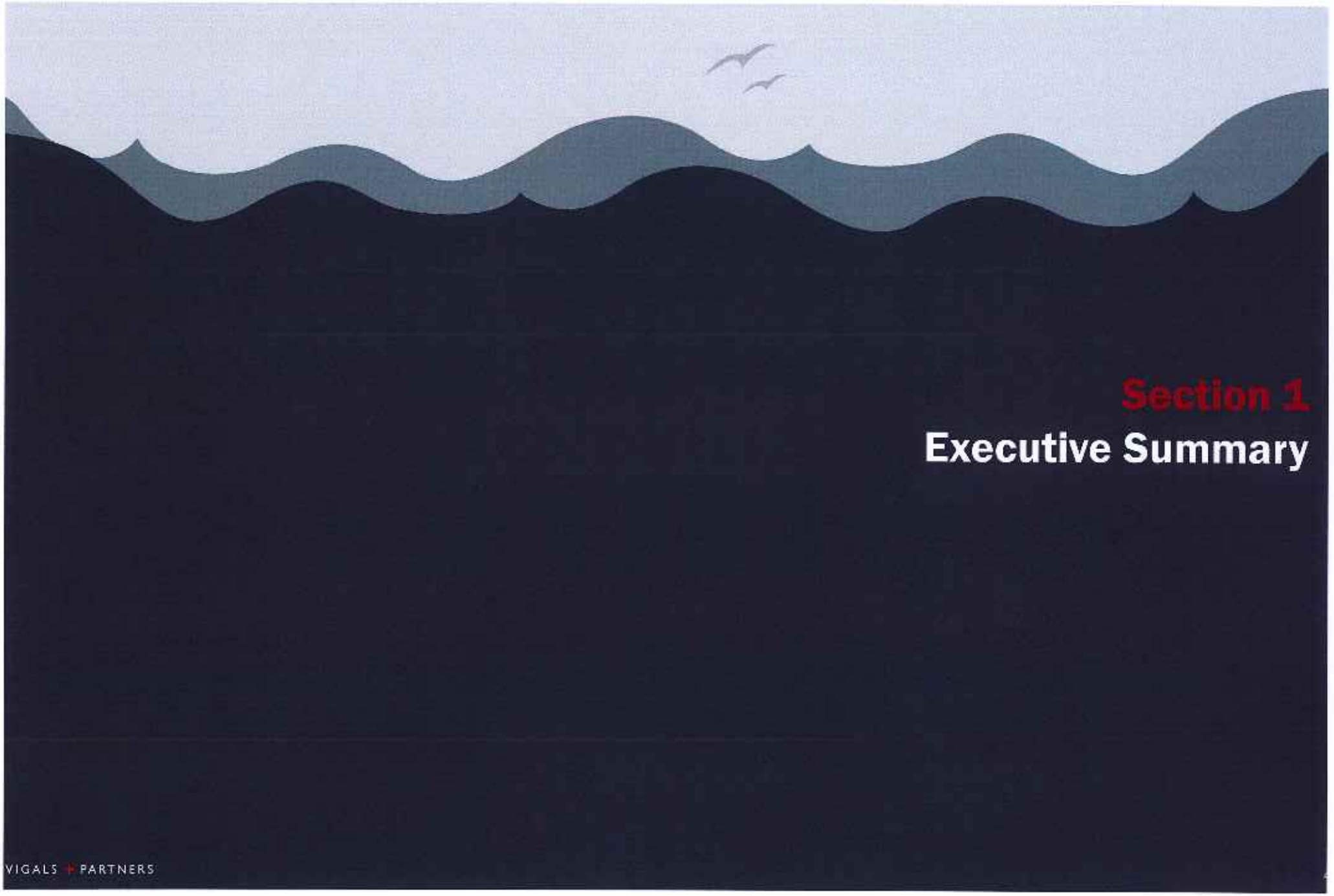




Section 1
Executive Summary

Executive Summary

Overview and Purpose

In May of 2023, the Town of Westport engaged Svigals + Partners and their consultants to perform a feasibility study for modernization of the Long Lots Elementary School, (LLS). The study includes the program for Long Lots as well as the incorporation of Stepping Stones Preschool (SSP), which will be relocated from its current location at Coleytown Elementary School. Previous studies of the building have revealed aging mechanical systems and a deteriorating building envelope, raising concerns about the reuse of the existing building. Additionally, current enrollment at the school has necessitated the use of modular classroom units.

For this study, the Town has requested a comparative evaluation to study the viability of three approaches: Renovation as New, Renovation as New with Additions, and New Construction.

The intent of this Phase I study is to demonstrate the viability of these three pathways in modernizing the Long Lots School building to best meet the Town's Educational Specifications, projected enrollment for the next eight years, and current applicable codes and standards. The Town's most recent Educational Specifications, established and approved by Westport Board of Education (BOE), include an anticipated increase in enrollment for Long Lots Elementary School as well as an additional enrollment for Stepping Stones Preschool.

The three feasibility approaches, with corresponding options for enhanced sustainability, are being provided to the Town to assist in determining a final solution for further development in a future, Phase II of the project. The ultimate goal for both phases is an energy efficient new, or renovated as new, facility to serve the Town for the next fifty years.

The feasibility options for the building are being considered along with options to maintain the other site elements on the grounds where possible.

Methodology

The feasibility study process included site visits to review the existing facility and grounds, regular meetings with the Long Lots Building Committee (LLSBC), conversations with the School Facilities, Park and Recreation and Public Works, and meeting with school administration and staff.

The process also included the study of a significant number of existing documents regarding the existing conditions of the site and building. These include Westport's Kroll Report on School Security, a Preliminary Geotechnical Report by GNCB, an Assessment of Building Envelope and Structural Systems by Wiss Janney Elstner, a Property Assessment by Colliers, and an MEP Assessment by Kohler Ronan, among others. A full list of existing documents and reports is included as an appendix to this report.

Concept Summary

The design options presented in this report were developed with regard for known parameters for the project, including existing site and building conditions, programmatic needs and educational specification requirements, best practices for design and sustainability, and logistical and phasing constraints.

In Concept A, Renovation as New, the existing building envelope materials are replaced, and the existing structure repaired. New mechanical systems and interior finishes are installed throughout. The 109,000 square foot floor plan is revised where possible. However, the existing building cannot accommodate the full program of the Ed Spec, necessitating an addition of approximately 6,500 square feet to accommodate the Long Lots program, and an 18,000 square foot structure is proposed to house the Stepping Stones Preschool, totaling approximately 155,000 square feet.

Concept B, Renovation as New with a Large Addition, totals approximately 144,000 square feet and includes a significant new addition on the school's existing multi-purpose field, followed by targeted demolition of portions of the existing school building and replacement of all fields. In existing areas to remain, envelope materials are replaced, and the remaining structure is repaired. New mechanical systems and interior finishes are installed throughout. In this option, the Long Lots School and the Stepping Stones Preschool are accommodated within one building, with the future Stepping Stones area used as swing space during the construction process.

In final Concept C, New Construction, a new building of approximately 125,000 square feet is proposed, with demolition of the existing Long Lots building to follow. For the purposes of this feasibility study, three potential locations for the new building have been explored.

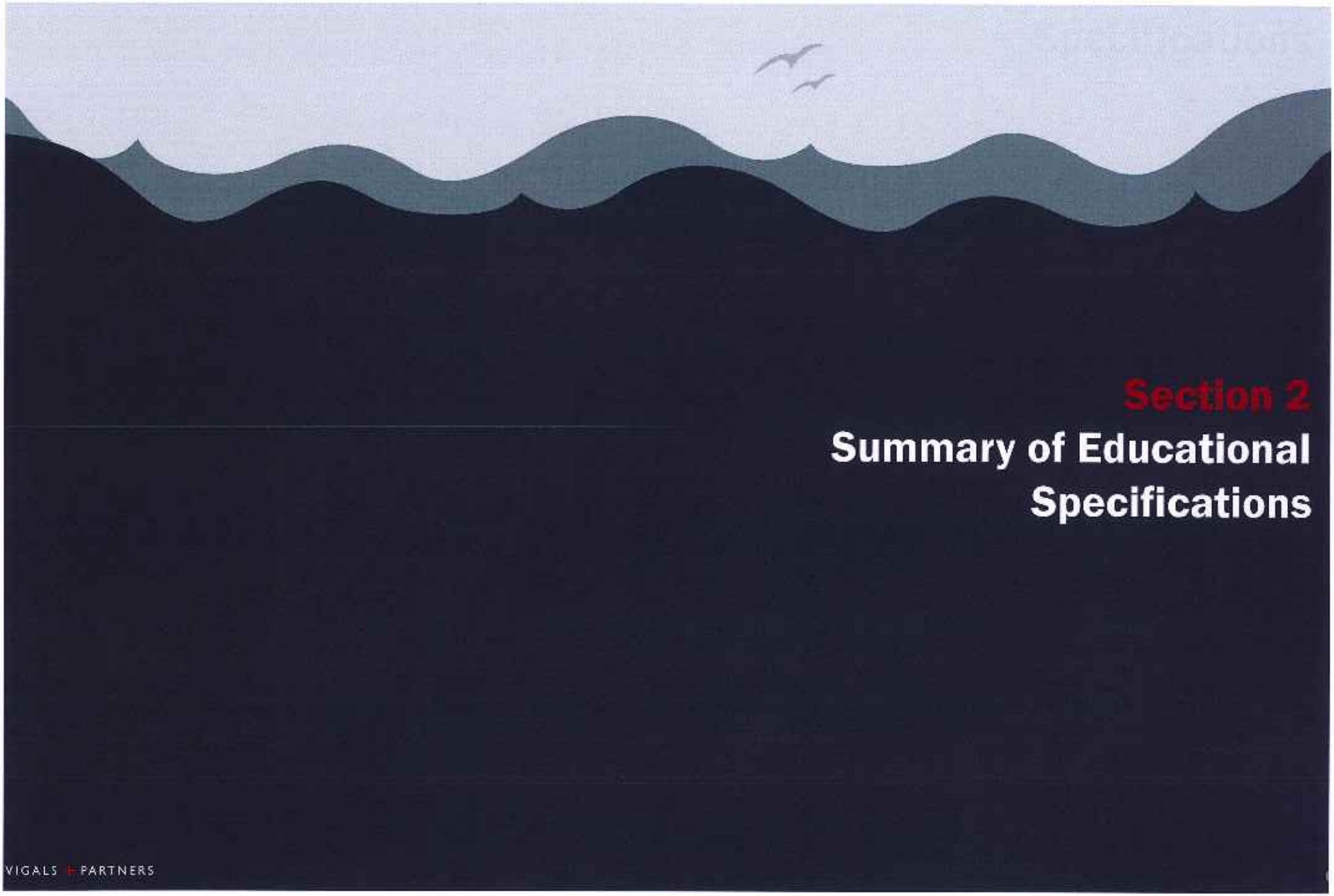
All options are phased in anticipation of continuous operation of the academic program at Long Lots Elementary School.

All Concept Options have been studied with regard to energy efficiency and carbon footprint. Two different systems have been investigated and applied as follows:

1. Code Compliant (System 1)
2. Enhanced Sustainability (System 2)

The final Concepts, along with options for enhanced sustainability, proposed phasing, relative construction costs and schedules, as well as an evaluation of the opportunities and challenges associated with each Concept are compiled in Section 6 of this report.

There is no final recommendation for which of the concept options should be selected to move forward, as the Committee and town bodies will need to weigh options among all considerations including cost, timing, redistricting, availability of swing space, etc, in order to make a final determination.



Section 2
Summary of Educational Specifications

Summary of Educational Specifications

The space program for this study is based on the Educational Specifications prepared for Long Lots Elementary School and Stepping Stones Preschool which were approved in April 2023. The Ed Specs are based on an assumed headcount capacity of 687 students across K-5 grades and an additional 98 preschoolers at Stepping Stones.

Minor increases to program areas have been made to reasonably accommodate the school's needs as conveyed by school administrators.

Major program elements include:

- (30) General Education Classrooms For K-5
- (7) Preschool Classrooms
- K-5 Special Education Resource Programming totaling 6,100 square feet
- A Multipurpose Room of 6,000 square feet to accommodate full school assemblies
- A Gymnasium of 6,000 square feet
- A Cafeteria and Kitchen totaling 3,000 square feet

Special Education programming at Long Lots includes K-5 Special Education Resource, an Intensive Resource program serving students across the district, Occupational and Physical Therapy and Related Services (Psychologist, and Speech/Language/Hearing.)

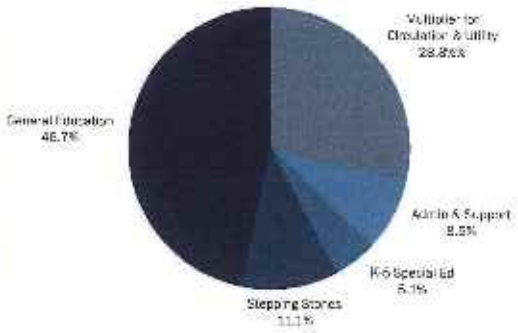
The resulting space program is summarized on the following page. Total gross square footage is calculated using a multiplier of 40% to account for unlisted building areas such as corridors, stairs, restrooms, utility areas and wall thicknesses.

A full copy of the Educational Specification can be found in Appendix C of this report.

Program Summary:

Educational Specifications	Square Footage
General Education	55,785
Stepping Stones Preschool	13,300
K-5 Special Ed Resource	6,100
Administration & Support	10,090
Total Net	85,275
Multiplier	1.4
Total Gross	119,385

Note: based on enrollment projections and planning formulas defined by the Office of School Grants and Construction, approximately 95,000 square feet will qualify for State Reimbursement for this project.



Long Lots and Stepping Stones Space Program:

ID No.	Activity Space	Quantity	Space Area	Total Area	Notes
Gen Ed				55,785	
1.01	Early Childhood - K	5	1100	5,500	
1.02	Early Elem - 1 & 2	10	940	9,400	
1.03	Intermediate 3, 4, 5	15	890	13,350	
4.01	Science Lab	1	890	890	
4.02	Workshop Classroom	1	500	500	
4.03	World Language	2	890	1,780	
4.04	Visual Arts	1	1100	1,100	
4.05	Visual Arts - Kiln	1	350	350	
4.06	Visual Arts/Music Aux	1	1000	1,000	
4.07	Music General	1	1000	1,000	
4.08	Music Instruments	1	1000	1,000	
4.09	Music Storage	1	200	200	
4.10	Gymnasium	1	6000	6,000	
4.11	Gym Storage	1	700	700	
4.12	Platform	1	500	500	
4.13	Multi-Purpose	1	6000	6,000	Increased from 5,000*
4.14	Library Media Center	1	2700	2,700	
4.15	Media Center TV STudio	1	300	300	
4.16	Instructional Tech Lab	1	890	890	
4.17	Reading Coach	1	350	350	
4.18	Math Coach	1	200	200	
4.19	Small Group	3	125	375	Increased from 2 rooms*
4.20	Gen Ed Intervention	2	500	1,000	
4.21	TESOL Office	1	250	250	

continued on following page

ID No.	Activity Space	Quantity	Space Area	Total Area	Notes
Stepping Stones				13,300	~16,620 SF gross
6.01	Classrooms	7	1100	7,700	
6.02	Intensive Education	1	1100	1,100	
6.03	SPED Resource	1	350	350	
7.01	Coordinator of OT	1	150	150	
7.02	Social Worker	1	150	150	
7.03	Preschool Liason	1	150	150	
7.04	Speech Language	3	250	750	
7.05	Psychologist	1	250	250	
7.06	Multi Purpose Classroom	1	1100	1,100	
7.07	Preschool Coordinator	1	200	200	
7.08	Main Office and Files	1	600	600	
7.09	Conference Room	1	200	200	
7.10	Faculty	1	400	400	
7.11	Instructional Storage	1	200	200	
K-5 Spec Ed Resource				6,700	
8.01	SPED Resource	2	700	1,400	
8.02	Intensive Resource	2	1100	2,200	
8.03	OT PT Resource	1	1200	1,200	
8.04	K-5 Speech	2	250	500	
8.05	K-5 Psychology Suite	1	600	600	
Admin and Support				10,090	
9.01	Principal Office	1	200	200	
9.02	Assistant Principal	2	175	350	
9.03	Main Office	1	700	700	
9.04	Conference	2	250	500	
9.05	Health Services	1	750	750	
9.06	Teacher Workroom	1	440	440	
10.01	Cafeteria	1	2700	2,700	Increased from 2,400*
10.02	Kitchen	1	1300	1,300	
10.03	Faculty Lounge	1	650	650	
11.01	Custodial Office and Storage	1	900	900	
11.02	Instructional Storage	1	600	600	
11.03	General Storage	1	800	800	
TOTAL NET AREA				85,275 SF	
	Net Area to Gross Area Multiplier			1.40	**
TOTAL GROSS BUILDING AREA				119,385 SF	

* indicates square footage or room quantity increases from Ed Spec to accommodate the school's programmatic needs as conveyed by school administrators

**total gross square footage is calculated using a multiplier of 40% to account for unlisted building areas such as corridors, stairs, restrooms, utility areas and wall thicknesses.

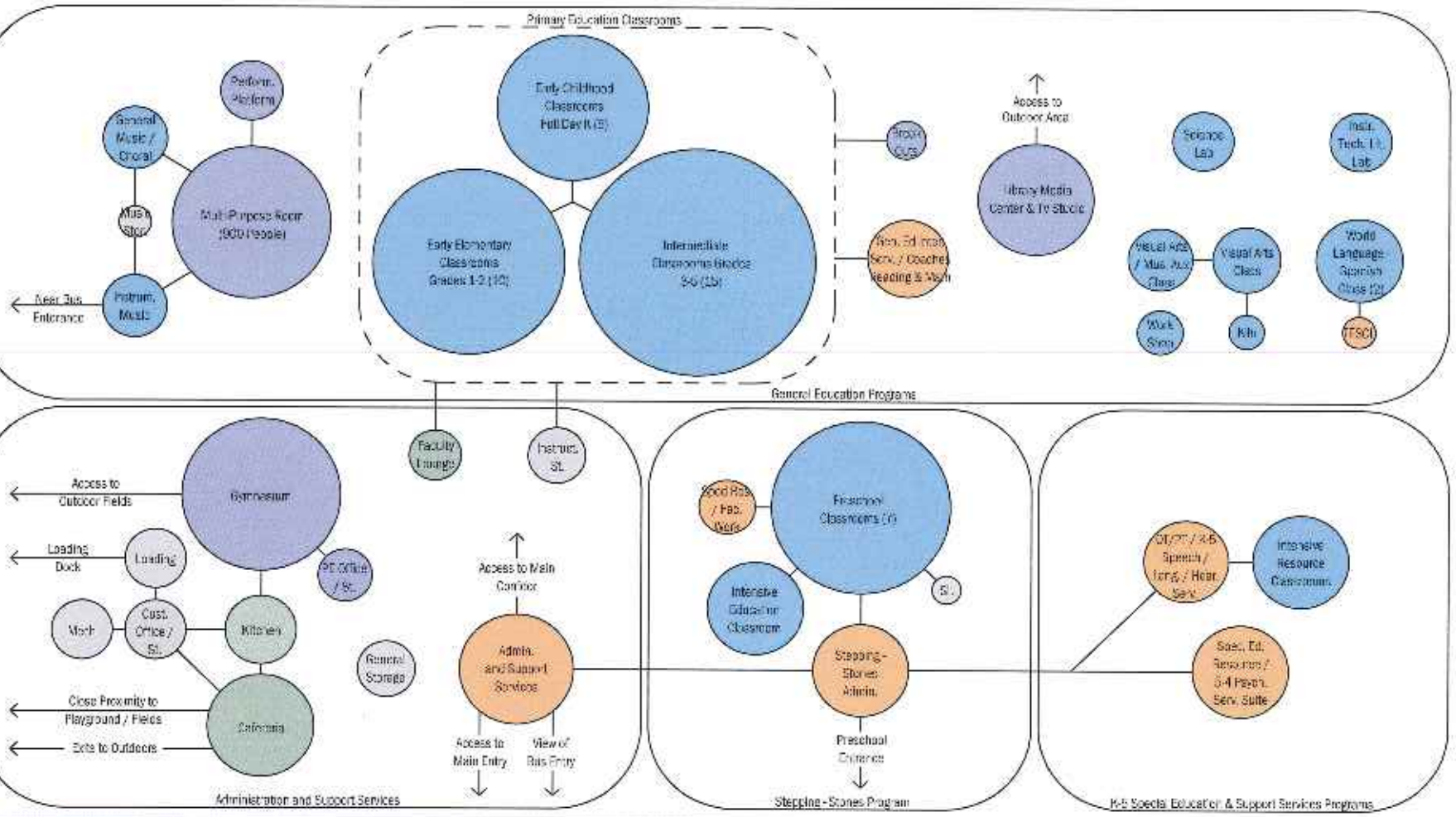
Program Adjacencies

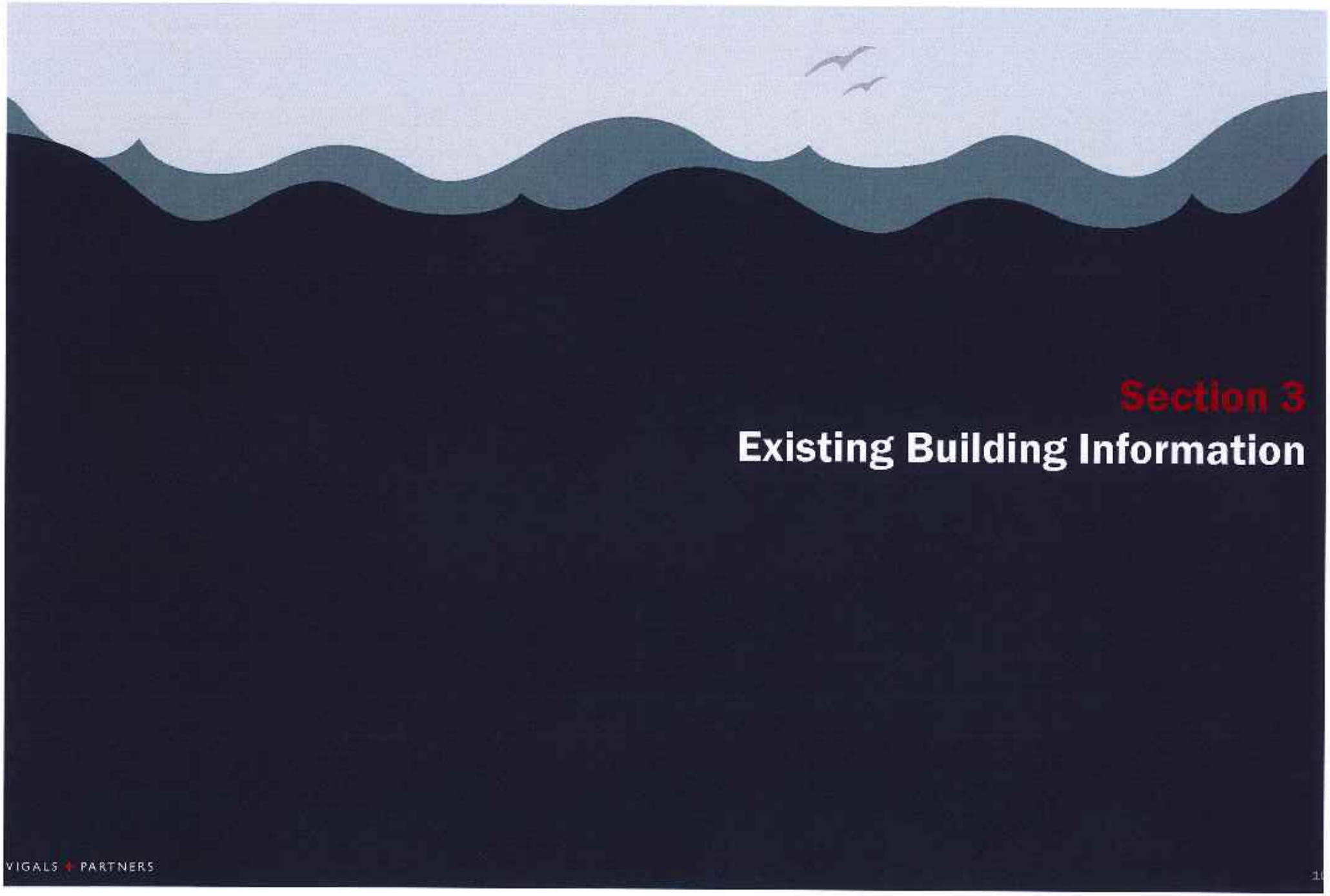
The concepts presented in this report accommodate, to the extent possible, the desired locations, access and adjacencies of various program elements.

The diagram below, illustrates the major program groupings of General Education, Stepping Stones, Administration, and Special Education.

Program spaces are proportional to their square footages with indications for desired adjacencies, proximities and connections to exterior elements.

Per Connecticut State Building Code, at-grade egress is provided from spaces normally occupied by Preschool, Kindergarten or First Grade students.





Section 3
Existing Building Information

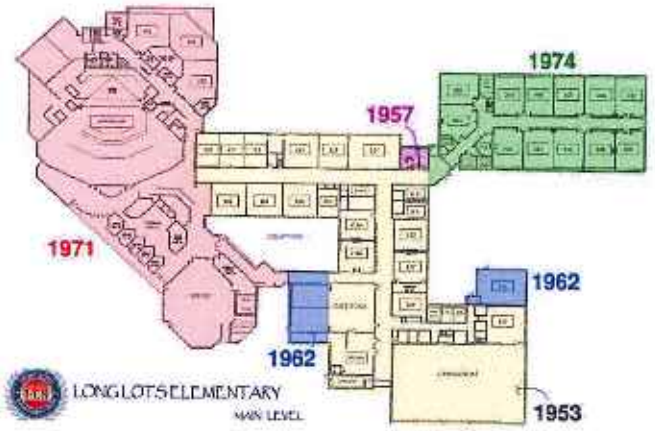
Existing Building Information

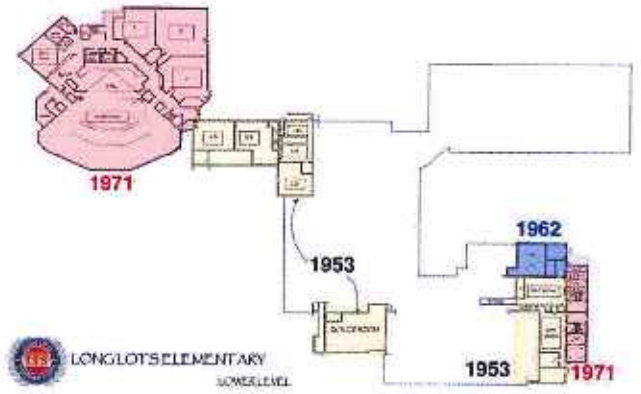
Long Lots Elementary school is a 109,000 square foot, one and two-story building serving approximately 600 students in grades Kindergarten through Fifth Grade, and includes playgrounds, bus loop, parent drop off and approximately 195 parking spaces.

Original portions of the building were constructed in 1953 and significant additions were undertaken in the 1960s and 1970s when the school was still functioning as a junior high school. The school became an elementary school in the early 1980s and code upgrades were implemented in 1993. (Diagrams at right)

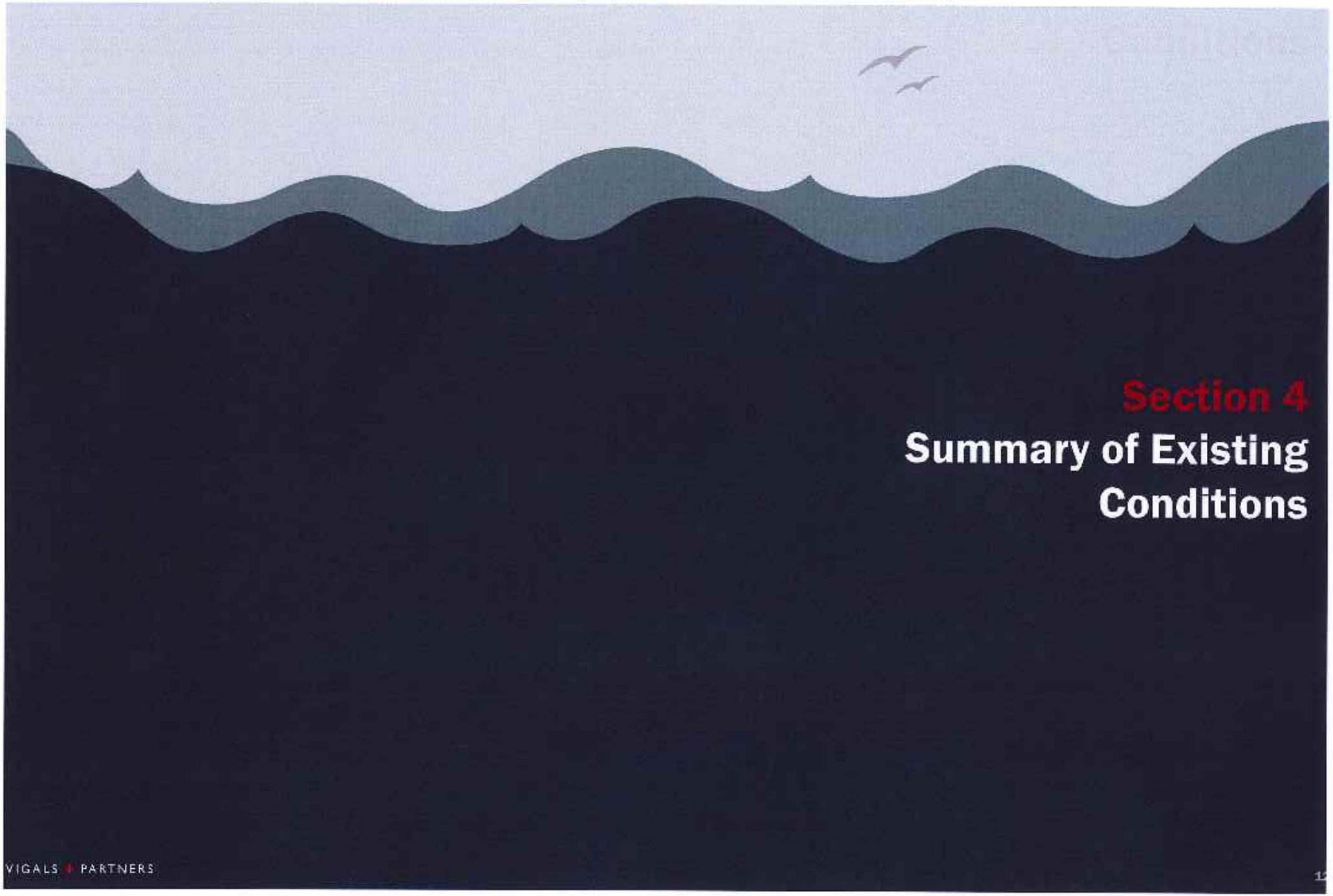
The school sits on a ±28-acre site connected to the Town of Westport water and sewer system, and abuts residential neighborhoods on all sides.

Aside from school-related components, the property accommodates the Westport Community Gardens & Long Lots Preserve, as well as one multi-purpose field and two youth soccer fields which are managed and maintained by the Town of Westport Parks & Recreation Department. The parking lots and driveways are maintained by the Town of Westport Public Works Department. Grass and landscaping associated with the school building are maintained by the Board of Education.





Plans referenced from the Wiss Janney Elstner Report, dated March 2023



Section 4
Summary of Existing Conditions

Summary of Existing Conditions

Site and Civil

General Conditions and Context

Long Lots Elementary School sits on a ±28-acre site, within a residential neighborhood located approximately 1 mile north of Rt. 1 on the eastern side of Westport. The address of the school is 13 Hyde Lane Westport, CT.

The existing school building is centrally located on the site with athletic fields (baseball and soccer) located to the north, Community Gardens and Long Lots Preserve to the south, parking to the east/ southeast, playgrounds to the west, and , undeveloped forest areas to the west and northwest. There are two wetland areas and one wetland/watercourse on-site that have been delineated by SLR's Soil Scientists (see Existing Conditions Site Plan on following pages; see also the following section on Wetlands).

The entire parcel lies in residential zones (see Zoning Section in Section 5 and Existing Conditions Site Plan on following pages.)

Topography

The site topography is complex, with multiple "terraces" (somewhat level areas) in the developed portion and rather steep areas primarily located in the undeveloped, forested areas to the west and northwest (see Existing Conditions Site Plan on following pages).

The topography of the developed portion of the site generally slopes from elevation 104.0 in the south to elevation 68 in the northwest.

These terraces can be categorized as follows:
(See also Existing Conditions Site Plan for locations)

Terrace 1: Southern wooded area and community gardens at approximately elevation 105.0-102.0.

Terrace 2: Large southern parking lot, school building and bus lane at approximately elevation 100.0-95.0

Terrace 3: Baseball field, soccer field and free play area at approximately elevation 87.0-82.0

Terrace 4: Soccer fields at northern end at approximately elevation 72.0-68.0. There is a significant grade break between terraces 3 and 4 (approximately 12' grade change).

** Town records indicate sub-surface concrete drainage structures are located along the transition between Terrace 3 and 4

Wetlands

On May 11, 2023, Matthew Sanford, Registered Soil Scientist and Professional Wetland Scientist, and Meaghan Fogarty, Environmental Scientist, both of SLR, visited Long Lots Elementary School located at 13 Hyde Lane in Westport, Connecticut. The purpose of the visit was to determine the presence or absence of wetlands and/or watercourses on the property, to demarcate (flag) the boundaries of wetlands and watercourses identified, and to identify on-site soil types.

In summary, three wetland/watercourse areas were identified on site and are herein referred to as Wetland 1, Wetland 2, and Wetland/Watercourse 3. In addition to the wetlands and watercourse, there is a stormwater detention basin located upgradient from Wetland 2 that was identified in our field investigations.

Wetland Soils

Geospatial data were accessed via the United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) web soil survey mapping. The soil survey mapping is appended. The survey identifies the following soil mapping units with associated NRCS map number in the subject parcel:

- Agawam fine sandy loam, 3-8% slopes (29B) – Well drained
- Sutton fine sandy loam, 3-8% slopes (50B) – Moderately well drained
- Canton and Charlton fine sandy loams, 8-15% slopes (60C) – Well drained
- Sutton-Urban land complex, 0-8% slopes (250B) – Moderately well drained
- Charlton-Urban land complex, 3-8% slopes (260B) – Well drained
- Urban land (307) – Variable drainage
- Udorthents, smoothed (308) – Moderately well-drained

Soils were examined using a Dutch auger. Please note that SLR did not delineate the wetland boundaries outside of proposed work areas, nor were upland soil types fully delineated within the project parcel. Based on field investigations, the delineated wetlands are comprised of aquents. Aquents are poorly to very poorly drained soils formed in human transported material or on excavated (cut) landscapes.

Wetlands and Watercourses

Wetland 1 is located in the southwestern portion of the property and occupies approximately 0.3 acres. It is a depressional palustrine forested wetland with a somewhat sparse canopy and dense herbaceous layer. A seasonally high groundwater table and a non-regulated drainage swale contribute to its hydrology. Standing water was pooled near flag WA-101 on the day of investigation. Soils within this wetland are classified as aquents.

Wetland 2 is located in the western portion of the property, immediately northwest (downgradient) of the stormwater detention basin, occupying approximately 0.4 acres. It receives overflow from the stormwater detention basin via a riprap-lined channel and is also supported by a seasonally high groundwater table. Soils within this wetland are classified as aquents.

Wetland/Watercourse 3 is located in the northwestern portion of the site. The open channel portion of the watercourse conveys water from northeast to southwest for approximately 400 feet. It is linear and features an approximately 10 foot wide riprap-lined trapezoidal channel. Near its downstream extent, an adjacent wetland occupies approximately 330 SF was delineated along the watercourse's southern banks. The upstream (northeastern) onsite reach of the watercourse is piped below ground, along the sloped interface between the two existing athletic fields.

The onsite man-made stormwater detention basin was constructed within uplands and is not likely subject to federal and/or state wetland regulations. however the Westport Conservation Commission may elect to take jurisdiction over the stormwater basin because it does provide and support limited wetland functions and values. Additional non-regulated drainage features include a swale that conveys water towards Wetland 1 and a small, fenced stormwater basin adjacent to Wetland 2.

Wetlands Summary

The wetlands are generally confined to the western portion of the property, situated in the lowest-lying portions of the site. They are roughly 20 to 40 vertical feet below the existing school buildings, separated by moderately steep, forested slopes. In addition to regulating all activities within wetlands and watercourses, the Westport Conservation Commission regulates upland review areas (i.e., wetland buffer) of these resources. Depending on the proposed land use/activity, the upland review area (URA) of a wetland or watercourse can range from 20 feet to 100 feet. Additional URA specifications can be found in section 7.3 of The Town of Westport's Inland Wetland & Watercourse Regulations.

Wetland #3, See Existing Conditions Site Plan

Geotechnical

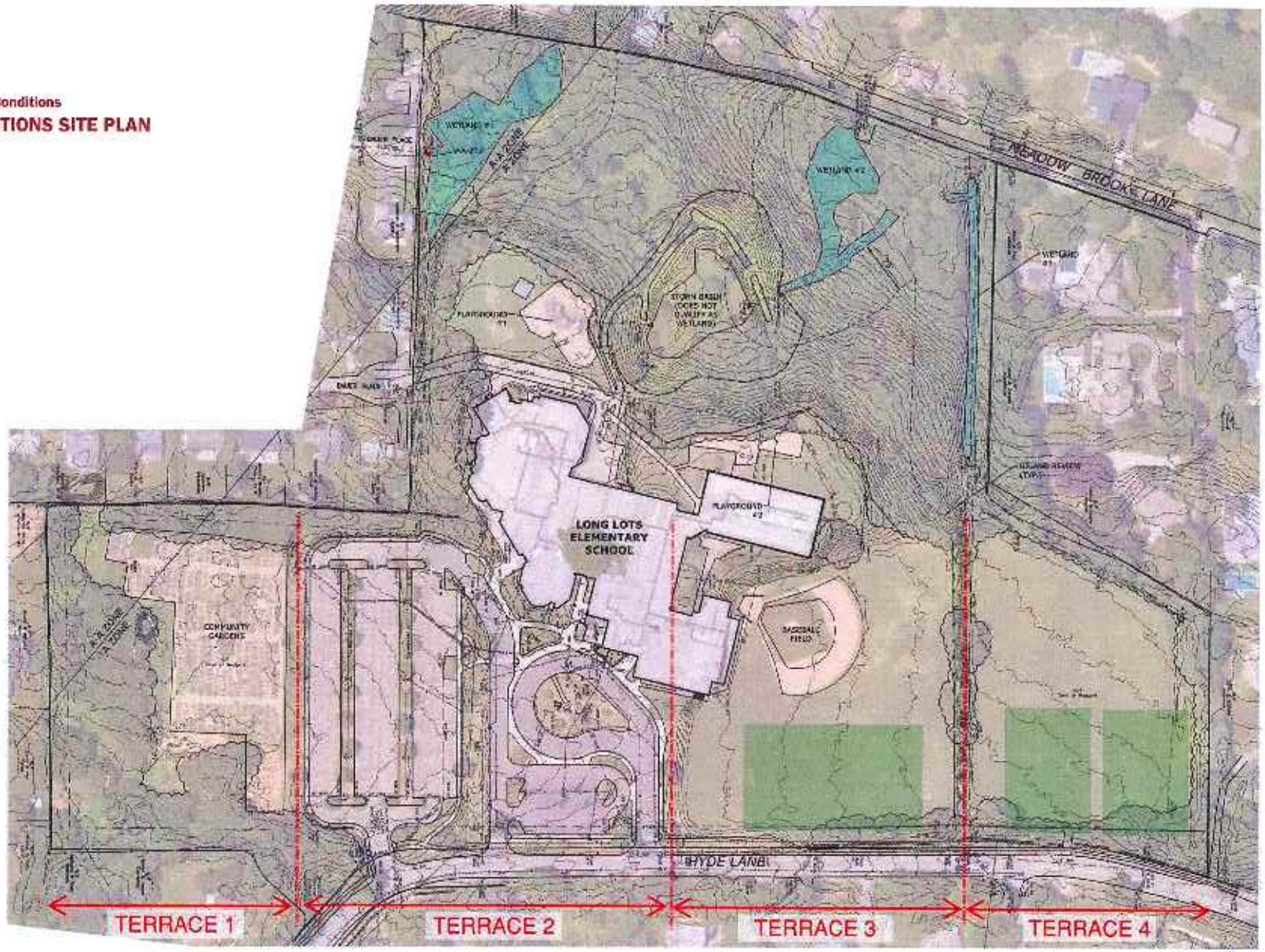
The geotechnical report provided by GNCB dated August 15, 2022 contains information of the existing subsurface conditions that can be best summarized as follows:

- Terrace 3 has approximately 5-9 feet of man-placed fill with water evident at +/- 15 feet down.
- Terrace 4 has approximately 1-3.5 feet of man-placed fill with water evident at +/- 4 feet down.
- Refusal was hit at boring #1 (11.9'), boring #2 (6.9'), boring #4 (15.2') and boring #6 (11.7')
- Glacial till was evident throughout terrace 3 and sections of terrace 4.

Additional structural borings and soil samples were taken during the course of this feasibility study. Diagram below. Findings are included with the geotechnical report in Appendix E of this report.

Summary of Existing Conditions

EXISTING CONDITIONS SITE PLAN



Existing Utilities

A summary of the existing utility infrastructure and potential service options is provided below.

Natural Gas

The gas service assembly is located along the side of the 1958 building by the kitchen area. The existing service piping coating has worn out and is not weather protected. It is metered and regulated separately outside the building. Mechanical equipment and the domestic water heater are gas-fired and are regulated. The regulators are provided with gas venting to the exterior.

Gas service will be revised based on the new loads, and replaced in Code Compliant Concept. Refer to plumbing narrative for more information.

Electric Service

The building electric service is provided from the overhead medium-voltage primary electric service system located on Hyde Lane. The service extends to 500 kVA, 480/277V, 3-phase, 4-wire, pad mount utility transformer, located at the front of the school.

New electric services will be required for all concepts. Refer to electrical narrative for more information.

Sanitary Sewer

Currently, the school is connected to public sanitary sewer, with a service connection to Bauer Place. The sewer line has a relatively flat pitch with the uppermost sewer service located in the northeast corner of the building, traveling by gravity counterclockwise to Bauer Place. We are not aware of any external grease traps that may serve the kitchen facilities.

Any future sewer connections would presumably connect to the current infrastructure, though any future buildings set at elevations below the current school elevation would likely require exterior pump stations, or internal grinder pumps to eject sewage up to the present sewer main. To the extent possible, any sewage pumps should have back-up power available so any bathroom or kitchen facilities would remain functional in a power outage.

Water Supply

Public water is provided by Aquarion Water via a water service lateral from Hyde Lane to the school. Public water is also available in Bauer Place, though no service to the school property is provided at that location. All fire hydrants in the project vicinity are also located on public streets on Hyde Lane and Bauer Place with no hydrants on the school property.

We expect that any building additions or new construction will continue to be served by public water, though compliance with current building and fire codes may require upgrades to current services. Also, extensions of water through the property may be needed to serve on-site fire hydrants, if required by the Westport Fire Marshall.

Storm Drainage

On-site drainage is collected and conveyed via a conventional catch basin and pipe style drainage system from the parking areas and building to a stormwater basin located in the western portion of the lot, with ultimate discharge located upgradient of a wetland system near Meadow Brook Lane. The site today incorporates some elements of low impact stormwater features including sheet flow of parking areas into vegetated swales. The design parameters of the existing stormwater basin are not readily available, though it does likely provide some water quality enhancement and peak flow attenuation. The basin itself appears to be in need of some maintenance to remove overgrown vegetation. It's also likely that other items such as removal of animal burrows in the berm and sediment removal may also be needed, though a thorough inspection of the pond was not performed as part of our review.

Should any site modifications or new construction be considered, the stormwater design will have to comply with current Town of Westport and Connecticut Department of Energy and Environmental Protection (CT DEEP) standards for stormwater design.
Reduction in the rate and volume of stormwater for up to the 100-year storm will be required, along with adequate provisions for water quality enhancement. Low impact design features such as rain gardens, bioretention basins, and hydrodynamic separators would all have to be considered for new impervious areas, including stormwater runoff from roof areas. Any encroachment on the existing basin that reduces the volume of the pond will have to be replaced in addition to new stormwater management features required in support of any additions or other new construction.

Traffic

A site visit to Long Lots was conducted on May 24, 2023, to evaluate existing circulation and observe school dismissal. Dismissal took place between 3:30 p.m. and 4:10 p.m. on the observed date. During dismissal, parent pick-up vehicles park in the school lot and queue at the auditorium door. Parents who are walking their students home wait at the front entrance. Buses use a separate entrance and queue in the bus loop, which can accommodate approximately 14 full-size buses. During dismissal, buses largely arrived one at a time, with no more than five buses on-site at once. Many of the buses arrived from other routes; as such, the bus dismissal was spread out over half an hour and was still in progress after parent pick-up and walkers had left the school. Around 4:00 p.m., students from other schools in the area began to arrive, as soccer practice takes place at the Long Lots fields.

School arrival/drop-off was discussed with the school principal during the site visit, although arrival was not observed. During drop-off, buses drop off in the bus loop, entering and exiting via the bus-only driveway. Parent drop-off takes place in a one-way loop around the outside of the school parking lot. The drop-off queue often extends into Hyde Lane, temporarily obstructing passing traffic. Some parents park in the school parking lot and walk their students into school, although the majority use the loop. Drop-off typically takes place between 8:45 a.m. and 9:00 a.m.

Recreational Uses

The school site accommodates a baseball field (90' basepath) and small softball field (backstop and infield only), as well as 4-5 youth soccer fields (dependent on striping) which are managed and maintained by the Town of Westport Parks & Recreation Department. The fields are primarily used after school hours, but the free play area (Terrace 3) is used for gym classes and other school activities (field days) during school hours. The soccer fields to the north (Terrace 4) are not used by the students during the school days as they are remote and not easily accessed. The baseball field is used for practice by the high school due to the lack of fields in town. The soccer fields are used by a variety of town teams and camps throughout the year.

It was noted that after normal school hours, parking lots are heavily used to accommodate the use of the athletic fields by the town residents. These use patterns continue throughout the weekends as well, when we understand that parking occasionally occurs in a parallel fashion along the west shoulder of Hyde Lane. Parking along Hyde Lane is restricted by signage.

To the west of the school are two 5-12-year-old playgrounds, each with their own dedicated set of swings. Playground #1 is newer and receives the majority of use. Prior to the installation of modular classroom units, there were also two small basketball courts located between the playgrounds.

There are currently no dedicated outdoor structures for housing field maintenance equipment. There is a single port-O-let seasonally located at terrace 3.

Westport Community Gardens & Long Lots Preserve

The Westport Community Gardens and Long Lots Preserve occupy approximately two acres of land on the Long Lots property.

The gardens were established in 2005/2006, and include fencing, seating areas, raised beds, a pergola, and a composting area. Currently, over 100 local residents are members of the garden.

Initiated in 2022, the Preserve is part of a larger effort to establish pollinator pathways throughout Westport. At Long Lots, the four-phase project aims to protect the land directly surrounding the community garden, eradicating invasive plantings and reestablishing native growth.

Soccer field on Terrace 3

Community Gardens

Summary of Existing Conditions

Architectural

Envelope

Exterior Walls

The existing building exterior consists of multiple envelope systems constructed from the 1950s to the 1970s. The vast majority of walls consist of either a four or eight inch masonry backup with either a brick veneer or a stucco finish. A summary of existing wall types is as follows:

- 1953 Wing: 4 inch and 8 inch CMU backup, 2 inch cavity with insulation, and 4 inch brick veneer. Areas above ribbon windows are wood framed with a wood fascia.
- 1957 Wing has exterior wall with 4 inch brick backup, 4 inch cavity with 1 inch of insulation, and a 4 inch brick veneer.
- 1962 Wing: CMU backup with brick veneer. The system was not detailed with wall insulation. The interior of the courtyard has a stucco wall assembly similar to the 1971 wing.
- 1971 Wing: 4 inch CMU backup with damp proofing, 6 inch metal studs with foil-faced batt insulation on a concrete curb, gypsum wall board, Tyvek air barrier, metal lath and stucco.
- 1974 Wing: 8 inch CMU backup, 1 inch of rigid insulation, and 4 inch CMU veneer, metal furring, gypsum board, metal lathe, stucco. EIFS in some areas.

Based on the Wiss Janey Elstner report, dated March 2023, multiple issues with the exterior envelope were observed.

The 1953, 1962, and 1957 areas have single pane windows with aging frames that are inset in masonry walls making replacement difficult. Air and water infiltration at these windows contributes to elevated humidity and appears to cause interior damage during heavy rains. Additionally, surface corrosion is visible on steel lintels above windows and at steel louvers through classroom walls.

At the gymnasium, cracking in brick veneer is visible as well as gaps in the Kalwall glazing system.

At the building perimeter, the hard scape extends above the base of brick at classroom areas and may impede wall drainage, which has caused deterioration of the brick. Across the building facades, brick exhibits freeze-thaw damage. Full corrosion was observed at many of exterior steel door sills.

The 1971 wing also has single pane glass with many missing gaskets and failing sealants. Sloped glazing units at the rear of the building show condensation or water staining in the air space and there are two locations with cracked glass.

Stucco areas are typically cracked or show separation from the lath and stucco soffits do not have provisions for drainage. Organic growth is present at these exterior surfaces and wood blocking at the base of the wall is wet in some areas.

In the wall assembly, water staining and corrosive damage was noted on the lower 8 inches of the gypsum sheathing, insulation, and steel framing outside of the concrete and CMU backup. Damp proofing is brittle at some CMU areas and missing in others.

A 1995 renovation replaced some veneers with stucco over metal framing and included a water resistive barrier, but improper sealants have prevented proper drainage.

Replacement of all windows and doors is recommended along with the removal and replacement of all facade materials down to the CMU backup.

Roofing

The roofing system is fairly consistent throughout and is comprised of a multi-ply modified bitumen system over tapered polyisocyanurate insulation. Older areas of the building utilize a Durisol roof deck while the 1970s additions have a metal deck. Blistering of the bitumen system is noted along with deterioration of the Durisol decking in some areas.

At roofing assemblies, some structural steel within the plenum are noted to have peeling paint and surface corrosion.

Periodic roof leaks have been reported by building staff and patched with asphalt-impregnated felts. Unit skylights have leakage issues primarily caused by cracked glazing and improper sealants.

Removal and replacement of all roofing materials is recommended. Some existing metal deck may be suitable to remain in place.

Slabs

Original building construction, with exception of the gymnasium, likely did not include the use of an under slab vapor barrier. 1960s additions indicate the use of a vapor barrier while the 1970s additions do not. Absence of a consistent vapor barrier could contribute to humidity and moisture intrusion. Several classrooms at the lower level have been out of service due to high levels of humidity.

A limited number of crawl spaces and tunnels are located beneath the original building footprint. These areas have dirt floors and no vapor mitigation. In any renovation scheme, the crawl spaces should have a vapor barrier or rat slab installed.

Accessibility

Renovations to improve building accessibility were completed in 1993.

An elevator provides access to the school's lower level and regularly serves 3-5 students.

At the lower level, an existing fifth grade classroom and unused adjacent classroom are accessed directly by stair only. Accessible access to the room requires entering from the building exterior or passing through another classroom.

The accessibility accommodations of the gang toilet rooms are outdated. Various rooms have been converted to single occupancy to meet accessibility requirements. En suite restrooms at classrooms are few, and those that do exist do not meet current codes for accessibility.

Former locker rooms beneath the gymnasium are accessible only by stair though there is egress to grade. These areas are not currently in use by the school due to air quality concerns. The Long Lots School program does not have a need for gym locker rooms; therefore, if remediated for air quality, these areas would likely be used only for storage or utilities.

Modular classroom units are in use to accommodate overflow student population. While outfitted for ADA compliance, these units are not desirable for long term use.

Summary of Existing Conditions

Site Photos


Modular Classroom Units


Cracked glazing with internal condensation


Aging Roof and Roof Drains


Wet play A/C Units


Storm Pump for Drainage issues at Courtyard


Original 1962 electrical equipment


Condensate line from one of many dehumidifiers


Dormant 1993 boiler

See additional existing conditions photographs in Appendix D

Summary of Existing Conditions

Structural

In general, our on-site inspection concluded that the existing structure appears to be in fair condition. It was observed that areas of previously noted structural deficiencies have not been corrected. However, the overall deficiencies have not noticeably deteriorated any further. Please refer to the previous evaluation reports prepared in 2019, 2021, and 2022 for additional information pertaining to the previous structural deficiencies.

One new area of structural concern is the exterior areaway adjacent to the Boiler Room. A portion of the areaway is covered with a reinforced cast-in-place concrete elevated slab, which is exposed to weather. The concrete is deteriorating, and corrosion of the reinforcing was observed on the underside of the slab. Significant spalling of the concrete and corrosion of the reinforcing was also observed at the concrete walls adjacent to the exterior personnel door that services the Boiler Room from the areaway.

The existing structural systems were not analyzed to determine the capacity of the structure related to the current building code, therefore, the compliance status of the structural systems is unknown. This includes the live load capacity of the floors and roof structure, as well as the lateral systems. The extent of the proposed demolition and renovations of the existing structure in both Concept Schemes A and B will require that any alterations to the existing structural systems become compliant with the current Connecticut State Building Code.

The Wiss Janey Elstner report, dated, March, 2023, found structural systems typical for the era in which they were built. No conditions were observed that meet the IEBC definition of substantial structural damage at the time of the report.

It was noted that CMU walls are typically unreinforced and ungrouted. Additionally, some cracking, brick spalling and surface corrosion were noted throughout the building and should be monitored. Cracks in the brick masonry should be routed and sealed in the short term. However, based on observed conditions, the building can continue to operate for the next five years.

The WJE report made the following recommendations for any project which includes renovation and reuse of existing building areas:

1. Review and possible implementation of new lateral force resisting system.
2. New roof structure at RTUs of 1971 wing and potentially at any new RTUs.
3. Existing steam pipe tunnels to be abandoned.
4. Possible strengthening of existing open web steel joists within drift zones to accommodate snow load and additional weight of new roofing.
5. Vertical additions are not recommended.

Summary of Existing Conditions

Mechanical Systems and Energy

Mechanical

The building is currently operating with a variety of equipment well beyond its useful life.

The heating plant consists of two steam boilers, original to the building (circa 1953), with dual-fuel capable burners replaced in the year 2000, running on natural gas only. There is no redundancy in the event of an outage, and it is reported that neither boiler can handle the required heating capacity on its own should one of the boilers fail unexpectedly. A third boiler recently added is abandoned.

There is a combination of steam and hot water piping equipment and distribution in the school.

In the "200 Wing" also known as the "1974 Wing", there is a steam-to-hot water heat exchanger, and all classrooms are served by floor-mounted unit ventilators with Direct Expansion (DX) and hot water coils.

Per the 2023 Kohler Ronan report, it was indicated that several units have had hot water coils freeze. The spaces experience high humidity levels, and countertop-mounted dehumidifiers have been installed to reduce air humidity levels to those required by code. These units are noisy and exceed the classroom noise criteria.

In other areas, there are a number of classrooms with ceiling-concealed unit ventilators with DX cooling and hydronic heating coils with issues similar to those described above with the floor-mounted unit ventilators. Some classrooms are instead being served with window-mounted air conditioning units and radiation, while some are heating only and have no cooling systems.

The gym is served by heating and ventilating only units. Most spaces were determined to have exhaust, but there was a lack of make-up air creating an extreme negative pressure in the building.

There are reported issues of kitchen exhaust and make-up air serving the cafeteria causing the space to become very negative, with no ventilation to the space when the hoods are not operating. The make-up air is not cooled or dehumidified. There are window units in use to cool the cafeteria.

In the Music/Auditorium area, known as the "100 Wing", there are two 20-ton roof mounted air-cooled chillers which provide chilled water for space conditioning to that part of the building. On the recent site visit, we were informed that one of the existing chillers was defunct and just replaced. The other chiller is still operational, but is past its useful life and will likely need replacement soon.

There are also a few packaged units with hot water heating and R-22 DX cooling that were replaced in 1998, with a refrigerant that is currently banned for production by the EPA and expensive to purchase. Variable speed drives are present, but are over-ridden to 100% speed. A 22-ton unit serves the Library, a 32-ton unit serves the Office, and an 8-ton unit serves the Music Room.

The building is controlled with a mix of pneumatic and digital type controls.

All existing HVAC systems including controls are recommended for demolition and replacement.

Energy

The Kohler Ronan report, dated February 2023, indicates that based on the provided electric bills and gas bills, this school operates at an average annual Energy Use Intensity (EUI) of 102 Kbtu/SF/yr. Compare that to current net zero schools which are operating at EUIs between 18 and 22 Kbtu/SF/yr or a Code minimum of 45 Kbtu/SF/yr. The building is very inefficient and major improvements of all systems would be required to maintain this school to comply with the current energy codes.

Electrical Service and Distribution

The building electric service is provided from an overhead medium-voltage primary electric service on Hyde Lane. The service extends to a 500 kVA, 480/277V, 3-phase, 4-wire, pad mount utility transformer, at the front of the school, then to an 800A-3P, 480/277V, 3-phase, 4-wire disconnect in an areeway, and finally to an 800A rated distribution panelboard located in the mechanical room.

The electrical distribution system equipment and panelboards are of different vintage, with some being original to the building.

There is an exterior site-mounted 125 kW, 480Y/277V, 3-phase, 3-wire, diesel-fired generator with a skid-mounted fuel tank which was installed in 2021. The generator fuel tank has a 526-gallon fuel capacity. The generator is in good condition but due to its size it will not be reused for the main project, it could be reused for the Stepping Stones building in Concept A.

There is ASCO Automatic Transfer Switch (ATS) located in the main electrical room. It was also installed in 2021. It is in good condition, but it does not have a neutral wire and is proposed for replacement. Emergency lighting is served by local wall- and/or ceiling-mounted standalone emergency lighting units. The emergency lighting units are in fair to poor condition and require replacement.

A majority of the lighting was upgraded to LED approximately five to six years ago under the NORESCO Energy Improvement Program; however, it is recommended for replacement to better complement the new design and provide maximum energy efficiency, as well as compatibility with energy efficient lighting controls.

Lighting throughout the School is controlled by manual switches for the most part, which does not meet current energy code requirements.

Exterior building and site lighting is LED type, and its condition varies from good to poor. New lighting is recommended.

The site lighting is controlled by a Square D Powerlink G3 panelboard with operable circuit breakers.

There is an addressable Fire Alarm Control Panel (FACP) serving the school, with a mixture of addressable and conventional style type smoke detectors and heat detectors. Most of the fire alarm system wiring is obsolete. There are horns/strobes and strobe units throughout the building. There is a voice system with speaker/strobe units in the Auditorium, Gymnasium and Cafeteria. All fire alarm pull stations throughout the building are the non-addressable type.

Electrical systems in the school require full upgrade.

Plumbing

The existing incoming 4" domestic water service with gate valve enters the 1953 building in the mechanical room. There is no water service backflow prevention, strainers, or pressure regulation downstream of the meter. RPZ backflow preventers are only provided locally by the existing mechanical equipment.

Because the majority of the existing domestic piping within the building is more than 50 years old and the lead content of the existing piping is unknown, it is recommended that all existing domestic water piping be removed and replaced with new.

Per the Kohler Ronan report, existing sanitary service exits the building at multiple locations related to each building addition. Based on the existing available documents, the system was once connected to a septic system and leaching field located southwest of the property. A future connection to municipal sewer was identified and is understood to be in place, but as-built documents of this condition were not located. All sanitary piping is nearing the end of its life expectancy and some piping is damaged; it is not expected to last another 20 years. It is recommended that all buried underground and above ground sanitary drainage piping be removed and new installed.

Rainwater is drained from the flat roof via roof drains and internal rainwater leaders. The storm system in the 1958 building appears to be recently renovated to provide secondary drainage. In the 1971 addition, the existing storm system is cast-iron with dual-function roof drains. Secondary roof drains are connected to the overflow downspouts throughout the building. Based on the existing documents, the storm is directed to the west to lower ground wetlands. It was noted by Building Facilities personnel that there are no system drains in the courtyard. A temporary pump is located in the courtyard which pumps the stormwater to the roof during heavy rain events.

All storm piping is nearing the end of its life expectancy and not expected to last another 20 years. It is recommended for replacement.

The gas service assembly is located along the side of the 1958 building by the kitchen area. It is metered and regulated separately outside the building. Mechanical equipment and the domestic water heater are gas-fired and are regulated. New gas piping, depending on the mechanical systems option selected, is proposed to better align with the architectural design of the building.

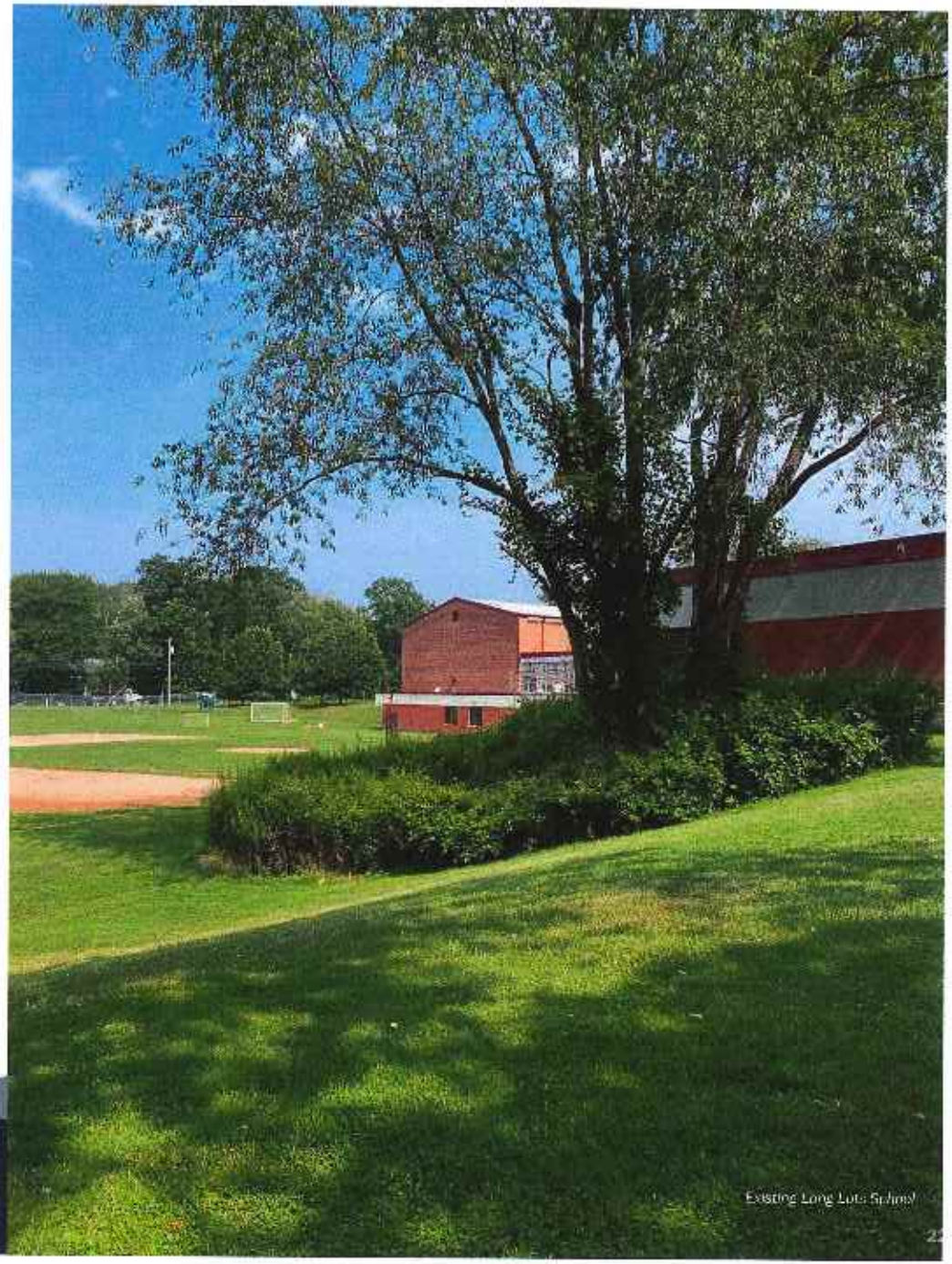
Domestic hot water is generated via a gas-fired AO Smith water heater located in the basement mechanical room. This water heater is used to supply all plumbing fixtures and the kitchen. The unit was replaced and appears to be in good condition, but since its life expectancy is eight to ten years, it is recommended for replacement.

All plumbing fixtures are at the end of their life expectancy and not the high-efficiency type; therefore, they should be replaced.

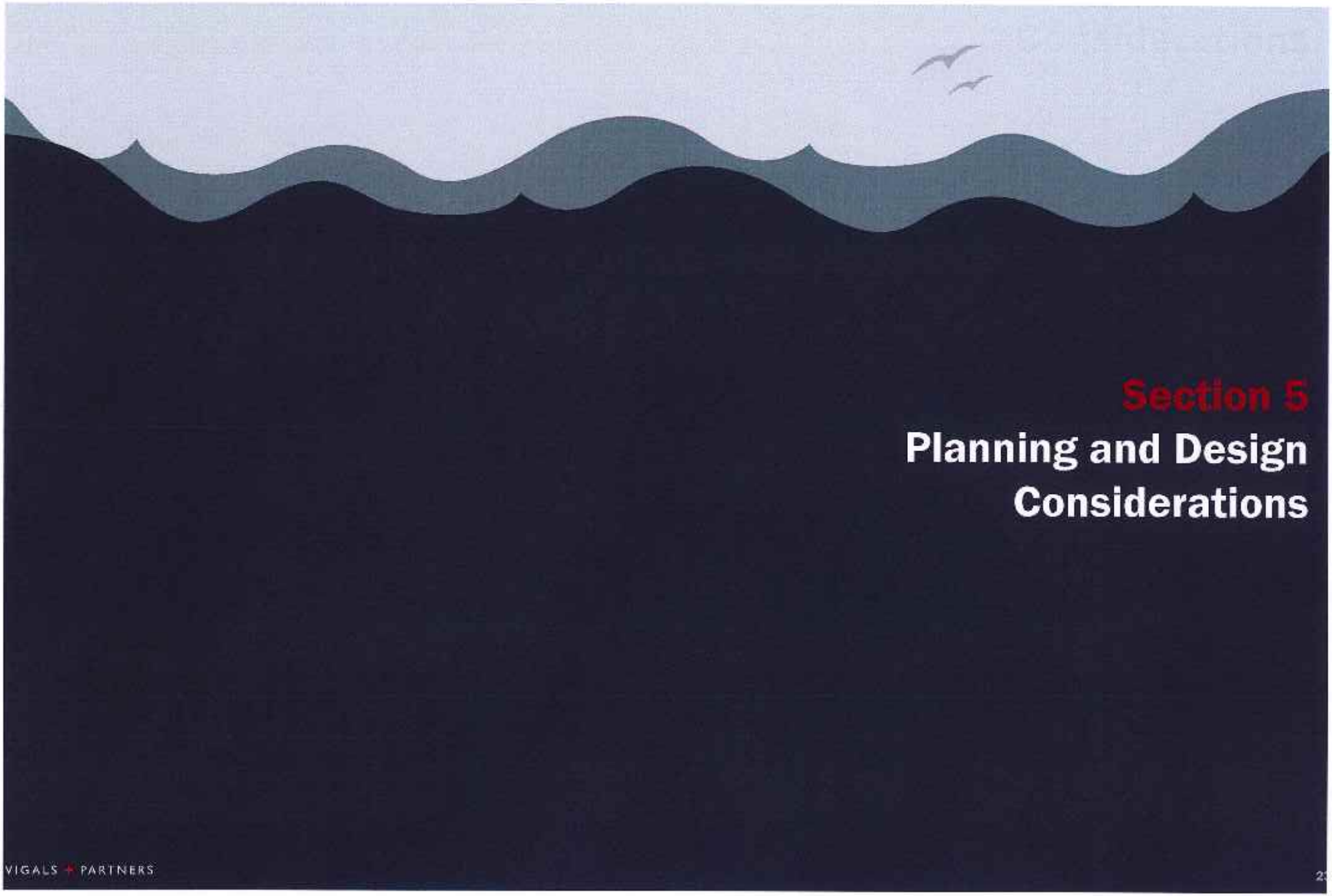
Fire Protection

As is typical for buildings of this age, the majority of the building is not served by a sprinkler system, with the exception of the lower level in the 1953 original building locker room area under the Gymnasium. In the 1971 addition, a fire department connection (FDC) is located at the ground floor near the west stairwell egress, and there is also a 2 1/2" standpipe hose valve with a transition to 1 1/2" hose threaded valves within a recessed cabinet. Within the building, a few sprinkler heads are located at the separation door between the 1953 original building and 1971 addition, and the 1962 to 1971 additions which are fed from the domestic water system.

The renovation of the building will trigger a requirement for a fully sprinklered facility in accordance with CT Statute 29-315. It is recommended to install a completely brand new sprinkler system per NFPA 13 and Connecticut requirements for Educational occupancies. (See Appendix C, Figures FP1, FP2 and FP3)



Existing Long Lots School



Section 5
Planning and Design Considerations

Planning and Design Considerations

Codes and Standards

The proposed building and systems will be designed in accordance with good design and engineering practice as well as current code requirements including, but not limited to (with all subsequent Amendments):

2022 CONNECTICUT STATE BUILDING CODE (CSBC):
- 2021 INTERNATIONAL BUILDING CODE (IBC)
- 2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2021 INTERNATIONAL MECHANICAL CODE (IMC)
- 2021 INTERNATIONAL PLUMBING CODE (IPC)
- 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2020 NFPA 70, NATIONAL ELECTRICAL CODE (NEC)

2017 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

2022 CONNECTICUT STATE FIRE SAFETY CODE (CSFSC):
- PART III: NEW CONSTRUCTION, ALTERATIONS, RENOVATIONS, CHANGES OF USE

2021 INTERNATIONAL FIRE CODE (IFC)
- PART IV: EXISTING BUILDINGS / OCCUPANCIES

2021 NFPA 101 LIFE SAFETY CODE

2022 CONNECTICUT STATE FIRE PREVENTION CODE:
- 2021 NFPA 1 FIRE CODE

OFFICE OF SCHOOL CONSTRUCTION GRANTS AND REVIEW

HIGH PERFORMANCE BUILDING STANDARD

Planning and Design Considerations

Security

Following the Educational Specifications, the school must have three primary entrances: a Main Entrance for visitors and parent drop off/pick up, a Student Entrance at bus drop off/pick up, and a PreK Entrance.

The design will follow applicable recommendations from Connecticut's School Safety Infrastructure Council. Additionally, the Westport Kroll Report on School Security, developed in 2014, provides guidance on district-wide security preferences for both active and passive security.

Active security measures include the incorporation of the proprietary Milestone Video Surveillance platform, vehicular security gates, and electronic locking. The surveillance system must capture the exterior building perimeter as well as interior entrances and corridors. At ground levels, force-resistant glass is recommended in doors and windows.

A door alarm system is required to detect both forcible entry as well as doors left propped open or ajar. Two Knox boxes should be included on site: one for the fire department and a second for the police department. The use of a visitor management system may be considered to capture photos and print visitor passes.

The report recommends the use of chain link fencing at the site perimeter and to enclose playground areas. After review, the Board of Education advised that large extents of fencing at the Long Lot's school are not desirable due to site characteristics and location.

The report also recommends the incorporation of passive security measures based on the principles of Crime Prevention Through Environmental Design (CPTED), a multi-disciplinary approach for crime-prevention. Principles include Natural Surveillance, Natural Access Control, Territorial Reinforcement and Maintenance.

In schools, strategies for CPTED include limited access points, landscaped boundaries, designated parking areas, visual control of entrances and lobbies from administrative areas, and secure vestibules (man-locks) at building entries. Where possible, the design will prevent access to instructional areas of the school on lock-down or when community events are taking place.

Beyond active and passive security measures, architectural design can support the perception of safety while enhancing the well-being of students and staff. For a building to feel safe to occupants, entrances should be welcoming and hallways easy to navigate. Artwork and strategic collaborative zones can support social/emotional health by fostering positive interaction among students and encouraging a sense of belonging. Transparency and a connection to nature can put occupants at ease and can be maintained with ample natural daylight and views. These architectural strategies offer a less visible but significant layer to a comprehensive safety plan, while also enhancing the school environment and allowing for a focus on the joy of learning.

Planning and Design Considerations

Site

Zoning Requirements

Zone AA (most) and Zone A (southern corners)
Lot size: 28.1 acres (1,224,036 square feet)

The building setbacks are graphically shown on the Existing Conditions Site Plan in Section 4.

The majority of the site is zoned AA, while small areas in the southern corners are zoned A. Both of these zones are residential. In accordance with zoning regulations, schools are considered a special permitted use and will require both a special permit (public hearing) and site plan approval. Additionally, the future school project may require approval by the local Inland Wetlands Commission. The regulated Upland Review Area is 75' and is shown as a dashed line around each of the wetland areas on the Existing Conditions Site Plan (see also Section 4 Wetlands). If possible, future development and any proposed site disturbance should avoid these areas.

Massing Requirements:

- Setbacks: no structure or accessory building shall be closer than 30 feet from any street line or 25 feet from any side or rear lot line.
- Height: no structure shall exceed 3 stories or a height of 40'. No accessory structure shall exceed 1 story or a height of 16 feet.
- Coverage: shall not exceed 25% of total land area (coverage includes all buildings, parking, driveways). Any project will likely require a variance for this constraint.

Parking landscaping requirements of note:

- 1 shade tree for every 10 spaces in porous island of 9'd min (Type B landscape list in regulations)
- Buffer strip required, 15' in width. To include evergreen plantings with at least 1 tree for each 10' of buffer length as measured parallel to property line. (Type C landscape list in regulations)
- A berm, hedge, wall, or 8' fence as approved by P&Z may also be required at the town's discretion.
- 6 loading spaces

Additional landscaping requirements:

- Front setback to include 30 foot depth landscape area along all streets. (Type A landscape list)
- Landscape area to have 1 shade tree for every 50 feet of length and set back 10'. Mature height of 40' where powerlines exist.

Parking Requirements: (currently 195 spaces)

- As observed, many spaces remain unoccupied during the school day. A parking study should be performed to determine the full parking need for the school. For the purposes of this report, the design assumes a target of 175 spaces.
- Nursery Schools require 1 space for every 10 children.
  98 Stepping Stones students = 10 parking spaces
- Per P&Z working standard, 3.5 spaces per classroom are to be provided for parking.
- 30 typical Long Lots classrooms, plus 13 specialty classrooms = 151 parking spaces
- Auxiliary site functions are assumed to share parking with the school

Site Circulation

Due to their arrival/dismissal times, Long Lots buses and Stepping Stones vans are not in the loop together.
Long Lots AM Arrival Time is between 8:45-9:00 AM

- 11 Buses
- 5 vans

SSP AM arrival is between 9:15 - 9:30 AM

- 7 morning vans
- 2 vans service the 12:15 PM dismissal
- 5 vans service the 2:15 PM dismissal

Town/Faculty Recommendations for Improvement of Playing Fields

Based on our discussion with representatives from the Town's Parks and Recreation Department and the school's gym teacher on May 24, 2023, the following information was provided about current use of fields:

- Fields are in use in spring, summer, and fall for various programs organized through the Westport Parks and Recreation Department and Staples Continuing Education Programs. Participation counts vary.
- Westport Soccer Association utilizes the fields in Spring and Summer for a program of approximately 3500 participants.
- Westport Baseball and Softball utilizes the field in Fall and Spring for a program of approximately 2000 participants.
- Youth Soccer Camps and Adult soccer leagues use the fields as well in Spring and Summer serving approximately 130 participants.

As part of a renovation or relocation of the fields, Parks and Recreation has requested the following features for consideration in a future site and building program:

- 90 foot baseball field with 300'-400' outfield
- A combination 9v9 and 11v11 soccer field with ability to rotate orientation of field
- Keep/replace the two existing 7x7 soccer fields
- Synthetic Turf is preferred with irrigated Natural Turf as an alternate. Multi-use synthetic turf would ease the maintenance burden on the town and better handle heavy recreational demands.
- Bleacher seating or concrete pads
- Concession Stand
- 1-bay garage for equipment storage
- Concrete pad for off-season goal storage
- Standalone structure to store athletic field maintenance equipment.
- Dedicated restroom for the fields.
  This could be a stand-alone structure or restrooms in the school that are close to the fields and can be accessed after school hours. It would also be helpful to the gym classes that bring students out to the fields and currently have no close access to restrooms.
- Provide a drinking fountain with bottle filler.

Planning and Design Considerations

Architectural

Thermal Envelope

Based on the extensive decay of the existing building envelope, this report assumes a full removal and replacement of exterior insulation and facade materials down to the masonry structure. For durability, the design assumes the use of brick veneer typically, with approximately 25% of exterior walls finished with curtain wall.

Anticipated material thermal values for each energy approach are listed in the table below, and wall sections are detailed on the following page.

	IECC Requirement	Code Compliant	Enhanced Sustainability
Mass Wall	R 11.4 ci (min)	R-14 ci	n/a
Metal Framed Wall	R-13 + 7.5 ci (min)	n/a	R-16.8 + R-15 ci
Roof	R-30 ci (min)	R-30 ci	R-38 ci
Fenestration	U-.36 (max)	U-.36	U-.25

Plumbing Counts

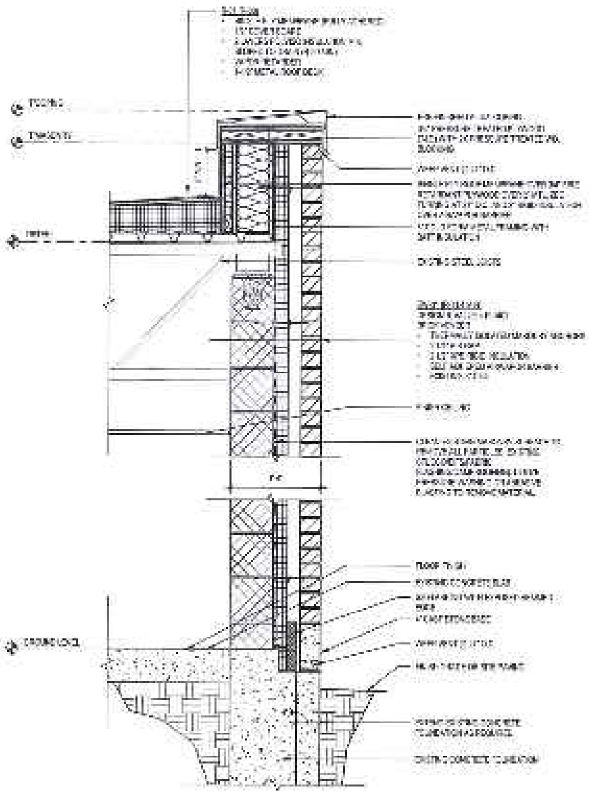
With a combined student population of 787, and anticipated staff count of 140, the following quantities of plumbing fixtures are anticipated for the building. Based on presumed code modifications, an estimated reduced number of fixtures are indicated in red. The Board of Education has indicated that in-room toilet rooms for 2nd Grade classrooms may be eliminated from the Ed Spec.

	Water Closets		Lavatories		Drinking Fountain	Sink	Single Toilet Rm
	M	F	M	F			
Classes PK + Multi-Purpose						8	16
Classes K – 2nd Grade						15	15
Classes 3rd-5th Grade	4	4	4	4	10	15	
Special Classrooms						16	
Health, Staff, Custodial						3	2
Food Service (See Ed Spec)*						*	*
Business	3	3	2	2			
Assembly A-3 – Gym + Multi	7	13	4	4	4		
Assembly A-2 – Café	2	2	1	1	1		
TOTALS	16	22	11	11	15	56	32
TOTAL w assumed Mod	14	19	11	11	15	56	32

Interior Finishes Basis of Design Assumptions

Classrooms		
	Flooring	Johnsonite Vinyl Enhanced Tile and area rugs
	Walls	Paint
	Ceiling	Acoustic Ceiling Tile
	Millwork	Abet Laminati Plastic Laminate Cabinets. Durat Solid Surface countertops.
Art, Health, Storage		
	Flooring	Johnsonite Vinyl Enhanced Tile
	Walls	Paint
	Ceiling	Acoustic Ceiling Tile
Offices		
	Flooring	Interface Carpet Tile. Net Effect, 20x20"
	Walls	Paint
	Ceiling	Gypsum Wall Board
Multipurpose		
	Flooring	Poured Rubber Flooring
	Walls	Paint. 20% Acoustic Wall Treatment: Wood Panel Wall, Natural Oak Panels
	Ceiling	Acoustic Ceiling Tile
Cafeteria		
	Flooring	Armstrong Bio Based Tile, Migrations, 12x24"
	Walls	Paint. 20% Acoustic Wall Treatment: Wood Panel Wall, Natural Oak Panels
	Ceiling	Open Ceiling
Kitchen		
	Flooring	Dur-A-Flex Epoxy Flooring with integral base
	Walls	Paint. 20% Acoustic Wall Treatment: Wood Panel Wall, Natural Oak Panels
	Ceiling	Acoustic Ceiling Tile
Gymnasium		
	Flooring	Connor Sports Flooring, Hard Maple, T&G random lengths
	Walls	Paint. 20% Gymnasium wall pads. 20% Fabric Wrapped Acoustic Wall Panels.
	Ceiling	Open Ceiling
Corridors		
	Flooring	Armstrong Bio Based Tile
	Walls	Paint (CMU walls)
	Ceiling	25% Gypsum Wall Board. 75% Acoustic Ceiling Tile.
Stairs		
	Flooring	Nora rubber flooring
	Walls	Paint (CMU walls)
	Ceiling	Gypsum Wall Board
Bathrooms		
	Flooring	6x6 porcelain floor tile
	Walls	Paint (CMU walls)
	Ceiling	Acoustic Ceiling Tile

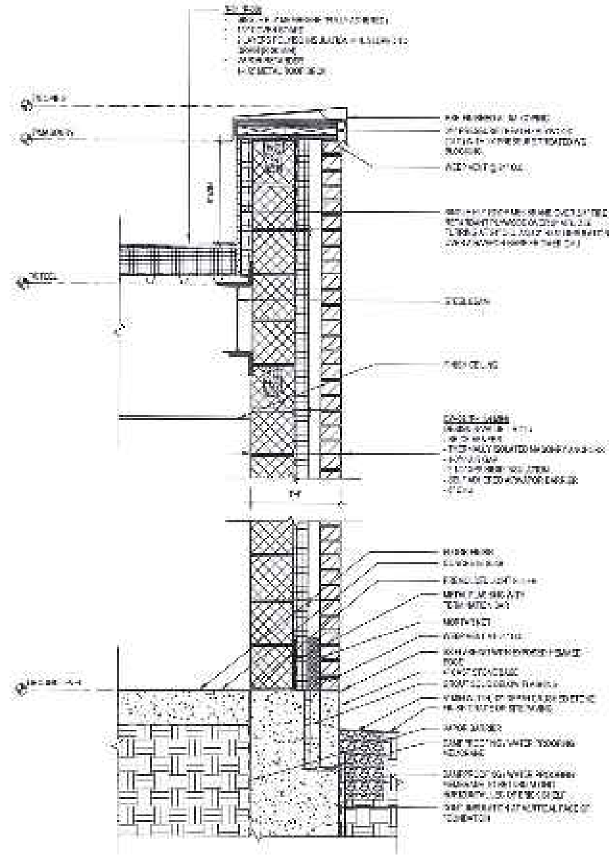
Wall Sections



1 EW-01 BASE - EXISTING CMU

EW-01 TYPICAL WALLS AT RENOVATED AREAS

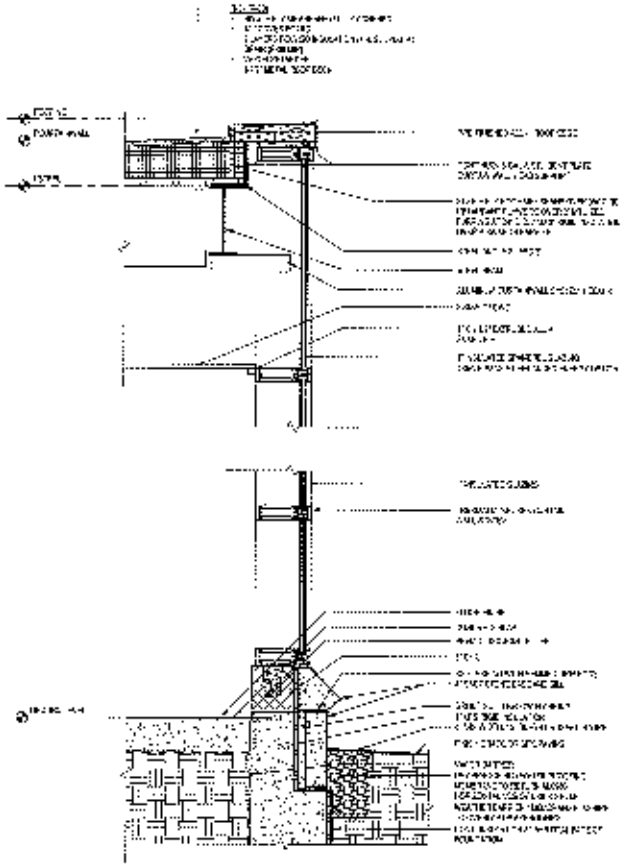
ASSUMPTIONS:
- 30% GLAZING AT SOLID WALLS
- ALUMINUM FRAMED DOUBLE PANE LOW-E GLASS
- WINDOWS TO HAVE SAFETY FILM, TYPICAL (SEE EW-03 FOR ENTRANCE GLAZING)
- CMU INTERIOR PARTITIONS AT CORRIDORS AND BATHROOMS, TYP.



2 EW-02 BASE - CMU WITH BRICK VENEER

EW-02 TYPICAL WALLS AT NEW CONSTRUCTION

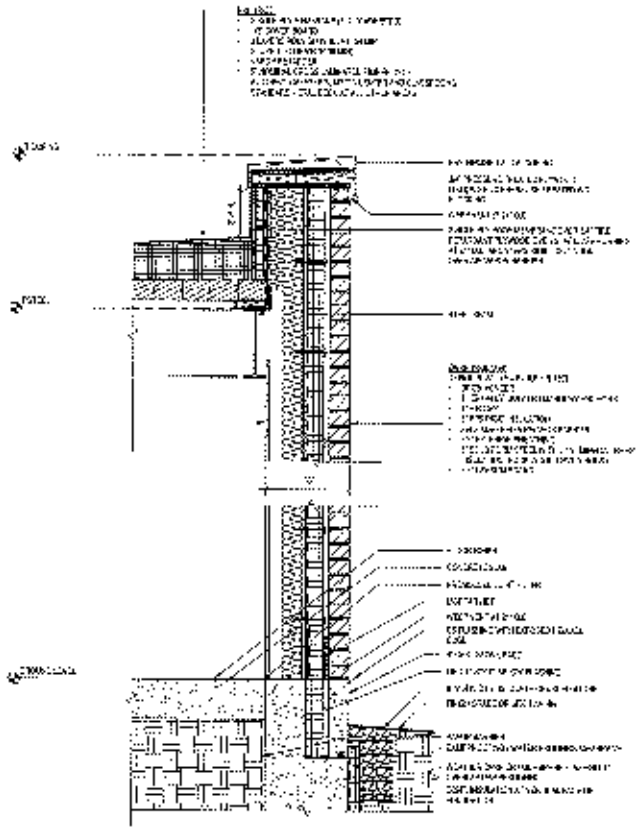
ASSUMPTIONS:
- 30% GLAZING AT SOLID WALLS
- ALUMINUM FRAMED DOUBLE PANE LOW-E GLASS
- WINDOWS TO HAVE SAFETY FILM, TYPICAL (SEE EW-03 FOR ENTRANCE GLAZING)
- CMU INTERIOR PARTITIONS AT CORRIDORS AND BATHROOMS, TYP.



3 EW-03 BASE - CURTAIN WALL

EW-03 TYPICAL SECTION DETAIL

ASSUMPTIONS
- CURTAIN WALL TO BE 30% OF OVERALL BUILDING FACADE
- MAIN STRUCTURE TO BE REINFORCED CONCRETE
- ENVELOPE TO BE CURTAIN WALL WITH OPTIONS TO INVESTIGATE TRIPLE PANE CURTAIN WALL



4 EW-04 ENHANCED SUSTAINABILITY - COLD FORM WITH BRICK

EW-04 TYPICAL WALL SECTION DETAIL @ ENHANCED SUSTAINABILITY OPTION

ASSUMPTIONS
- LOW CARBON CONCRETE
- ASSUMES TO HAVE SAFETY RAIL
- ASSUMES FOR EXTRUDED GLAZING
- ASSUMES TRIPLE PANE CURTAIN WALL
- NON-COMBUSTIBLE INSULATION

Planning and Design Considerations

Structural

Structural Design Criteria

Governing Building Code: State of Connecticut Building Code / 2022 and the International Building Code / 2021

Minimum Live Loads:	
Offices	50 psf
Classrooms	40 psf
Gymnasium & Cafeteria	100 psf
Storage	125 psf
Corridors (First floor)	100 psf
Lobbies	100 psf
Stairs	100 psf
Partitions	15 psf
Roof Snow Load (Pf = 0.7Ce x Ct x I x Pg)	Use 30 psf
Ce (Exposure Factor)	0.9
Ct (Thermal Factor)	1.0
I (Importance Factor)	1.1
Pg (Ground Snow Load)	30 psf
Snow Drift Load:	In accordance with Section 1608.7
Wind Loads:	
Basic Wind Speed ASCE 7:	Vult = 130 mph Vasc = 101 mph
Exposure Classification:	B
Iw (Importance Factor):	1.15
Wind Loads:	In accordance with Section 1609.0.
Earthquake Loads:	(TBD)
Seismic Use Group	III
Seismic Performance Category	(pending Soils Report)
Importance Factor	Is = 1.25
Soil Site Class	(pending Soils Report)
0.2 Second Spectral Response Acceleration	(TBD)
1.0 Second Spectral Response Acceleration	(TBD)
Site Coefficient	Fa (Assumed pending Soils Report)
Site Coefficient	Fv (Assumed pending Soils Report)
R:	3.0 (Structural Steel Systems Not Specifically Detailed for Seismic Resistance and Intermediate Reinforced Masonry Shear Walls)
Seismic Loads:	In accordance with Section 1610.0.

Planning and Design Considerations

Mechanical

Systems Overview

Design Goals

The following list includes the primary goals in no particular order of importance for the design of the HVAC System, after basic functionality and code compliance, per direction of the Owner:

1. Reliability/redundancy.
2. Comfort
3. Air quality
4. Durability; ease of maintenance
5. Energy responsiveness
6. Cost effectiveness

Systems

The following HVAC systems present a balance of cost vs. energy efficiency, and are proposed for various architectural Concepts including existing building renovations, additions, and a whole new building in entirety. There are two different types of systems being investigated, and which are being applied to all buildings:

1. Code Compliant Strategy (System 1)
2. Enhanced Sustainability Strategy (System 2)

Phasing

The phasing aproach is outlined within the architecture concept descriptions. For additional information on system phasing, refer to the Concepts Sections.

Existing System Considerations

To support the continued operation of the existing Long Lots building during renovation and/or construction, several short-term repairs have been factored into the costs of the feasibility schemes. These items include:

1. Provisions for repairs to Boiler A
2. Provisions for a temporary boiler to support boiler C in the event of equipment failure
3. Additional DX units and retrofit of existing

Additional existing system information and equipment designations can be found in the Kohler Ronan MEP Assessment report, dated February 2023.

System 1 - Code Compliant

System 1 meets/exceeds code requirements. This system would consist of a number of Dedicated Outdoor Air System (DOAS) units providing ventilation to the building, a heat recovery Variable Refrigerant Flow (VRF) system to provide heating and cooling to the building, and Variable Air Volume (VAV) packaged Direct Expansion (DX) rooftop units serving the gymnasium and kitchen/cafeteria. The system would utilize gas-fired boilers to provide hydronic hot water to all DOAS and Rooftop Units (RTU), as well as radiation on exterior walls in areas of high heat loss.

Dedicated Outside Air System (DOAS): Ventilation air shall be introduced directly through an overhead distribution system consisting of supply and return/exhaust ductwork with grilles and diffusers located within architectural ceilings, soffits, etc. The ventilation air will be pretreated and conditioned by DOAS units distributed throughout the school recovering heat from room exhaust air through a total energy recovery wheel. The units will be equipped with Direct-Expansion (DX) cooling coils, DX heat pump heating coils, and back-up hydronic Hot Water (HW) coils. All air handling units will be provided with minimum MERV 13 filtration. The only exception is the DOAS serving the Stepping Stones Building (Concept A), which will be provided with a back-up electric heating coil rather than hydronic.

Packaged Rooftop Unit (RTU): RTUs shall serve the Gymnasium and Kitchen/Cafeteria areas. Mixed air will be supplied through an overhead distribution system consisting of supply and return/exhaust ductwork with grilles. The mixed air will be pretreated and conditioned and units will be equipped with Direct-Expansion (DX) cooling coils, DX heat pump heating coils, and back-up hydronic Hot Water (HW) coils, as well as any necessary equipment required to condition the air. All air handling units will be provided with minimum MERV 13 filtration.

Variable Refrigerant Flow (VRF) System: VRF equipment shall provide heating and cooling to all spaces other than the Cafeteria, Kitchen and Gymnasium. Cassette-style units will be provided in corridors, classrooms, and offices throughout, while ducted concealed-type will be utilized where spacing allows. Multiple VRF systems will be provided, with each system serving a dedicated wing of the building, with an interior branch controller and a rooftop-mounted condensing unit. Systems shall be capable of simultaneous heating and cooling and heat recovery, and the ability to perform in low-ambient conditions (temperatures below 0 deg. F).

System 2 - Enhanced Sustainability

System 2 is the enhanced energy performance system. This system will utilize a full Ground Source Heat Pump (GSHP) system served by a network of geothermal bores installed within the property limits. The ground loop will serve a combination of distributed and centralized GSHP located throughout the building, depending upon whether the building is new or existing construction. The existing building with renovations and additions (Concepts 1 and 2) will utilize a centralized water to water heat pump plant to distribute HW and CHW throughout the building to terminal units, while Concept 3 will utilize an array of distributed Water-To-Air (WTA) and water to water heat pump units, fed by a distribution of ground source water.

A combination of ground loop water, hot water, and chilled water will be provided throughout the school, depending on architectural scheme. They will serve a number of fan coils and water-to-air heat pumps, as well as rooftop-mounted DOAS units and RTUs for the kitchen/cafeteria and the gymnasium, as well as any perimeter heating. The exact type of heat pump and terminal units will be optimized at a later phase of design.

Dedicated Outside Air System (DOAS): Ventilation air shall be introduced directly through an overhead distribution system consisting of supply and return/exhaust ductwork with grilles and diffusers located within architectural ceilings, soffits, etc. The ventilation air will be pretreated and conditioned by DOAS units recovering heat from room exhaust air through a total energy recovery wheel. The units will be equipped with HW and CHW coils. The only exception is the DOAS serving the Stepping Stones Building (Concept A), which will be provided with a backup electric heating coil rather than hydronic, and will provide DX heating and cooling as opposed to HW/CHW, as the intent is to keep the building separate from the HW/CHW system.

Packaged Rooftop Unit (RTU): RTUs shall serve the Gymnasium and Kitchen/Cafeteria areas. Mixed air will be supplied through an overhead distribution system consisting of supply and return/exhaust ductwork with grilles. The mixed air will be pretreated and conditioned and units will be equipped with Direct-Expansion (DX) cooling coils, DX heat pump heating coils, and back-up hydronic Hot Water (HW) coils, as well as any necessary equipment required to condition the air.

Depending on whether the building is new or existing, GSHPs will either take a centralized role, providing hot and chilled water to terminal units throughout the building (existing building), or ground water will feed decentralized WTA heat pumps in the new building in mechanical rooms, which will provide conditioned air to nearby classrooms as well as any perimeter heating. The exact type of heat pump and terminal units will be optimized at a later phase of design.

Hydronic Pumps

Hydronic pumps to include factory-assembled and factory-tested pumps designed of the following types:

1. Inline Pumps: Freeze protection pumps and controls will be provided for energy recovery (DOAS) units and packaged air-handling units with hot water coils.
2. Base-Mounted Pumps: All CHW, HW and GW shall be distributed using base-mounted end suction pumps.

Distribution Systems

All spaces throughout the building will be mechanically ventilated. Fresh air will be introduced into spaces through an overhead distribution system consisting of supply and return ductwork with grilles and diffusers located within architectural ceilings and/or soffits on the all floors.

Air-Handling Units

Dedicated Outdoor-Air Unit(s): Assembly will include factory-fabricated units consisting of supply and exhaust fan(s), total energy recovery wheels, by-pass dampers, MERV 8 pre and MERV 13/final filters, heating and cooling coils, humidifiers, and other necessary equipment to perform the functions of circulating, cleaning, and pretreating of primary ventilation air. Associated supply and exhaust ductwork will run vertically in shafts and horizontally (as required) on each floor.

Packaged Rooftop Unit (RTU):): Assembly will include factory-fabricated units consisting of supply and exhaust fan(s), total energy recovery wheels, by-pass dampers, pre/final filters, heating and cooling coils, humidifiers, and other necessary equipment to perform the functions of circulating, cleaning, and pretreating of primary ventilation air. Associated supply and exhaust ductwork will run throughout cafeteria and gymnasium spaces.

Exhaust Ventilation Systems

Energy recovery strategies will be employed in this facility. The intent is to recover a significant portion of the energy required to treat the make-up air from the exhaust stream, especially the preheat energy.

Where exhaust air cannot be recovered through the DOAS units, general building exhaust systems will be provided. General exhaust systems will consist of exhaust fans connected to exhaust risers and distribution ducts.

Fully ducted exhaust and acoustically treated transfer grilles will be provided between the adjacent spaces to facilitate the flow. If the wall through which the air is being transferred is part of a fire or smoke rated assembly, the transfer opening will require protection in the form of a fire damper, smoke damper, or smoke curtain.

Hydronic Distribution

Hydronic distribution of chilled water, hot water and ground water is specific to design schemes. See below for glycol percentages of hydronic systems.

- Chilled Water: 100% water, drained in off season
- Hot Water: 30% glycol mixture
- Ground Water: 15% glycol Mixture

Controls and Instrumentation

New controls and instrumentation assemblies shall include all devices such as thermostats, humidistats, timers, sensors, control valves, actuators, indicators, final control elements, interface equipment, other apparatus, accessories, and software, etc., necessary to operate and monitor the systems as designed.

System to be fully controlled by a central building automation system and managed by facilities. Select spaces may include limited control by end users.

Interface with the Following Building Systems:

- Heating and cooling generating systems
- Air-handling, exhaust, and ventilating systems
- Terminal devices
- Energy monitoring and control
- Building automation systems

Outdoor Design Conditions

The following table indicates the assumed outdoor design conditions.

Annual Heating and Cooling Design Conditions (based on 2021 ASHRAE)		
Weather Station	**Winter**	**Summer**
Bridgeport Sikorsky, CT (WMO: 725040)	ASHRAE 99.6%	ASHRAE 0.4%
	10.8 deg. F, DB	88.3/73.2 deg. °F, DB/MCWB

Indoor Design Conditions

The following table indicates the minimum ventilation rates in terms of cfm/person and sf as required by IMC and ASHRAE 62.1

Typical Spaces/Rooms	Temp Range (i) (°F)	Humidity (%RH) (ii)		ASHRAE 62.1-2007 Ventilation		Pressure Relationship	Design Noise Level (NC)
		Min	Max	cfm/p	cfm/sf		
Admin/Office	70-75	-	60	5	0.06	Neutral	35
Conference	70-75	-	60	5	0.06	Neutral	25-30
Lobby	70-75	-	60	5	0.06	Neutral	35
Classrooms	70-75	-	60	10	0.12	Neutral	20-25
Kitchen/Cooking	65-75	-	60	7.5	0.12	Negative	55
Dining Areas	70-75	-	60	7.5	0.18	Positive	50
Corridor	72-75	-	60	0	0.06	None	35
Restroom/Toilet	70-75	-	60	-	-	Negative	40
Telecomm room	70-85	-	60	N/A	N/A	Neutral	40-45
Elec/Mech	65-85	No Requirement		N/A	N/A	Neutral	40-45

Notes:
1. Systems will be capable of maintaining spaces at any point within this range, +/-2 deg
2. Systems to accommodate full control by facilities and limited control by users
3. Minimum – winter heating / Maximum – summer cooling

Planning and Design Considerations

Electrical

Overview

Systems

There are two different types of MEP systems being investigated, and which are being applied to all architectural building concepts:

1. Code Compliant Energy (System 1)
2. Enhanced Sustainability Strategy (System 2)

System 1 meets/exceeds code requirements.

System 2 is the enhanced sustainability energy strategy. This system will require larger electrical service and will utilize a photovoltaic system.

Phasing

The phasing approach is outlined within the architectural concept descriptions. For additional information on system phasing, refer to the Concepts Sections.

Assumptions

All electrical systems will be new throughout.

Based on the average square footage for the buildings and different HVAC schemes, the following are the main assumptions for the study:

- Electrical service size will vary for concepts with increased electrification from 2,500A to 3,000A.
- The size of the photovoltaic system varies based on available roof area between different concepts.
- Eighteen (18) parking spaces (10%) will be provided with Electric Vehicle (EV) charging stations in Enhanced Energy Concepts. The Hybrid Concepts will include provisions only for future stations.

Planning and Design Considerations

Plumbing and Fire Protection

Overview

Systems

There are two different types of MEP systems being investigated, and which are being applied to all architectural building concepts:

1. Code Compliant Strategy (System 1)
2. Enhanced Sustainability Strategy (System 2)

System 1 meets/Exceeds code requirements. This system would consist of plumbing services to meet current codes, including natural gas-fired water heaters for domestic hot water generation.

System 2 will utilize geothermal water-to-water heat pumps capable of handling the complete load of the school.

Phasing

The phasing approach is outlined within the architectural concept descriptions. Special attention must be taken for Concepts A and B, as these approaches require maintaining the existing systems while providing new distribution. For additional information on system phasing, refer to the Concepts below.

Assumptions

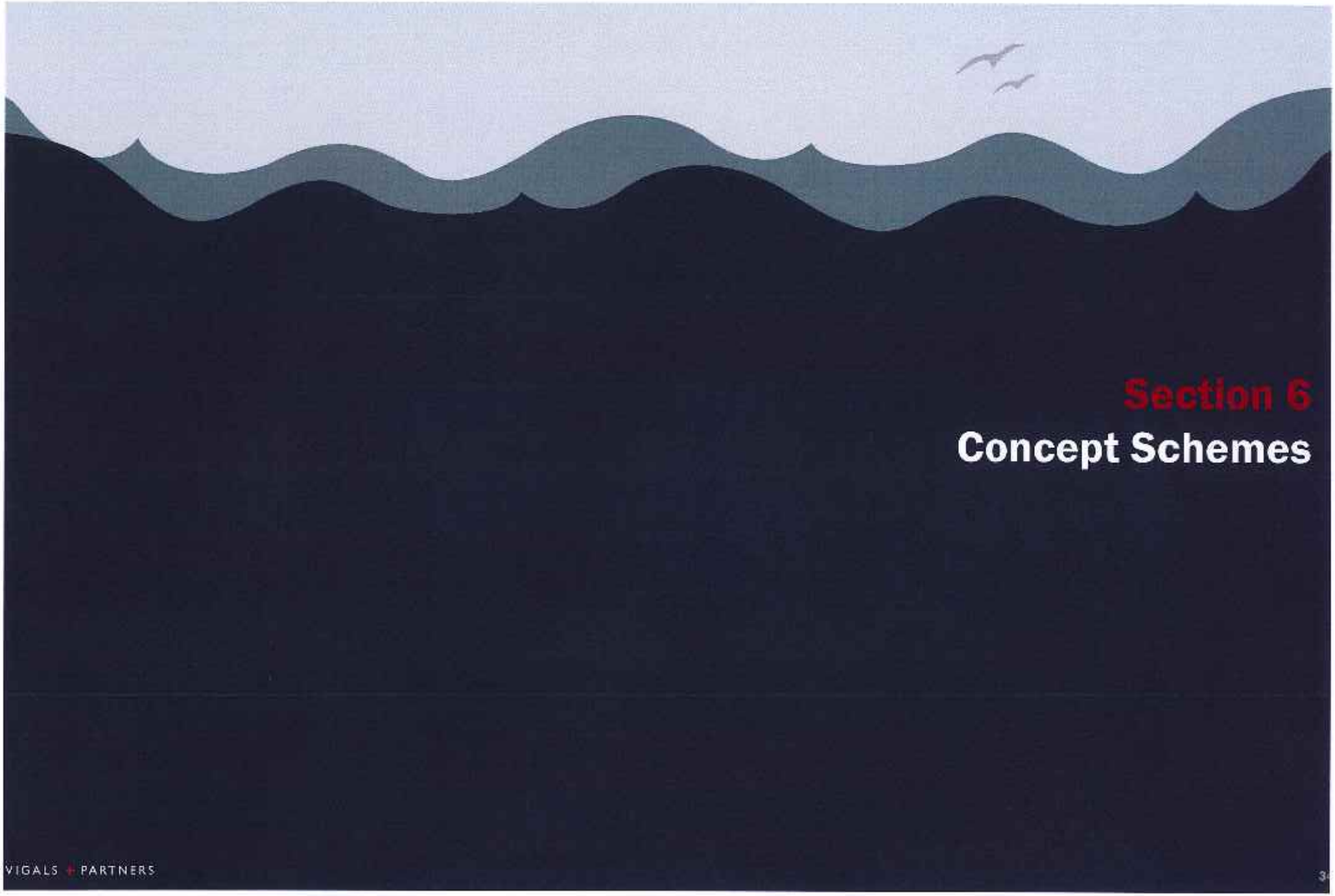
Based on the average square footage for the buildings and estimated plumbing fixture types and counts:

- Estimated domestic hot water load is 450 MBH
- Estimated domestic hot water storage is a 250-gallon storage tank (with 70 kW electric elements for 50% redundancy for Concept C1-C5)

Fire Protection

The Fire Protection systems will be similar for all architectural concepts, including existing building renovations, additions, and a whole new building in its entirety.

Existing Long Lots School



Section 6
Concept Schemes

Concept Naming

Feasibility concepts are included in this section as follows:

- **Concept Path A | Renovate As New**

  Pricing and MEP Narratives are broken out into the following approaches:

  A1 - Code Compliant Energy Strategy

  A2 - Enhanced Sustainability Strategy

- **Concept Path B | Renovate As New with Large Addition**

  Pricing and MEP Narratives are broken out into the following approaches:

  B1 - Code Compliant Strategy

  B2 - Enhanced Sustainability Strategy

- **Concept Path C, D and E | New Construction**

  Pricing and MEP Narratives are broken out into the following approaches:

  C1 - Code Compliant Strategy

  C2 - Enhanced Sustainability Strategy

  D - Alternate Site North

  E - Alternate Site South

Concepts include the following information:

1. Overview and Cost Summary
2. Site Plan
3. Floor Plans
4. Phasing Plan and Timeline
5. Structural Narrative
6. Mechanical Narrative
7. Electrical Narrative
8. Plumbing and Fire Protection Narratives

Concept Path A

Renovate As New

Concept A - Renovate As New

Overview

The Renovate As New approach includes a full, phased renovation of the existing Long Lots building.

An initial study revealed that a renovation of the existing Long Lots school building would not provide a square footage large enough to accommodate the program of the Ed Spec. This is largely due to inherent inefficiencies in the existing building design. A strategy utilizing only the existing footprint will require the elimination of the Stepping Stones Preschool, as well as 6,500 square feet of the Long Lots program, reducing the school's enrollment capacity by up to 150 students.

To accommodate the full program, a 25,000 square foot classroom addition is indicated at the rear of the building and an 1,800 square foot administrative addition is indicated near the front entry. Additionally, a 18,000 square foot standalone building for Stepping Stones Preschool is included on an existing parking lot. The resulting buildings total over 154,000 square feet.

This concept path includes narratives and pricing for the following sustainability and energy strategies:

A1 - Code Compliant

A2 - Enhanced Sustainability

Benefits

1. Many existing site elements remain in place, such as the Community Gardens, playgrounds, ball fields and vehicular circulation
2. New facade materials and new addition near entry provide an opportunity to refresh the look and arrival experience of the building
3. Maintains existing auditorium

Challenges

1. Does not meet all Ed Spec Requirements:
   - A number of classrooms are up to 10% smaller than requested in the Educational Specification
   - First and Second Grade classrooms cannot accommodate restrooms
2. Stepping Stones may be separate from the main building, resulting in reduced programmatic and operational/financial efficiency
3. Inefficiencies in the existing building result in an inflated overall building footprint
4. Most expensive option
5. Modular classrooms will need relocation
6. Elevator remains in a non-central location
7. Lengthy phasing of renovations will prolong the completion of the project and delay the transfer of Stepping Stones
8. Extent of repair to structural elements may remain unknown until demolition is underway
9. Relies on the continued performance of original concrete floors and masonry walls
10. Existing baseball field remains undersized

Concept A - Renovate As New

Cost Summary

See Appendix A for full Estimate

		Concept A1 Code Compliant	cost/SF	Concept A2 Enhanced Sustainability	cost/SF
Construction Costs					
Construction	$	80,354,120	$ 393.94	$ 85,238,250	$ 423.63
Sitework	$	3,618,583	$ 23.39	$ 4,226,583	$ 27.33
Demolition and Abatement of Existing	$	5,012,522	$ 32.40	$ 5,012,522	$ 32.40
Short Term Repairs of Existing	$	-	$ -	$ -	$ -
Contingencies - Design & Construction	$	7,846,897	$ 51.36	$ 8,496,897	$ 54.92
CM Costs	$	5,211,971	$ 33.68	$ 5,436,714	$ 35.10
Escalation	$	10,819,587	$ 69.80	$ 11,594,879	$ 74.68
Subtotal Construction Costs	$	93,496,890	$ 604.27	$ 98,896,692	$ 645.63
Soft Costs					
Subtotal Soft Costs	$	14,024,534	$ 90.64	$ 14,024,534	$ 90.64
Total Project Costs	$	107,521,424	$ 694.91	$ 113,921,226	$ 736.27

Concept Aerial

Concept A - Renovate As New

Site Plan

PARKING SUMMARY

PASSENGER CARS = 175 SPACES

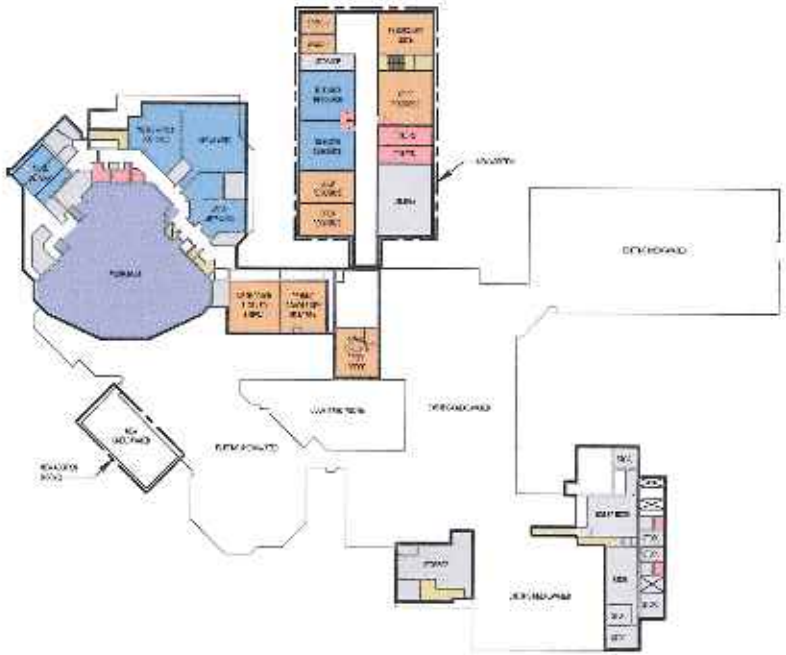
PARENT LOOP = ±19 CARS

BUS LOOP = ±13 BUSES

Concept A - Renovate As New

Floor Plans

154,728 GSF Total



COLOR FILL LEGEND	
	ADMIN
	ASSEMBLY
	CAFETERIA
	CAFE SEATING AREA
	CLASSROOM
	RECREATION
	VERTICAL CIRCULATION
	MECHANICAL/UTILITY
	UNASSIGNED SPACE

LOWER LEVEL

44,180 GSF

ADDITION: 13,812 GSF
DEMO: 0 GSF
RENO: 30,368 GSF

FIRST FLOOR

110,548 GSF

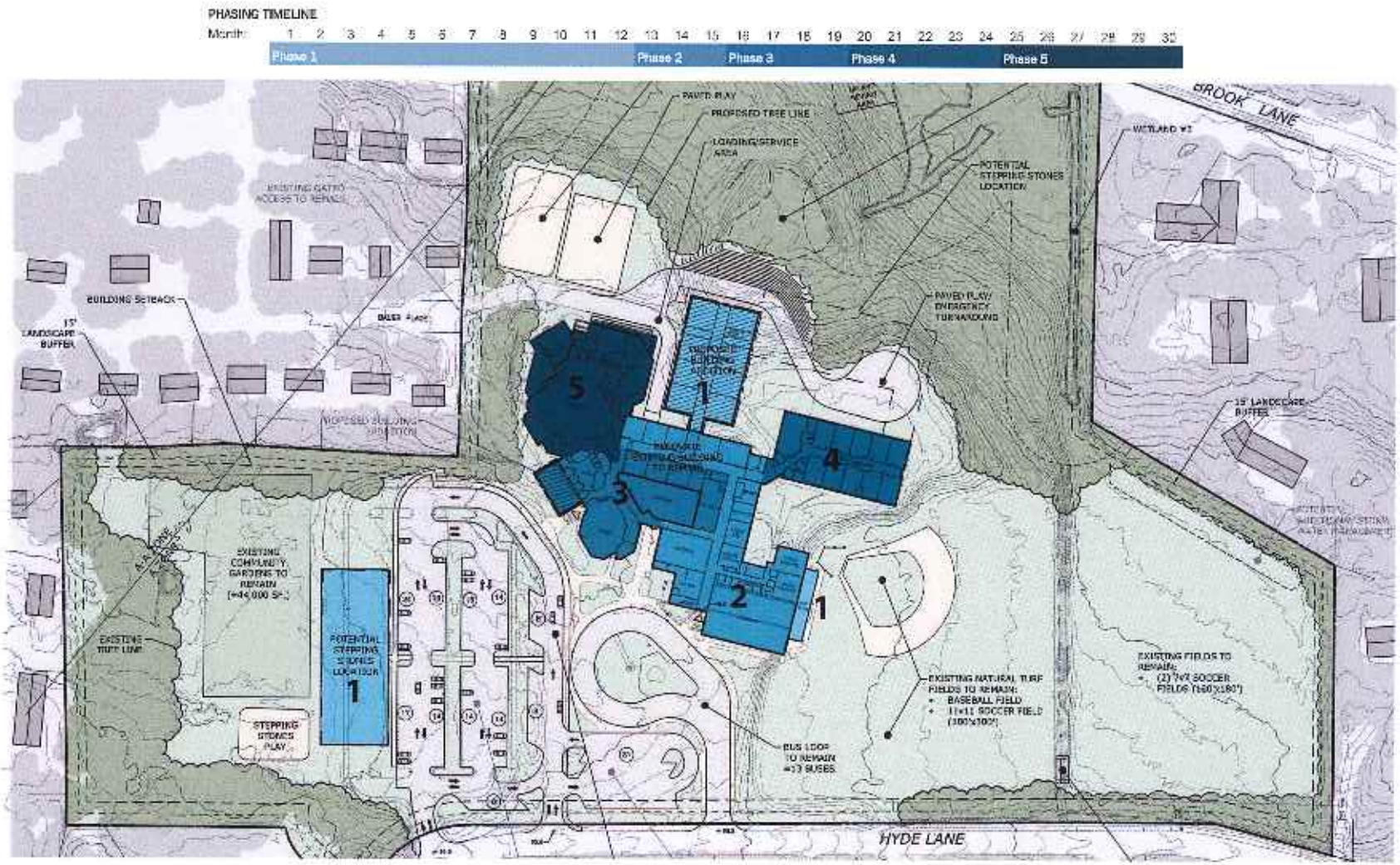
ADDITION: 33,406 GSF
DEMO: 0 GSF
RENO: 77,142 GSF

0' 15' 40' 100'

SCALE: 1" = 80'-0"

Concept A - Renovate As New

Phasing Plan and Timeline



Concept A - Renovate As New

Structural Narrative

Structural Approach

The extent of the structural modifications and improvements to the existing facility required will be a direct result of the final architectural programs and mechanical system upgrades. In conjunction with these modifications, please refer to Section 4 – Summary of Existing Conditions for previously prepared evaluation reports, regarding observations of existing conditions and recommendations.

Renovations

The classroom demising walls are proposed to be relocated to provide the appropriate size classrooms. The masonry demising walls may be loading bearing partitions in some locations. The existing structure supported on these partitions must be temporarily shored until the permanent support is installed. The design and detailing of temporary shoring are the responsibility of the contractor. The permanent replacement structure shall consist of structural steel beams supported on HSS columns.

Reinforced cast-in-place concrete piers and footings shall be required to support new hollow stainless steel tube sections (HSS) installed for lateral stability.

Please note that the demolition of existing masonry walls will warrant a seismic analysis and subsequently a seismic retrofit of the existing structure to restore the compromised lateral stability. It is assumed that the lateral stability shall be restored utilizing the proposed demising walls.

The heads of any new openings through existing brick or CMU walls will be supported by using loose steel angles. An L5x3 1/2x 3/8 for each 4' of masonry thickness will be detailed for any openings 6'-0" or smaller.

For openings 6'-1" to 7'-11" use L6x3 1/2x3/8 for each 4" of masonry. A wide flange beam will be detailed for any openings larger than 8'-0".

The new demising walls may be constructed of reinforced masonry walls or cold-form metal studs. Please refer to Concept Scheme C1 for masonry wall construction. Should it be determined that the demising walls will be constructed of cold-formed metal framing, assume that structural steel HSS braced frames shall be installed within the stud walls at strategic locations. Final locations and quantities of the masonry shear walls and/or braced frames shall be determined during the subsequent design phases.

Structural steel frames will be required under all proposed roof mounted mechanical units. Assume W8x18 frames are required under all mechanical unit curbs. Structural steel frames will also be required for any proposed roof openings, including roof drains. Assume L6x4x3/8 steel frames or Chicago Clamp system.

During the 2022 inspection of the roof by Offshore Construction, Inc., roof leaks were observed. For budgeting purposes, the contractor shall assume 100% replacement of durisol decking and approximately 10% replacement of metal roof deck area due to corrosion or damage. While the 2021 and 2022 roof inspections by Offshore Construction, Inc. did not identify any loose fasteners, the Contractor shall also assume the existing metal roof deck will require supplemental fastening. For budgeting purposes, assume approximately 20% of the roof area will require supplemental fasteners.

All structural steel elements (i.e. dunnage, lintels, relieving angles, etc.) exposed to weather shall be hot-dipped galvanized.

Additions/New Construction

Please refer to Concept C Structural Narrative for a description of the new construction components.

Concept A - Renovate As New

Mechanical Narrative

Overview

Concept A consists of renovating the existing building with an additional wing and separate smaller Stepping Stones building nearby.

Concept A MEPFP narratives are divided into two Concept schemes:

A1 – Code Compliant
A2 – Enhanced Sustainability

Mechanical Narrative
Concept A1 - Code Compliant

Main Building Loads:

- Cooling Load: 300 tons (3600 MBH)
- Heating Load: 4500 MBH
- Ventilation: 40,000 CFM of outside air

Stepping Stones Building Loads:

- Cooling Load: 45 tons (540 MBH)
- Heating Load: 650 MBH
- Ventilation: 6,000 CFM of outside air

Systems

New high-efficiency condensing natural gas-fired boilers will provide hydronic hot water for rooftop equipment and perimeter radiation. DOAS units will be installed on roofs and will serve all nearby classrooms, offices, and corridors. These centralized units shall be equipped with energy recovery wheels, DX (direct expansion) cooling/heat pump coils, and a hot water coil to temper the ventilation air before supplying to the space. The heat pump coil will handle the heating load during optimized ambient conditions, with the hydronic hot water coil providing additional heat as necessary. The boiler loop will supply an indirect hot water heater serving the domestic hot water system. See the Plumbing Narrative for more information.

All occupied spaces will be served with ventilation and exhaust ductwork from nearby DOAS units, and shall be provided with an in-space VRF unit to meet heating and cooling requirements. The indoor VRF units will consist of exposed cassette-type units due to a minimal plenum space, and ducted concealed style units where possible.

The Kitchen/Cafeteria area and Gymnasium will utilize a VAV packaged RTU with a DX cooling/heat pump coil and a glycol hot water coil providing conditioned air to the area, and make-up air for kitchen equipment exhaust hoods. As with the DOAS units, the heat pump coil shall be the main supply of heating, with the hot water coil to operate as necessary.

The Stepping Stones building is to be provided with its own independent mechanical systems, consisting of a VRF system to provide heating and cooling to all rooms, and a centralized DOAS unit serving the space which shall utilize DX heating and cooling, and come equipped with backup electric heat. Areas of high heat loss in the stepping stones building will be provided with electric radiation.

Phasing

Phase 1:
In the first phase of construction, a new mechanical wet room is to be outfitted from the existing abandoned locker room area. New high-efficiency condensing natural gas boilers are to be provided with a main distribution loop installed throughout the crawl space of the original Long Lots building, valved and capped at new wings and proposed riser locations for future use. The main

distribution could be halted to the next phase as well, if a temporary outdoor boiler was added instead to serve the new wing.

The new "Early Childhood-K" wing is to be provided with a rooftop DOAS unit, ductwork, and a full VRF system. Perimeter radiation is to be installed in areas with high heat loss, and hot water is to be tied into the new distribution system from the existing building crawl space.

Additionally in the first phase, the Stepping Stones building is to be provided with a fully independent VRF system and DOAS unit separate from the Long Lots building. The DOAS will be provided with DX heat pump and cooling capabilities, and a backup electric heating coil for a fully electric building.

Each phase will require maintaining existing systems within non-renovated areas.

All new/renovated areas will require necessary testing, balancing, and commissioning of all systems installed.

Phase 2:
Remove all rooftop equipment not serving other parts (within Phase 2 only or all) of the building. Existing steam and hydronic piping and controls are to be capped, bypassed, and/or preserved as necessary to maintain service to the rest of the building. All existing equipment serving the rooms including existing radiation, unit ventilators, air conditioners, and exhaust are to be removed, bypassed, and/or rebalanced as necessary.

A VAV RTU is to be provided for the Kitchen/Cafeteria, one for the Gymnasium, and another DOAS unit to serve other areas of the Phase 2 portion of the building.

Perimeter radiation is to be provided in areas of high heat loss.

All areas of Phase 2 other than the Gymnasium and Kitchen/Cafeteria area are to be outfitted with a VRF system.

Hydronic radiation is to be provided in areas of high heat loss.

Roof-mounted ventilation ductwork is anticipated in several parts of the existing building with limited floor-to-floor height.

All new hydronic equipment is to be tied into the new hot water distribution.

Perform necessary testing, balancing, and commissioning of all systems installed.

Phase 3:
Remove the existing rooftop equipment in the portion of the building that does not serve other parts of the building. Existing steam and hydronic piping and controls are to be capped, bypassed, and/or preserved as necessary to maintain service to the rest of the building. All existing equipment serving the rooms including existing radiation, unit ventilators, air conditioners, and exhaust are to be removed, bypassed, and/or rebalanced as necessary.

A DOAS unit is to be provided on the roof, providing ventilation to the space, and the area is to be outfitted with a VRF system.

Hydronic radiation is to be provided in areas of high heat loss.
Roof-mounted ventilation ductwork is anticipated in several parts of the existing building with limited floor-to-floor height.

All new hydronic equipment is to be tied into the new hot water distribution.

Perform necessary testing, balancing, and commissioning of all systems installed.

Phase 4:
Remove the existing rooftop equipment in this portion of the building that does not serve other active parts of the building. Existing steam and hydronic piping and controls are to be capped, bypassed, and/or preserved as necessary to maintain service to the rest of the building. All existing equipment serving the rooms including existing radiation, unit ventilators, air conditioners, and exhaust are to be removed, bypassed, and/or rebalanced as necessary.

A DOAS unit is to be provided on the roof, providing ventilation to the space, and the area is to be outfitted with a VRF system.

Hydronic radiation is to be provided in areas of high heat loss.

Roof-mounted ventilation ductwork is anticipated in several parts of the existing building with limited floor-to-floor height.

All new hydronic equipment is to be tied into the new hot water distribution.

Perform necessary testing, balancing, and commissioning of all systems installed.

Phase 5:
Remove the existing rooftop equipment in this portion of the building.

Remove all existing steam and hydronic piping, valves, fittings, and equipment from the building. Remove all existing rooftop equipment leftover from prior construction phases and existing controls.

A DOAS unit is to be provided on the roof, providing ventilation to the space, and the area is to be outfitted with a VRF system.

Hydronic radiation is to be provided in areas of high heat loss.

Roof-mounted ventilation ductwork is anticipated in selected areas with limited floor-to-floor height.

All new hydronic equipment is to be tied into the new hot water distribution.

Perform necessary testing, balancing, and commissioning of all systems installed.

Mechanical Narrative
Concept A2 - Enhanced Sustainability

Main Building Loads:

- Cooling Load: 275 tons (3300 MBH)
- Heating Load: 3600 MBH
- Ventilation: 40,000 CFM of outside air

Stepping Stones Building Loads:

- Cooling Load: 40 tons (480 MBH)
- Heating Load: 500 MBH
- Ventilation: 6,000 CFM of outside air

Systems

Provide a system of approximately 120 geothermal bores at 500 ft. deep. Each bore will require approximately 400 SF for a total of 50,000 SF of site area located in the field as to not impact the building footprint. The stepping stones building is to be provided with its own independent mechanical systems, consisting of a VRF system to provide heating and cooling to all rooms, and a centralized DOAS unit serving the space which shall utilize DX heating and cooling, and come equipped with backup electric heat. Areas of high heat loss in the stepping stones building will be provided with electric radiation.

In the new mechanical room, there will be a centralized water to water heat pump system which will provide chilled water and hot water to a four-pipe distribution system throughout the school.

Distribution of the Hot Water (HW) and Chilled Water (CHW) will be provided through the crawl space of the existing school to all the zones, and will provide heating and cooling for all equipment. The geothermal loop will also be used to provide domestic hot water to the school. (See Plumbing Narrative for more information.) DOAS units will be installed on roofs and will serve all nearby classrooms, offices, and corridors. These centralized units shall be equipped with energy recovery wheels, and HW/CHW coils to temper the ventilation air before supplying to the space.

All occupied spaces will be served with ventilation and exhaust ductwork from nearby DOAS units, and shall be provided with an in-space four-pipe HW/CHW fan coil unit to meet heating and cooling needs. The indoor fan coil units will consist of exposed cassette-type units due to a minimal plenum space, and ducted concealed style units where possible.

The Kitchen/Cafeteria area and Gymnasium will each utilize a VAV packaged RTU with a HW/CHW coil to provide heating, cooling and ventilation air to the spaces.

Phasing

Phase 1:
In the first phase of design, a new mechanical room is to be outfitted from the existing abandoned locker room area. New GSHPs tied into the new ground source loop are to be installed in the new mechanical room and provided with a four-pipe HW/CHW main distribution loop throughout the crawl space of the original Long Lots building, capped and valved at new wings, and proposed riser locations for future use.

The new "Early Childhood-K" wing is to be provided with a rooftop DOAS unit and ductwork to provide ventilation areas. The building perimeter is to be provided with radiant panels in areas of potential high heat loss, and fan coil units are to be provided in offices and classrooms.

For other spaces, four-pipe fan coil cassette type units are to be provided to supply heating and cooling to the space.

Additionally in the first phase, the Stepping Stones building is to be provided with a fully independent VRF system and DOAS unit separate from the Long Lots building. The DOAS will be provided with DX heat pump and cooling capabilities, and a backup electric heating coil for a fully electric building.

Each phase will require maintaining existing systems within non-renovated areas.

Phase 2-5:
See Concept A1 phasing plan. Phasing will be similar, with four-pipe fan coil units in place of VRF indoor units. Provide perimeter radiation in areas of high heat loss.

Concept A - Renovate As New

Electrical Narrative

Electrical Narrative
Concept A1 - Code Compliant

Systems

Normal electrical power will be provided by a single utility service extended from the street pole. The service will extend to a new transformer, and then to the facility's main electrical service room. Preliminary calculations indicate that a 480Y/277-volt service rated at 2500 A will be required for the facility. The utility transformer will be installed over a concrete pad structure approved by the Utility Company, and located near the facility. The utility meter will be the secondary metering type.

The service entrance electrical equipment will be located in the main electrical room in the new addition.

Provide separate electric service with separate utility meter and utility transformer for electrical vehicle charging stations. Electrical service size will be 600A-3P, 208Y/120V, 3-phase, 4-wire. An exterior site-mounted service entrance rated electrical distribution system in a NEMA 3R enclosure will be provided to feed electric vehicle charging stations.

Additionally, provide another new separate electric service for the standalone Stepping Stone building. The electrical service size will be 400A-3P, 480Y/277V, 3 phase, 4-wire. The service entrance electrical equipment will be located in the electrical room in the standalone Stepping Stone building. A separate utility meter will be provided.

There will be an electric-drive, centrifugal fire pump, which will require a separate electric service. That electric service will be connected to the same utility transformer serving the the main building. The fire pump will also be backed up by the generator. Normal power electrical distribution system and emergency power fire pump transfer switch/controller will be located within the fire pump room. A 350A-3P, 480Y/277V, 3-phase electric service size will be required to feed the fire pump. A separate utility meter will be provided.

Emergency power will be supplied by an exterior site-mounted 500 kW diesel engine. It will be located on site in a weatherproof enclosure. Automatic transfer switches will be utilized to connect to the emergency source based upon a pre-set priority if the normal source of power fails. Two (2) transfer switches will be provided - one for emergency power loads and one for standby power loads. Provide 24 hours of fuel storage in a base tank for continuous operation at 100 percent rated power output.

The following systems will be served by the emergency generator power:

1. Emergency lighting and exit signs
2. All site life lighting
3. Voice communication system
4. Fire alarm and detection system
5. Fire pump system
6. Cooling system
7. Elevators that are part of an accessible means of egress
8. Security systems
9. Technology closet equipment and local cooling
10. Operation of fans required to maintain air quality and fans required for venting
11. Selected lighting fixtures and power outlets throughout the facility such as the administration area, etc.
12. All HVAC Building Management System (BMS) controls
13. Mechanical equipment used for protection of the building from freezing:
    - Boilers and hot water pumps
    - Freeze protection pumps if any
    - Cabinet unit heaters and unit heaters
    - Fan coils units if any
14. Split system air conditioning units
15. Following Plumbing Equipment:
    - Gas water heaters as applicable
    - Electric water heaters as applicable
    - Hot water returns fans as applicable
    - Sewage Ejector pumps as applicable
    - Domestic water booster pumps as applicable
    - Water closets/urinal flush valves as applicable
    - Electronic Faucets as applicable
16. Following Kitchen equipment:
    - Walk-in freezer including condensing units, blower coils
    - Walk-in cooler including condensing units, blower coils
    - Fire suppression system
    - Refrigerator
    - Milk cabinets
    - Dishwasher

The existing exterior site-mounted 125 kW, 480Y/277V, 3-phase, 3-wire, diesel-fired generator with a skid-mounted 526-gallon capacity fuel tank can be reinstalled adjacent to the Stepping Stones building to feed standby power loads. One (1) new transfer switch will be provided for standby power loads.

One (1) 5 kW rated central emergency inverter system will be provided for serving emergency lighting within the Stepping Stones building.

Provide new distribution throughout both buildings as each phase progresses consisting of 480/277-volt and 208/120-volt panelboards and associated step down transformers.

Provide new LED lighting throughout.

Emergency lighting will be provided by connecting required fixtures in means of egress to the emergency generator branch of the power system with dual circuiting and local power sensing in the main building.

Provide new lighting controls throughout consisting of a digital networked lighting control system in all public areas including corridors, open spaces, gymnasium, cafeteria, kitchen, restrooms, stairwells, and exterior lighting. This system will be used in conjunction with occupancy sensors and photocells to provide controls for occupancy and day lighting, as well as local low-voltage manual dimmer switches. A standalone lighting control system will be used in all private areas including classrooms, conference rooms, offices, and open offices.

Exterior lighting will consist of LED light fixtures for parking areas, and at each of the exterior door openings. The fixtures will be controlled by a low-voltage lighting control system utilizing photocells, time switch, and low-voltage relays. The lighting control system will be interfaced with the BAS control and monitoring of site lighting systems. Provide for multiple light switching levels.

An addressable, voice evacuation type fire alarm system will be provided for the facility. The system will report directly back to the local fire department. Manual pull stations will be installed at all exterior egress doors. Addressable type duct smoke detectors will be installed in return air ducts. Smoke detectors will be installed where required by code. Heat detectors will be installed in areas that are not feasible for smoke detectors.

Audio/Visual notification devices will be installed to meet NFPA and ADA guidelines which includes strobe units in all restrooms, conference rooms, waiting area, public areas, open space, gymnasium, cafeteria, kitchen, etc.

A Two-Way Communication (TWC) system will be provided to serve each elevator lobby landing that is located above and/or below each accessible level of exit discharge. This system will provide audible and visual signaling to an approved central control point located within the building.

A public address system will be provided. The system will include amplifiers, speakers, mixers, microphones, volume controls, test sets, telephone private branch exchange (PBX) interface equipment, rack enclosures, equalizers, cables and accessories.

Provide public safety communications and distributed antennae system including outside antennas, inside plant, active amplification functions and architecture to support local two-way public safety radio communications for all emergency responders and security personnel, radio coverage, other RF commercial Wireless Service Providers (WSP), and wireless (cellular) equipment and systems. Include all associated cabling, raceways, and accessories.

Provide main telecommunications service from the street utility pole.

The tel/data system will consist of a backbone raceway system from the main service entrance room to each tel/data closet. Provide cabling, ladder rack, racks, cable management, patch panels, telecommunication outlets, faceplates, terminations, testing and labeling. Dedicated conditioned equipment rooms will be provided. Provide vertical backbone riser raceway distribution for all telecom systems. All data drop locations will be in raceway and back boxes.

Provide backbox and raceway provisions for audio/visual systems throughout the school.

The electronic safety and security systems will incorporate access control, video surveillance and intrusion detection and include all related raceway and boxes. All security system components, devices, inclusive of cameras, keypads, magnetic door locks, and security buttons, power, boxes, and raceways will be provided as required for a complete system.

Clock System

Provide master clock system. Individual clocks will be low-voltage and will automatically synchronize to the master system.

Phasing

Phase 1:
All electrical and low-voltage systems will be replaced with new.

Existing main electrical service and distribution is to remain active until all phases of construction have been completed. Similar with low voltage systems serving the school.

The original electrical equipment located in the 1962 addition's main electrical room in the Auditorium building is to remain active until all phases of construction have been completed.

Existing generator and associated distribution are to remain active until all phases of construction have been completed.

Existing Notifier XP series fire alarm control panel located at the main entrance to the Auditorium is to remain active until all phase construction have been completed. In the first phase of construction, a new main electrical room and emergency electrical room are to be outfitted in the new Addition building.

A new electrical distribution system shall be installed in new main electrical room and emergency electrical room.

An existing generator will be installed adjacent to the Stepping Stone building after all phases of construction have been completed for reuse and back up of that building.

A new electrical distribution system shall be installed in the electrical room and emergency electrical room in the Stepping Stones building.

A new exterior site-mounted electrical distribution system shall be installed to feed EV charging stations.
A new exterior site-mounted generator for the main building will be installed.

Provide new lighting fixtures with associated lighting controls, power outlets, fire alarm system devices within the new Addition as well as within the renovated area. Provide power to new mechanical, plumbing and fire protection equipment.

Provide a new fire alarm system control panel in the new Addition building and in the Stepping Stone building.

Phase 2:
The existing electrical distribution system is to remain if serving other remaining areas of the building.
Remove existing electrical equipment and devices, and lighting fixtures with associated lighting control devices and fire alarm system devices located within the renovated area.
Disconnect and remove the existing power connection from the existing mechanical equipment being removed.

Remove existing electrical and fire alarm equipment and devices throughout unless serving other areas outside of this phase boundary.

Extend electrical distribution to the renovated area. Provide new lighting fixtures with associated lighting controls, power outlets, and fire alarm system devices within the renovated area.

Provide power to new mechanical, plumbing and fire protection equipment.

Phases 3 - 5:
Similar to Phase 2.

Electrical Narrative
Concept A2 - Enhanced Sustainability

Systems

All electrical systems are similar to Concept A1, except provide 4000A, 480/277-volt, 3-phase, 4 wire rated switchboard with 3000A main C/B. Bus size of the switchboard is increased to accommodate input power from PV solar system.

Service will be set-up with capabilities for connection of a 175 kW PV solar system. PV solar system equipment and distribution system will be housed in a separate electrical room.

The Stepping Stones building systems are the same as in Concept A1.

Phasing

Phases 1 - 5:
Same as Concepts A1 and except additional requirements as follows:

Roof-mounted PV solar system panels and associated equipment shall be installed on new additions only.

Concept A - Renovate As New

Plumbing Narrative

Plumbing Narrative
Concept A1 - Code Compliant

Systems

Domestic water service will be connected to the new 4" incoming domestic water service. The existing water meter and gate valve will be removed. The new service will be equipped with a water meter and backflow preventers. The new water main service will be sized to serve all building areas. The service entrance will have a water meter and duplex backflow preventers. Non-potable water systems will provide make-up water to mechanical (HVAC) systems. Backflow prevention will be required for both the domestic service and water supplied for mechanical systems.

The sanitary waste main will be revised based on the new additional loads done through the renovations. The main will exit and be piped to 10'-0" outside the building. The exact location will be coordinated with the utilities. All existing sanitary and venting will be removed. New sanitary waste and vent piping will be provided to plumbing fixtures, floor drains, mechanical equipment, and other needed equipment. The sanitary system will include an atmospheric venting system to maintain trap seals, with vent terminals through the roof, located not closer than 25 ft. from any fresh air intake, or operable window. Floor drains with automatic trap primers will be provided in all mechanical rooms, toilet rooms, and utility rooms, as well as in areas requiring local equipment drainage. All indoor air-handlers and primary backflow preventers shall have floor sinks with automatic trap primers. A condensate drainage piping system will be provided for any HVAC equipment that produces condensate. All condensate drain piping will be indirectly drained to floor drains or janitor's sinks.

The new kitchen will be provided with precast sanitary waste interceptors used for the removal of grease from waste streams for installations within the building envelope.

Stormwater drainage main discharge will be revised based on the new additional loads done through the renovations. All existing roof drains will be removed. The new roof drainage will consist of both primary and secondary-type roof drains. Primary drains will be located at low points of all flat or trapped roof areas, with gravity piping to the site drainage system that will discharge to the municipal stormwater system. The secondary drains will be piped independently of the primary drains down to the ground floor to discharge above grade.

Existing plumbing fixtures will be removed, and new plumbing fixtures will be provided. Plumbing fixtures will be accessible, ADA fixtures where required. All fixtures will be the water saving type. Flush valves and faucets will be the water conservation types with electronic sensor controls.

Domestic water distribution will be removed and all new distribution piping will be looped throughout the facility to serve fixtures, equipment, devices, and exterior hose connections. Connections to owner-furnished equipment, such as ice makers, will be required.

The hot water supply will be generated by two (2) gas fired, storage type water heaters each sized to handle the complete load. A dedicated 140-deg. F hot water supply and return piping system will be provided to supply hot water to commercial kitchen equipment and fixtures. Hot water supply piping will be re-circulated from the remote ends of the system and returned to the water heaters to maintain the system temperature. Re-circulation loops will be provided with circulator pumps, operated by immersion aquastats.

Gas service will be revised based on the new loads, and replaced. All existing gas piping will be removed and new installed to mechanical equipment for use in generating heating hot water and domestic hot water. New gas will also be piped to kitchen equipment.

A radon prevention system will be provided. A passive soil depressurization system consisting of under-slab suction pits, radon vent piping, and provisions for the roof exhaust fan will be required for all slab areas.

The Stepping Stones building will be provided with all new plumbing systems such as domestic water service, sanitary, venting, and stormwater. Domestic hot water will be generated by an electric water storage heater to handle the complete load of the building.

Phasing

Phase 1:
In the first phase of design, a new mechanical room is to be outfitted from the existing abandoned locker room area. New gas-fired, storage type water heaters will be installed in the new mechanical room. Domestic water will be extended from the water service room into the water heater, and hot water will be distributed to new plumbing fixtures within the new addition and capped for the next phases. Isolation valves will be required. New sanitary and venting piping will be installed and connected to utility services within 5 ft. of the building footprint.

New roof drains and associated storm piping system will be installed and connected to stormwater utility services within 5 ft. of the building.

The Stepping Stones building will be provided with brand new plumbing services and systems listed in Concept A1 above.

Phase 2:
New domestic cold and hot water piping will be extended from the water service room and distributed through the mains to new plumbing fixtures within the renovated areas and capped for the next phases. Isolation valves will be required.

All existing under slab and overhead sanitary and venting piping is proposed to be removed and replaced with new, which will require slab demolition. New sanitary and vent systems in the renovated areas will be routed and connected to utility services within 5 ft. of the building foundation.

All existing stormwater drains will be replaced with new primary and secondary roof drains. Existing stormwater piping will be removed and new installed. All modifications to the stormwater drainage systems in the renovated areas will be rerouted and connected to new discharge locations with 5 ft. of the building foundation.

Phases 3 - 5:
Similar to Phase 2.

Plumbing Narrative
Concept A2 - Enhanced Sustainability

Systems

All domestic water systems will be similar to Concept A1, except gas service will be removed from the building.

The domestic hot water supply will be generated by geothermal water-to-water heat pumps fed from the geothermal loop (see HVAC Narrative) with electric, storage type water heaters. The electric water heater elements will supply 50% redundancy of the complete building load.

The Stepping Stone building will be similar to Concept A1.

Phasing

Phase 1 -5:
See Concept A1 Phasing Plan. Phasing will be similar except domestic hot water generation equipment will be installed in Phase 1.

Concept A - Renovate As New

Fire Protection Narrative

Fire Protection Narrative
Concept A1 - Code Compliant

Systems

The existing minimal coverage fire protection system will be removed, and the new renovated building will be fully protected by new fire protection system. New fire protection service will be provided to the building with a new electric fire pump.

The sprinkler system will be wet and dry except as noted. Sprinkler heads will be concealed or pendant type for all finish ceiling areas. Areas subject to freezing will be protected by dry pendant sprinklers connected to the wet system, or as noted.

A special fire suppression system will be provided as appropriate, including dry chemical systems at kitchen hoods.

The fire protection system will meet all owner requirements, NFPA 13 criteria, and may be subject to change by the the authority having jurisdiction and/or the owner's insurance underwriter (FM Global, if applicable), which may have more stringent requirements.

A fire pump will be provided in the new fire pump room located in a two-hour, fire-rated room. System will include all necessary controllers, valves, flow meters, and other accessories. The fire pump will be an electric-drive, centrifugal fire pump. Fire pump design criteria will meet all owner requirements, NFPA 20 criteria, and may be subject to change by the authority having jurisdiction and/or the owner's insurance underwriter (FM Global, if applicable), which may have more stringent requirements.

The Stepping Stones building will be provided with a separate fire protection sprinkler service and coverage as described above, except that it is assumed that the available street pressure is 50 to 65 psig, and a fire pump will not be required for sprinkler service. The available static and residual pressures must be confirmed for verification prior to start of project design.

Phasing

In Phase 1, the existing fire protection will be removed, and a new fire pump will be installed in a two-hour rated room. All fire protection systems will be extended by each phase to fully complete coverage of the building.

Fire Protection Narrative
Concept A2 - Enhanced Sustainability

Systems and Phasing will be similar to Concept A1.

Beecher School Renovation Addition
Vigals + Partners

Concept Path B

Renovate with Large Addition

Concept B - Renovate with Large Addition

Overview

The Renovate As New with Large Addition concept includes the completion of a two-story addition on the existing school fields a phased renovation, and a partial demolition of the existing building.

The resultant square footage of the building is approximately 144,000 square feet with 55% as new construction and 45% as renovated.

This concept path includes narratives and pricing for the following energy strategies:

B1 - Code Compliant

B2 - Enhanced Sustainability

Benefits

1. Lower fields remain as-is
2. New facade materials and large new addition provide an opportunity to refresh the look and arrival experience of the building
3. Stepping Stones and Long Lots are housed in one building, allowing for sharing of resources
4. School remains distant from adjacent neighbors

Challenges

1. Lengthy phasing of renovations will prolong the completion of the project and delay the transfer of Stepping Stones
2. Inefficiencies in the existing building result in an inflated overall building footprint
3. Increased impervious surface area on site
4. Relies on the continued performance of original concrete floors and masonry walls
5. Facade and roof materials will be replaced in full, but the extent of repair to structural elements may remain unknown until demolition is underway
6. Community Gardens are relocated

Concept B - Renovate with Large Addition

Cost Summary

See Appendix A for full Estimate

		Concept B1 Code Compliant	cost/SF	Concept B2 Enhanced Sustainability	cost/SF
Construction Costs					
Construction	$	58,884,500	$ 397.20	$ 61,985,890	$ 432.06
Sitework	$	7,004,399	$ 48.62	$ 7,664,359	$ 53.42
Demolition and Abatement of Existing	$	4,102,359	$ 28.59	$ 4,102,359	$ 28.59
Short Term Repairs of Existing	$	-	$ -	$ -	$ -
Contingencies - Design & Construction	$	7,618,484	$ 54.20	$ 8,345,506	$ 58.17
CM Costs	$	5,001,938	$ 34.87	$ 5,228,097	$ 36.44
Escalation	$	11,023,378	$ 76.84	$ 11,176,474	$ 77.90
Subtotal Construction Costs	$	91,892,849	$ 640.52	$ 99,624,679	$ 694.60
Soft Costs					
Subtotal Soft Costs	$	13,783,927	$ 96.08	$ 13,783,927	$ 96.08
Total Project Costs	$	105,676,776	$ 736.60	$ 112,286,452	$ 782.67

Concept Aerial

Concept B - Renovate w/Large Addition
Site Plan

PARKING SUMMARY

PASSENGER CARS = 178 SPACES

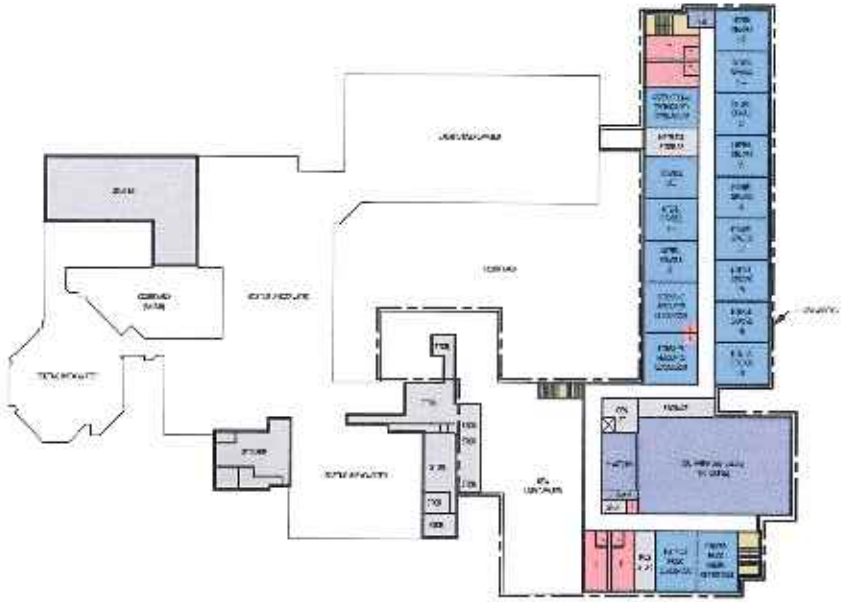
PARENT LOOP = ±39 CARS

BUS LOOP = ±16 BUSES

Concept B - Renovate with Large Addition

Floor Plans

143,465 GSF Total

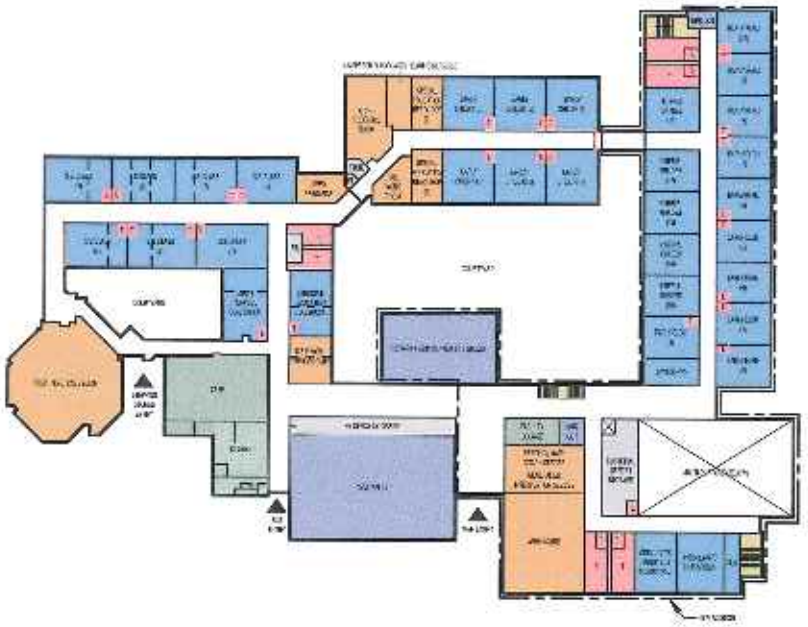


COLOR FILL LEGEND	
	ADMIN
	ASSEMBLY
	CAFETERIA
	CORRIDOR CIRCULATION
	CLASSROOM
	RESTROOMS
	VERTICAL CIRCULATION
	BUILDING SUPPORT

LOWER LEVEL

46,772 GSF

ADDITION: 35,833 GSF
DEMO: 15,459 GSF
RENO: 10,939 GSF



FIRST FLOOR

96,693 GSF

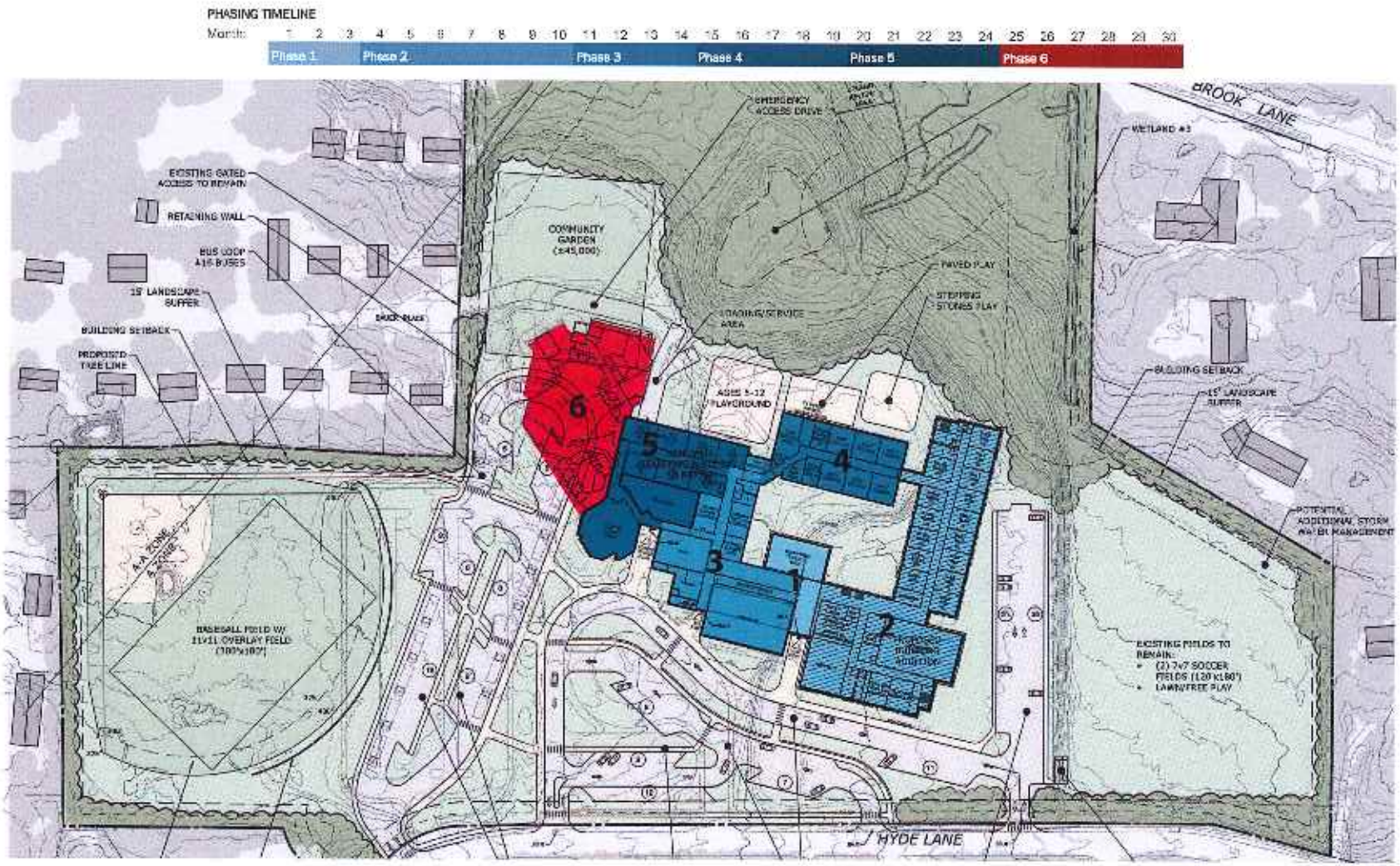
ADDITION: 42,295 GSF
DEMO: 21,720 GSF
RENO: 54,398 GSF

0' 15' 40' 100'

SCALE: 1" = 80'-0"

Concept B - Renovate with Large Addition

Phasing Plan and Timeline



Concept B - Renovate with Large Addition

Structural Narrative

Structural Approach

The extent of the structural modifications and improvements to the existing facility required will be a direct result of the final architectural programs and mechanical system upgrades. In conjunction with these modifications, please refer to Section 4 – Summary of Existing Conditions for previously prepared evaluation reports, regarding observations of existing conditions and recommendations.

Renovations

Extensive demolition of the existing structure is proposed within Concept Scheme B. Please note that the design and detailing of temporary shoring are the responsibility of the contractor. The masonry demising walls may be loading bearing partitions in some locations. The existing structure supported on these partitions must be temporarily shored until the permanent support is installed. The permanent replacement structure shall consist of structural steel beams supported on HSS columns.

Reinforced cast-in-place concrete piers and footings shall be required to support new hollow stainless steel tube sections (HSS) installed for lateral stability.

Please note that the demolition of existing structure will warrant a seismic analysis and subsequently a seismic retrofit of the existing structure to restore the compromised lateral stability. It is assumed that the lateral stability shall be restored utilizing the proposed wall locations.

The new demising walls may be constructed of reinforced masonry walls or cold-form metal studs. Please refer to Concept Scheme C1 below for masonry wall construction. Should it be determined that the demising walls will be constructed of cold-formed metal framing, assume that structural steel HSS braced frames shall be installed within the stud walls at strategic locations. Final locations and quantities of the masonry shear walls and/or braced frames shall be determined during the subsequent design phases.

The heads of any new openings through existing brick or CMU walls will be supported by using loose steel angles. An L5x3 1/2x 3/8 for each 4" of masonry thickness will be detailed for any openings 6'-0" or smaller. For openings 6'-1" to 7'-11" use L6x3 1/2x3/8 for each 4" of masonry. A Wide flange beam will be detailed for any openings larger than 8'-0". The steel will be located for each 4 inches of masonry width.

Structural steel frames will be required under all proposed roof mounted mechanical units. Assume W8x18 frames are required under all mechanical unit curbs. Structural steel frames will also be required for any proposed roof openings, including roof drains. Assume L6x4x3/8 steel frames or Chicago Clamp system.

During the 2022 inspection of the roof by Offshore Construction, Inc., roof leaks were observed. For budgeting purposes, the contractor shall assume 100% replacement of durisol decking and approximately 10% replacement of metal roof deck area due to corrosion or damage. While the 2021 and 2022 roof inspections by Offshore Construction, Inc. did not identify any loose fasteners, the Contractor shall also assume the existing metal roof deck will require supplemental fastening. For budgeting purposes, assume approximately 20% of the roof area will require supplemental fasteners.

All structural steel elements (i.e. dunnage, lintels, relieving angles, etc.) exposed to weather shall be hot-dipped galvanized.

Additions/New Construction

Please refer to Concept C Structural Narrative for a description of the new construction components.

Concept B - Renovate with Large Addition

Mechanical Narrative

Overview

Concept B consists of renovating the existing building with a large additional wing and the demolition of the music wing/auditorium.

Concept B MEPFP narratives are divided into two Concept schemes:

A1 – Code Compliant
A2 – Enhanced Sustainability

Mechanical Narrative
Concept B1 - Code Compliant

Building Loads:

- Cooling Load: 325 tons (3900 MBH)
- Heating Load: 4750 MBH
- Ventilation: 43,000 CFM of outside air

Systems

Refer to Concept A1.

Phasing

Phase 1:
In the first phase of design, a new mechanical room is to be provided, either in the new wing, below it, or adjacent to it. New high-efficiency condensing natural gas boilers are to be provided in the mechanical room with associated equipment and accessories, and a main distribution loop provided throughout and capped and valved at new wings and proposed riser locations for future use.

The new wing is to be provided with a DOAS unit to serve all classrooms, offices, and administrative areas for ventilation, with an independent RTU to provide heating, cooling, and ventilation to the multi-purpose room. A VRF system is to be installed with a dedicated indoor unit supplying each space.

Phase 2-4:
Refer to Concept A1 for continued phasing except for Phase 5.

Phase 5:
Remove all mechanical equipment serving this portion of the building prior to demolition. Remove any and all existing equipment remaining from other phases including steam and hydronic piping, boilers, rooftop equipment, valves, and accessories.

Mechanical Narrative
Concept B2 - Enhanced Sustainability

Building Loads:

- Cooling Load: 290 tons (3480 MBH)
- Heating Load: 3800 MBH
- Ventilation: 43,000 CFM of outside air

Systems

The systems serving Concept B2 are similar to those serving Concept A2, although approximately 130 geothermal bores would be required.

Phasing

Phase 1:
In the first phase of design, a new mechanical room is to be provided, either in the new wing, below it, or adjacent to it. New GSHPs tied into the new ground source loop are to be installed in the new mechanical room and provided with a four-pipe HW/CHW main distribution

loop throughout the crawl space of the original Long Lots building, capped, and valved at new wings, and proposed riser locations for future use.

The new wing is to be provided with a rooftop DOAS unit and ductwork to provide ventilation to all areas. The building perimeter is to be provided with radiant panels in areas of potential high heat loss, and four-pipe fan coil cassette type units are to be provided to supply heating and cooling to the spaces.

Phase 2-5:
See Concept A1 phasing plan. Phasing will be similar, with four-pipe fan coil units in place of VRF indoor units. Provide perimeter radiation/radiant panels in areas of high heat loss.

Concept B - Renovate with Large Addition

Electrical Narrative

Electrical Narrative
Concept B1 - Code Compliant

Systems

Refer to Concept A1.

Phasing

Refer to Concept B1, except for Phase 5, which is getting completely demolished, so all electrical systems are to be removed.

Electrical Narrative
Concept B2 - Enhanced Sustainability

Systems

Refer to Concept A2.
Service will be set-up with capabilities for connection to a 225 kW PV solar system. PV solar system equipment and distribution system will be housed in a separate electrical room.

Phasing

Similar to Concept A1 phasing.

Concept B - Renovate with Large Addition

Plumbing and Fire Protection Narrative

Plumbing Narrative
Concept B1 - Code Compliant

The systems and phasing serving Concept B1 are similar to those serving Concept A1.

Plumbing Narrative
Concept B2 - Enhanced Sustainability

The systems and phasing serving Concept B2 are similar to those serving Concept A2.

Fire Protection Narrative
Concept B1 - Code Compliant

The systems and phasing serving Concept B1 are similar to those serving Concept A1.

Fire Protection Narrative
Concept B2 - Enhanced Sustainability

The systems and phasing serving Concept B2 are similar to those serving Concept A1.

Reed School
+ Partners

Concept Paths C, D & E

New Construction

Concepts C, D and E - New Construction

Overview

The New Construction approach involves the construction of a new school building of approximately 126,000 SF on the property, followed by the demolition of the existing building and potential relocation of site elements.

The new construction strategies focus on two-story schemes which provide the required at-grade egress for young students as well as necessary proximity to entrances for assembly and administrative areas. Preliminary review of a three-story approach reduced efficiency and access within the school and did not produce a notable reduction in school footprint.

This concept path includes narratives and pricing for the following energy strategies:

C1 - Code Compliant

C2 - Enhanced Sustainability

For the purposes of this report, three site locations have been tested to compare various opportunities and challenges for siting the building as well as for the existing gardens and recreational uses of the property.

C - Center of Site

D - Alternate Site Location North

E - Alternate Site Location South

Benefits

1. Most efficient building footprint - occupies less of the site overall
2. Most opportunity for fully meeting all Ed Spec requirements, square footages and adjacencies
3. Most opportunity for lowering energy costs
4. Lower impervious surface area
5. Lengthened parent loop pulls stacking off Hyde Lane
6. Stepping Stones and Long Lots are housed in one building, allowing for sharing of resources
7. Various site and building configurations are possible
8. Does not rely on any aging building slabs, structural elements or infrastructure
9. Phasing allows for full building occupancy approximately 18 months from the start of construction, including the Stepping Stones Preschool

Challenges

1. With the flexibility offered by new construction, various configurations of the site are possible. The next phase of design will require continued study to determine the appropriate balance between the school's needs, as well as for the athletic fields, Community Gardens, Long Lots Preserve, traffic, and neighborhood concerns.

Concept C - New Construction

Cost Summary

See Appendix A for full Estimate

		Concept C1 Code Compliant	cost/SF	Concept C2 Enhanced Sustainability	cost/SF
Construction Costs					
Construction	$	50,060,030	$ 398.19	$ 54,203,160	$ 428.58
Sitework	$	7,403,865	$ 58.60	$ 7,988,865	$ 63.23
Demolition and Abatement of Existing	$	2,579,520	$ 20.41	$ 2,579,520	$ 20.41
Short Term Repairs of Existing	$	-	$ -	$ -	$ -
Contingencies - Design & Construction	$	6,802,610	$ 53.84	$ 7,334,052	$ 58.04
CM Costs	$	4,538,945	$ 35.92	$ 4,740,516	$ 37.66
Escalation	$	8,707,894	$ 68.92	$ 9,375,169	$ 74.20
Subtotal Construction Costs	$	80,092,864	$ 633.87	$ 86,230,282	$ 682.44
Soft Costs					
Subtotal Soft Costs	$	12,013,930	$ 95.08	$ 12,013,930	$ 95.08
Total Project Costs	$	92,106,795	$ 728.95	$ 98,244,211	$ 777.53

Concept Aerial

Concept C - New Construction

Site Plan

PARKING SUMMARY

PASSENGER CARS = 175 SPACES

PARENT LOOP = 422 CARS

BUS LOOP = 415 BUSES

Concept C-Alt Site - New Construction

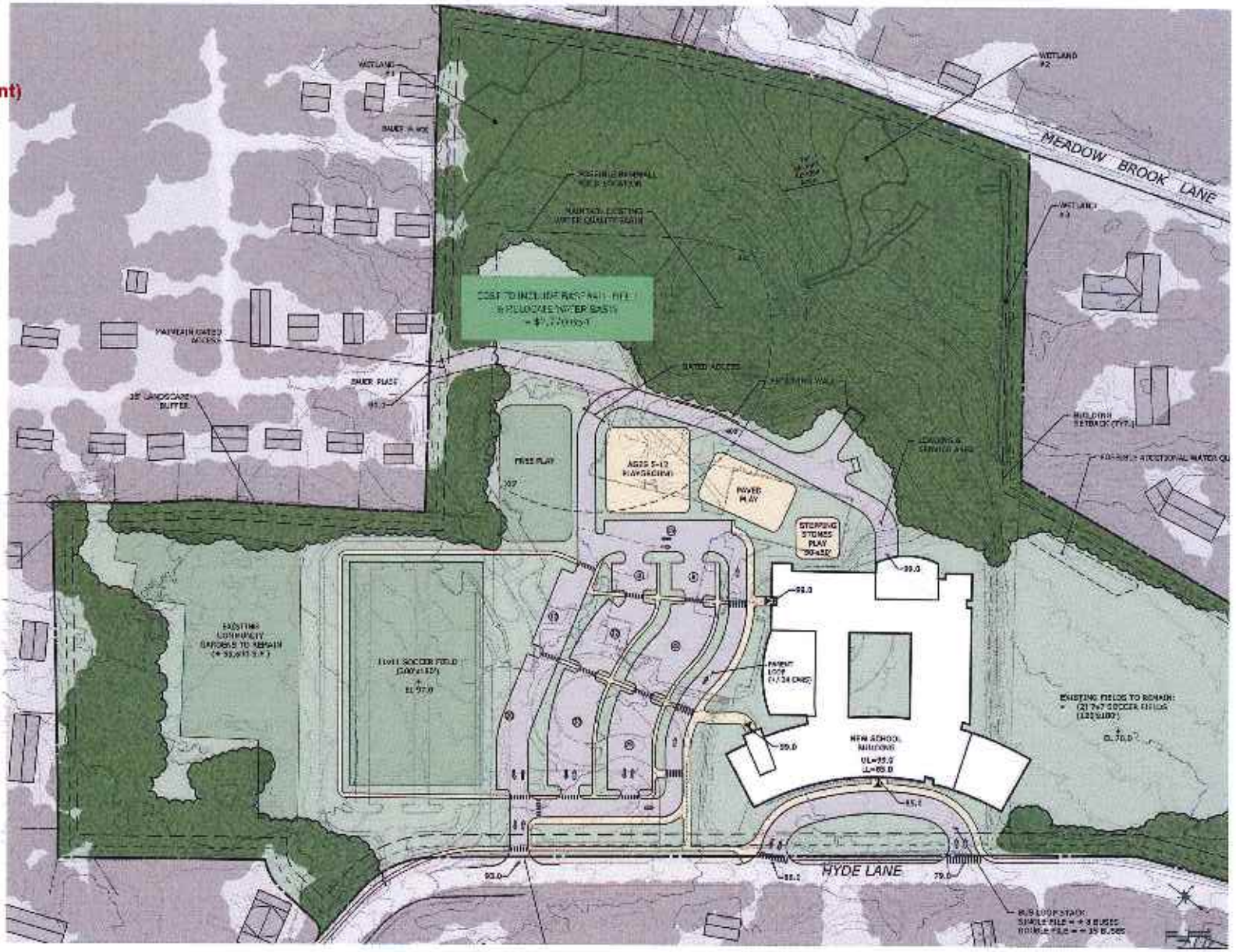
Site Plan (Alternate field arrangement)

PARKING SUMMARY

PASSENGER CARS = 175 SPACES

PARENT LOOP = ±22 CARS

BUS LOOP = ±15 BUSES



Concept C - New Construction

Floor Plans

126,355 GSF Total

LOWER LEVEL

54,444 GSF

FIRST FLOOR

71,911 GSF

COLOR FILL LEGEND	

0' 10' 40' 100'

SCALE: 1" = 80'-0"

VIGALS + PARTNERS

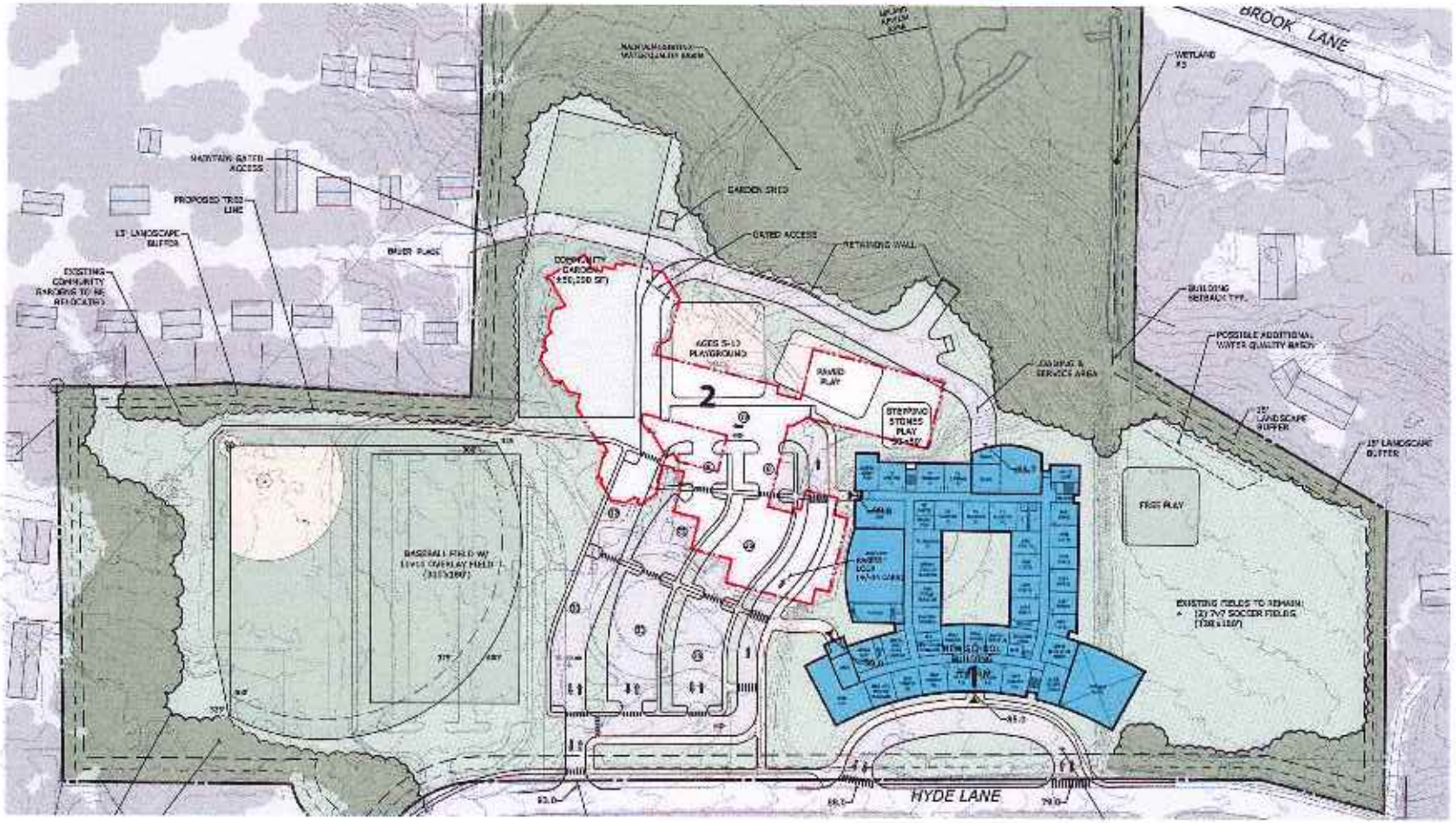
Concept C - New Construction

Phasing and Timeline

PHASING TIMELINE

Month: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Phase 1 | Phase 2



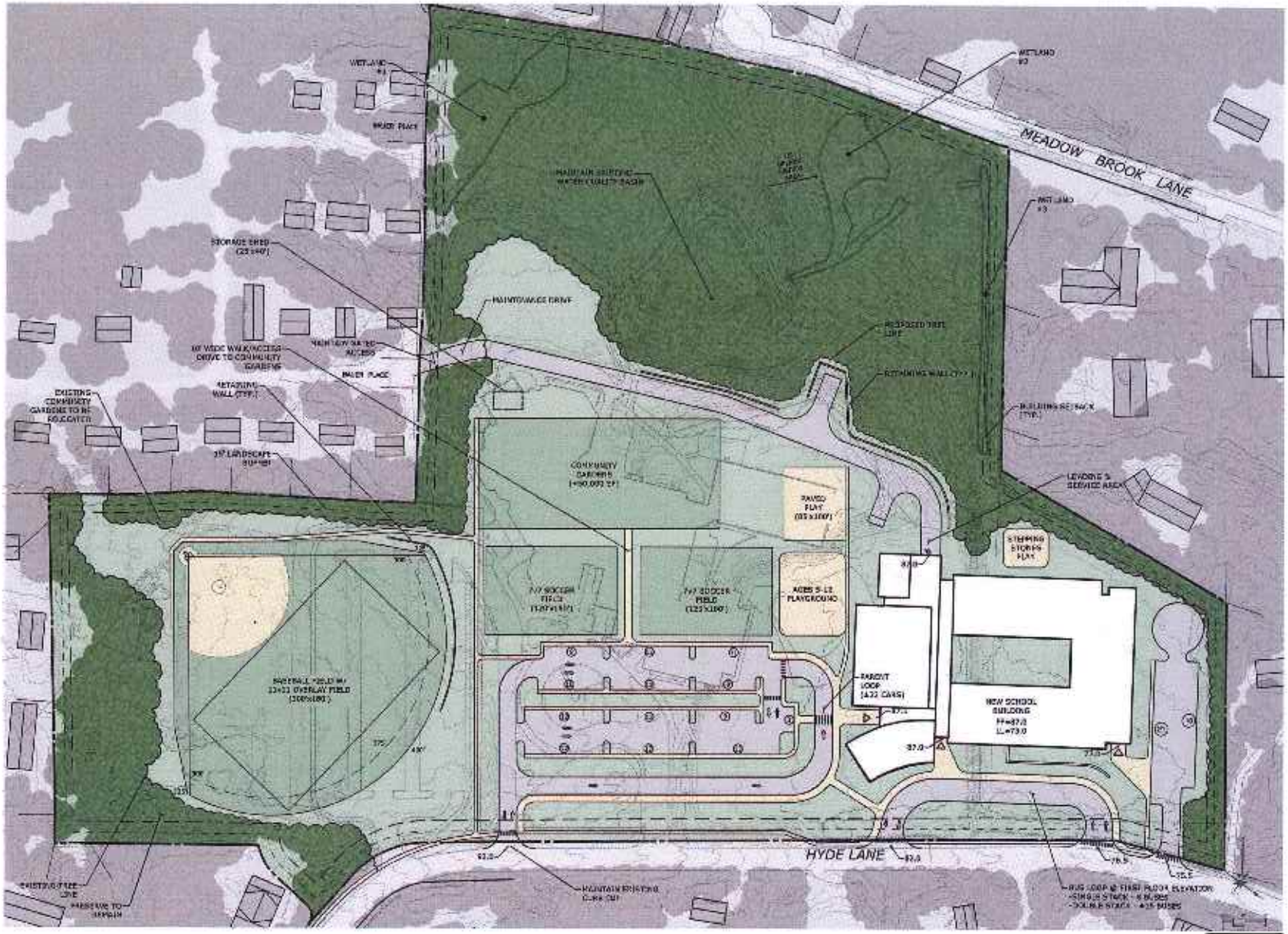
Concept D - New Construction North
Site Plan

PARKING SUMMARY

PASSENGER CARS = 175 SPACES

PARENT LOOP = ±22 CARS

BUS LOOP = ±15 BUSES



Concept D - New Construction North

Floor Plans

126,665 GSF Total

COLOR TILL LEGEND	
	[illegible]
	[illegible]
	CAFETERIA
	[illegible]
	CLASSROOM
	RESTROOMS
	VERTICAL CIRCULATION
	BUILDING SUPPORT

LOWER LEVEL

47,438 GSF

FIRST FLOOR

79,227 GSF

0 15' 40' 100'

SCALE: 1" = 80'-0"

Concept E - New Construction South
Site Plan

PARKING SUMMARY

PASSENGER CARS = 176 SPACES

PARENT LOOP = ±22 CARS

BUS LOOP = ±15 BUSES

Concept E - New Construction South

Floor Plans

135,271 GSF Total

COLOR FILL LEGEND

	ADMIN
	ASSEMBLY
	CAFETERIA
	CIRCULATION
	CLASSROOM
	FACILITIES
	GENERAL CIRCULATION
	MULTIPURPOSE

LOWER LEVEL

79,159 GSF

SECOND FLOOR

48,006 GSF

BASEMENT FLOOR

8,106 GSF

0' 13' 40' 100'

SCALE: 1" = 80'-0"

Concepts C, D and E - New Construction

Structural Narrative

Structural Approach

The proposed new construction is a one/two-story building, approximately 126,738 GSF in area, consisting of a reinforced concrete slab-on-grade at the lower and main floor levels, with a conventional steel-framed structure for a portion of the upper floor level and roof.

Soils Conditions

A final geotechnical report providing recommendations for the proposed system, excavation and backfilling requirements is required prior to commencing with the design of the building foundations. Based on the preliminary geotechnical report prepared by GNCB, dated June 22, 2023, and for the purposes of this narrative, a maximum soil bearing capacity of 5 ksf has been assumed. Refer to the referenced geotechnical report regarding the presence of existing fill material and subgrade preparation.

Typical Foundation Walls (excluding retaining walls)
Typical foundation walls are assumed to consist of 1'-4" reinforced concrete walls on continuous 3'-0" wide x 1'-0" thick spread wall footings. A continuous shelf is required at the exterior walls to support a perimeter veneer. Refer to the architectural drawings for locations. Walls and footings shall be constructed using 4,500 psi concrete. All footings exposed to frost, shall be placed a minimum of 3'-6" below finished grade. The wall reinforcing is assumed to consist of #5@16"o.c. vertical each face with matching footing dowels and #4@12"o.c. horizontal with (2)-#5 continuous horizontal bars top and bottom. The longitudinal footing reinforcing shall be (3)-#5 continuous. All wall reinforcing shall have Class "B" laps at splices and corner bars.

Exterior columns: Exterior columns shall be supported on reinforced concrete piers supported on reinforced concrete spread footings.

Interior columns: Interior columns shall be supported on isolated reinforced concrete piers and/or isolated reinforced concrete spread footings.

All building foundation retaining walls shall be designed during the subsequent design phases.

Elevator Shaft: The elevator shaft is assumed to be constructed over a reinforced 5ft deep cast in place concrete pit foundation with sump. The shaft walls above shall consist of reinforced 8" concrete masonry units (full height) reinforced with #5@32"o.c. vertical and 9ga. horizontal wall reinforcing spaced at 8"o.c. All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at each floor and roof level with steel lintels installed for all wall openings. If the elevator manufacturer does not include a hoist beam in the elevator package, provide a W8x21 hoist beam. Provide bearing plates at each end of the hoist beam, bearing on reinforced and grouted masonry cores.

Slab on Grade

The typical floor slabs on grade are assumed to be 5" thick normal weight concrete slab (3,500 psi) reinforced with 6x6-W2.9xW2x.9 welded wire fabric supported on continuous steel wire chairs. Macro/Micro fiber reinforcement may be substituted for the welded wire fabric reinforcement. Provide (2)-#5 reinforcing bars at all re-entrant corners in the slab. The slabs on grade shall be placed over a 15 mil vapor retarder on a compacted processed aggregate base material. All concrete for the slabs on grade receiving an adhesive applied floor finish shall have a moisture vapor reducing admixture to control the transmission of moisture vapors thru the slab. Floor depressions, as well as any areas of specialized floor finishes shall be located and specified by the Architect.
Provide 2'-0" wide x 1'-0" thickened slabs beneath all interior masonry walls not specified to require continuous wall footings. Thickened slabs shall be reinforced with (2)-#5 continuous longitudinal bars.

Masonry walls

Exterior masonry walls and shear walls shall consist of reinforced 8" concrete masonry units reinforced with #5@32"o.c. vertical and 9ga. Horizontal wall reinforcing spaced at 8"o.c. All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at each floor and roof level with steel lintels installed for all wall openings. Reinforced thickened concrete slabs or shallow concrete walls and footings shall be required to support the HSS columns. Interior non-load bearing masonry walls shall consist of concrete masonry units, thickness to be specified by the Architect, reinforced with #4@48"o.c. vertical and 9ga. Horizontal wall reinforcing spaced at 8"o.c. All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at the top of wall, with steel lintels installed for all wall openings. Reinforced thickened concrete slabs shall be required beneath masonry walls.

Stairwells: Stairwell walls shall consist of reinforced 8" concrete masonry units reinforced with #5@32"o.c. vertical and 9ga. horizontal wall reinforcing spaced at 8"o.c. All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at each floor and roof level with steel lintels installed for all wall openings. Reinforced thickened concrete slabs or shallow concrete walls and footings shall be required beneath masonry walls.

Unbraced two-story masonry walls (Gymnasium/Cafeteria): All unbraced two-story masonry walls are assumed to be reinforced 12" concrete masonry units reinforced with #5@32"o.c. vertical and 9ga. horizontal wall reinforcing spaced at 8"o.c. All masonry cores containing reinforcing shall be grouted solid. Continuous reinforced bond beams shall be installed at each floor and roof level with steel lintels installed for all wall openings.

Supported Floor Framing

The typical supported floor construction is assumed to be 3" normal weight concrete floor slab (3,500 psi) on a 2 inch, 18 gage galvanized composite metal floor deck (total slab depth = 5") reinforced with 6x6-W2.9xW2x.9 welded wire fabric supported on continuous steel wire chairs. Macro/Micro fiber reinforcement may be substituted for the welded wire fabric reinforcement. The metal decking shall be supported on steel framing consisting of composite steel beams and girders supported by steel columns. The concrete for the supported slabs receiving an adhesive applied floor finish shall also have a moisture vapor reducing admixture.

Typical Roof Construction

The typical roof construction shall consist of 20 gage, 1.5 inch galvanized metal roof deck on steel beams and/or joists, supported by steel girders, supported by steel columns. The roof loading will include the design for any proposed mechanical equipment, as well as a potential photovoltaic panel system. The locations of the mechanical equipment shall be coordinated with the mechanical engineers during the subsequent design phases.

The Gymnasium and Cafeteria roof construction shall consist of 20 gage, 3 inch galvanized acoustical roof deck on open web steel joists and steel girders, supported on steel columns. The roof loading will include the design for any proposed mechanical equipment.

Structural steel frames will be required under all proposed roof mounted mechanical units. Assume W8x18 frames are required under all mechanical unit curbs. Structural steel frames will also be required for any proposed roof openings, including roof drains. Assume L6x4x3/8 steel frames or Chicago Clamp system.

Structural Steel

Shall be fabricated and erected in accordance with the current AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. During this early design phase, we would estimate the steel tonnage for the structure to be approximately 11 lbs. per square foot.

All structural steel elements (i.e. dunnage, lintels, relieving angles, etc.) exposed to weather shall be hot-dipped galvanized.

Lateral Load Resisting System

Based on the current architectural design, laterally stability shall be achieved utilizing concentric steel braced frames and/or intermediate reinforced masonry shear walls.
The braced frames are assumed to consist of structural steel rectangular HSS sections spanning between steel columns at strategic locations to be coordinated during the design development and construction document phases.

Contractor Design Responsibilities

The contractor shall retain the services of a professional engineer registered in the State of Connecticut to perform the design of the following:

1. Structural steel connections, including bracing and moment frames
2. Cold-formed metal exterior wall framing and joists
3. Prefabricated truss design (if utilized)
4. Stair stringer and landing design
5. Temporary shoring of excavations and structures.
6. Mechanical equipment curb attachment to steel framing.

All calculations and drawings shall be signed and sealed by the contractor's engineer and submitted for review.

Concepts C, D and E - New Construction

Mechanical Narrative

Overview

Concept C is the new construction option.

MEPFP narratives are divided into two concept schemes:

C1 - Code Compliant
C2 - Enhanced Sustainability

Mechanical Narrative
Concept C1 - Code Compliant

Building Loads:

- Cooling Load: 290 tons (3480 MBH)
- Heating Load: 4200 MBH
- Ventilation: 39,000 CFM of outside air

The systems serving Concept C1 are similar to those serving Concept A1.

Mechanical Narrative
Concept C2 - Enhanced Sustainability

Building Loads:

- Cooling Load: 260 tons (3120 MBH)
- Heating Load: 3400 MBH
- Ventilation: 39,000 CFM of outside air

Provide a system of approximately 115 geothermal bores at 500 fL deep. Each bore will require 400 SF for a total of 50,000 SF of site area located in the field as to not impact the building footprint or community gardens.

In the mechanical room, there will be the geothermal pump set and piping, which will provide geothermal supply and return water distribution throughout the school. Geothermal distribution will serve decentralized heat pumps in interior mechanical rooms throughout the school, which will generate hot and chilled water or tempered air dependent upon space type.

DOAS units will be installed within the building in dedicated mechanical rooms and will serve all nearby classrooms, offices and corridors. These centralized units shall be equipped with energy recovery wheels, and HW/CHW coils to temper the ventilation air before supplying to the space. HW/CHW shall be generated by nearby decentralized water to water heat pumps.

Classrooms will be provided with heating and cooling via nearby decentralized ducted multi-zone water to air heat pumps fitted with zone dampers. Smaller spaces such as offices will utilize hot and chilled water generated by decentralized heat pumps to feed cassette-type units.

The Kitchen/Cafeteria area and Gymnasium will each utilize a VAV packaged RTU with a HW/CHW coil to provide heating, cooling and ventilation air to the spaces.

Mechanical Narrative
Concept D - Alternate Site North

Refer to Concepts C1-C2 for system types. The location of the school should not effect mechanical systems.

Mechanical Narrative
Concept E - Alternate Site South

Building Loads - Code Compliant:

- Cooling Load: 300 tons (3600 MBH)
- Heating Load: 4500 MBH
- Ventilation: 39,000 CFM of outside air

Building Loads - Enhanced Sustainability:

- Cooling Load: 275 tons (3120 MBH)
- Heating Load: 3600 MBH
- Ventilation: 39,000 CFM of outside air

Provide a system of approximately 120 geothermal bores at 500 ft. deep. Each bore will require approximately 400 SF for a total of 50,000 SF of site area located in the field as to not impact the building footprint.

Refer to concepts C1-C2 for all other mechanical information.

Concepts C, D and E - New Construction

Electrical Narrative

Electrical Narrative
Concept C1 - Code Compliant

The electrical systems in Concept C1 are similar to those in Concept A1 except the electrical distribution system will be located in the new main electrical room in the new building.

Electrical Narrative
Concept C2 - Enhanced Sustainability

The electrical systems in Concept C2 are similar to those in Concept A2 except the electrical distribution system will be located in the new main electrical room in the new building.

Service will be set-up with capabilities for connection to a 550 kW PV solar system. PV solar system equipment and distribution system will be housed in a separate electrical room.

Concepts C, D and E - New Construction

Plumbing and Fire Protection Narratives

Plumbing Narrative
Concept C1 - Code Compliant

The domestic cold water supply system will enter the building through a newly located water service room from the underground distribution system. The water main will be sized to serve all building areas. The service entrance will be equipped with a water meter and duplex backflow preventers. The water supply will be coordinated with the utilities.

The sanitary main discharge will exit the building to onsite systems in new locations and be piped to 5'-0" outside the building wall. The exact location will be coordinated with the utilities. There will be new sanitary and vent piping provided to all plumbing fixtures and kitchen with a grease interceptor similar to Concepts A1 and B1.

New distribution piping will be looped throughout the facility to serve fixtures and other equipment devices. Isolation valves will provide zone control for the system, with pressure zones required to accommodate water pressure requirements on each floor.

Non-potable cold water will be distributed throughout the facility with provisions for hook-up to flushing fixtures such as water closets and urinals.

The hot water supply will be generated by two (2) gas-fired water heaters each sized to handle the complete load. A dedicated 140 deg. F hot water supply and return piping system will be provided to supply hot water to commercial kitchen equipment and fixtures. Hot water supply piping will be re-circulated from the remote ends of the system and returned to the water heaters to maintain the system temperature. Re-circulation loops will be provided with circulator pumps, operated by immersion aquastats.

HVAC make-up water supply will be supplied from a domestic water system and equipped with reducing backflow preventers.

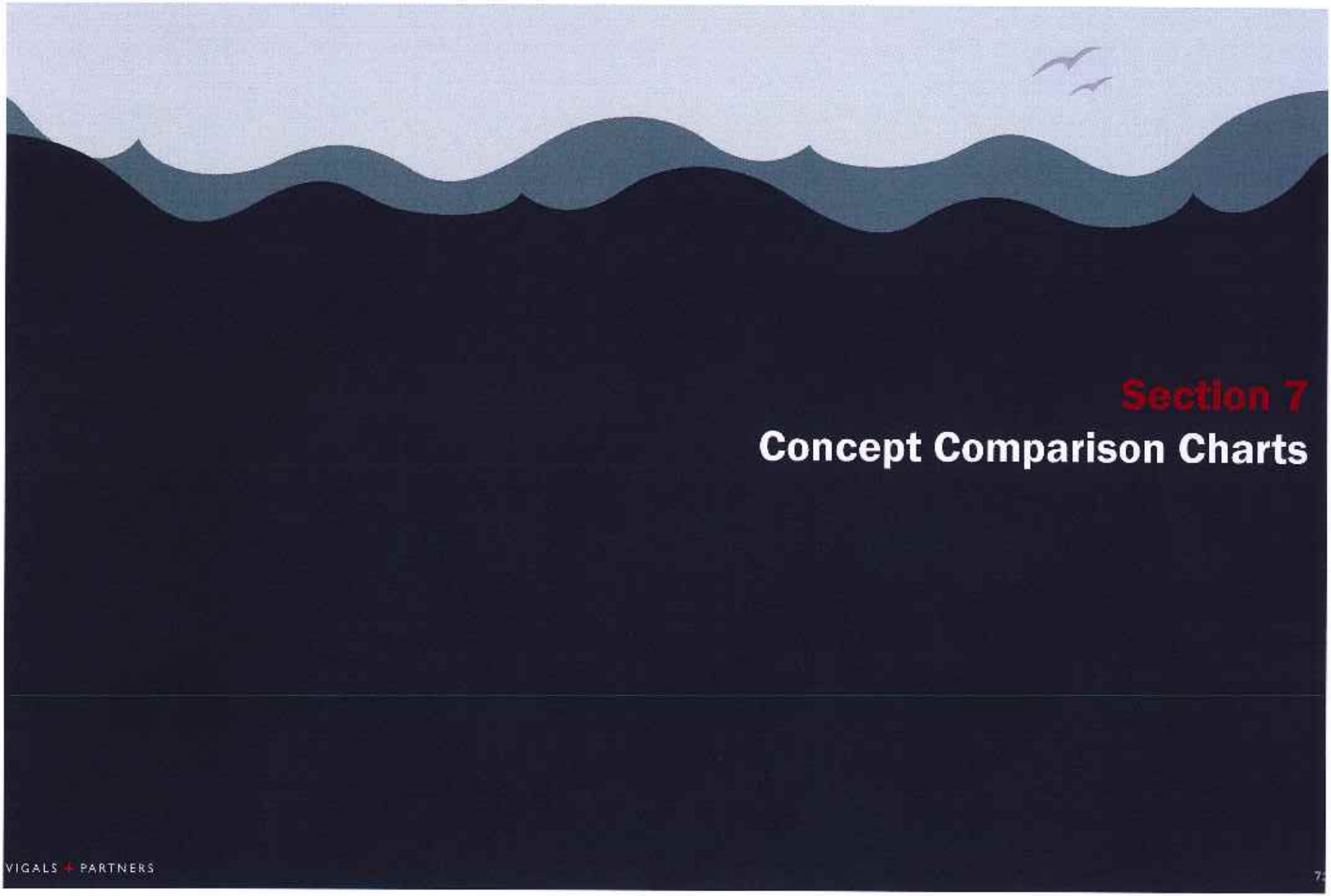
A radon prevention system will be provided. A passive soil depressurization system consisting of under-slab suction pits, radon vent piping, and provisions for the roof exhaust fan will be required for all slab areas.

Plumbing Narrative
Concept C2 - Enhanced Sustainability

All domestic water systems will be similar to Concept C1, except domestic hot water will be generated by geothermal water-to-water heat pumps with electric, storage type water heaters.

Fire Protection Narrative
Concepts C1 and C2

Similar to Concept A1.



Section 7
Concept Comparison Charts

Comparison of Costs and Timing

	Total Cost	Cost/sf	Demolition Cost	Number of Phases	Project Duration	Time to Full Occupancy	Projected Reimbursement*	
Concept A - Renovate as New								
A1 - Code Compliant	$ 107,521,424	$ 694.91	$ 5,012,522	6	30 Mos.	30 Mos.	21%	
A2 - Enhanced Sustainability	$ 114,881,196	$ 742.47						
Concept B - Renovate as New with Large Addtion								
B1 - Code Compliant	$ 105,676,776	$ 736.60	$ 4,102,359	5	29 Mos.	29 Mos.	11-21%**	
B2 - Enhanced Sustainability	$ 112,286,452	$ 782.67						
Concept C - New Construction								
C1 - Code Compliant	$ 92,106,794	$ 728.95	$ 2,579,520	2	26 Mos.	18 Mos.	11-21%**	
C2 - Enhanced Sustainability	$ 98,244,211	$ 777.53						
Concept C (ALT Site) - New Construction								
C1 - Code Compliant	$ 94,391,252	$ 747.03	$ 2,579,520	2	26 Mos.	18 Mos.	11-21%**	
C2 - Enhanced Sustainability	$ 100,528,669	$ 795.60						
Concept D - New Construction Alt Site North								
D1 - Code Compliant	$ 91,770,411	$ 724.51	$ 2,579,520	2	26 Mos.	18 Mos.	11-21%**	
D2 - Enhanced Sustainability	$ 97,908,206	$ 772.97						
Concept E - New Construction Alt Site South								
E1 - Code Compliant	$ 91,535,218	$ 719.81	$ 2,579,520	2	26 Mos.	18 Mos.	11-21%**	
E2 - Sustainability	$ 98,523,766	$ 774.77						

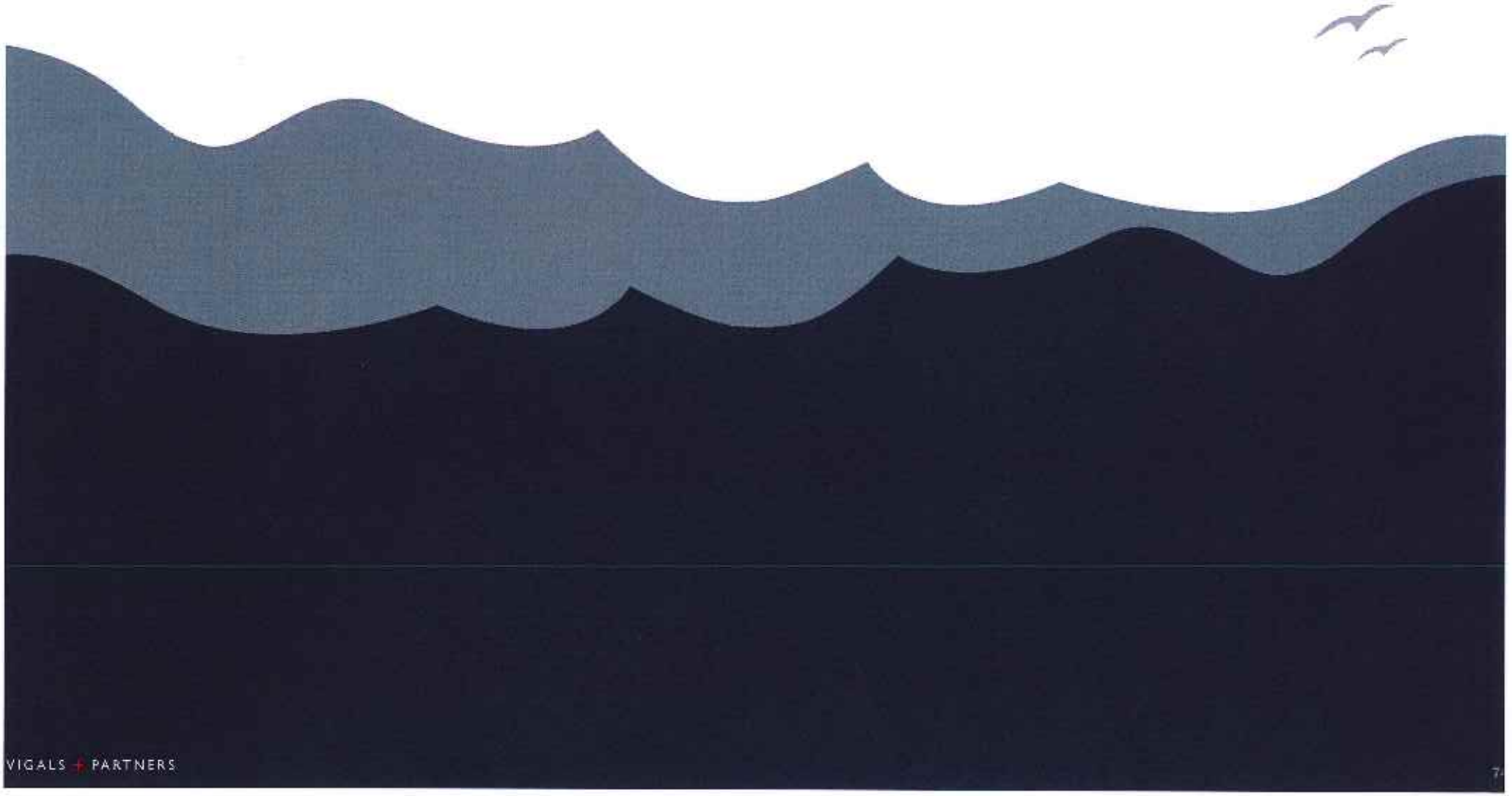
* Reimbursement percentage is applicable to allowable square footage only (projected to be approximately 95,000 square feet)

* * Higher percentage possible if new construction is demonstrated to be less costly than renovation

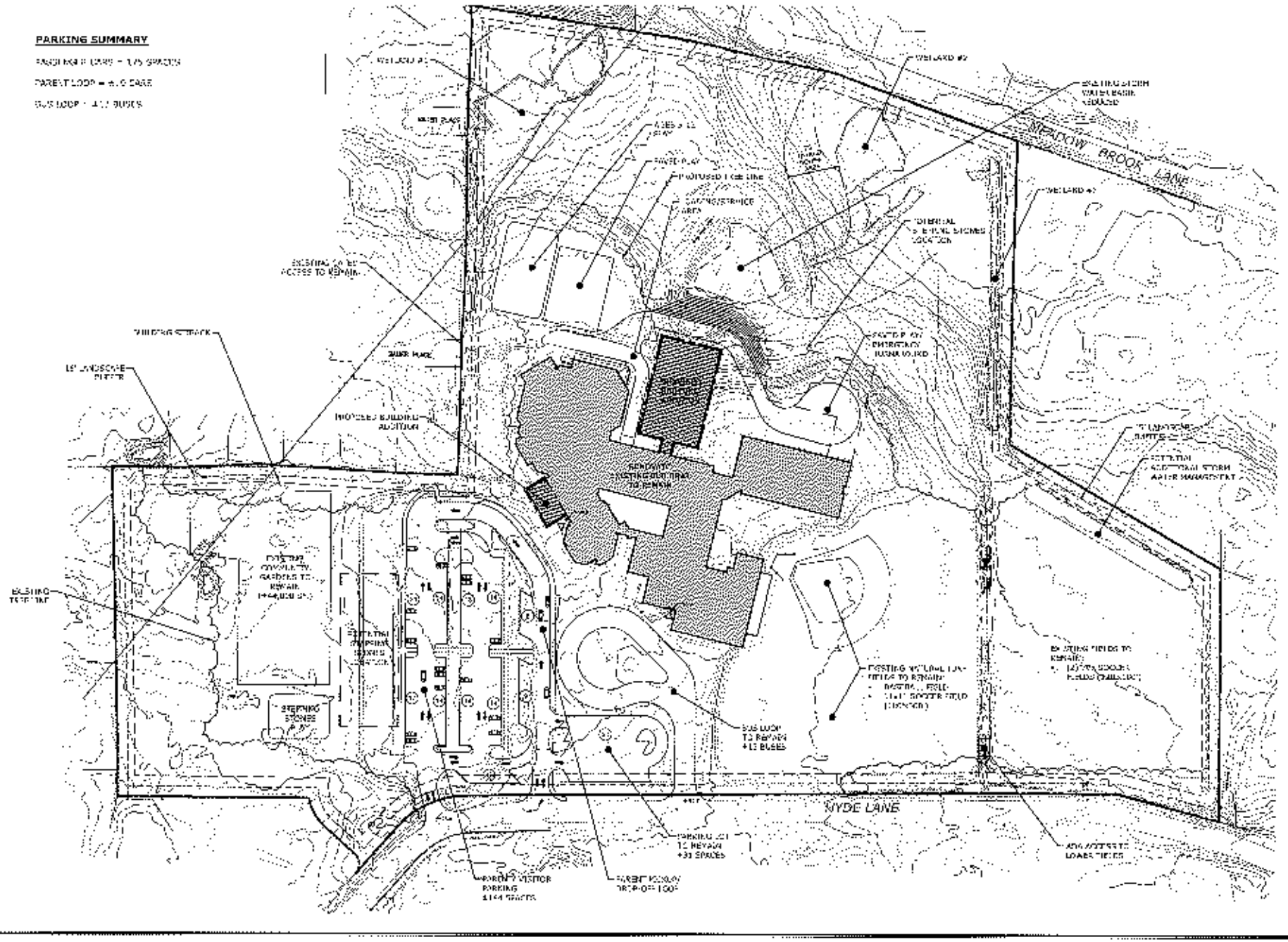
Comparison of Features

	Meets Ed Spec	Estimated Range EUI*	Net Zero	Maintains all Fields	Meets Rec Program	Distance to Nearest Property Line	Community Gardens	
Concept A - Renovate as New								
A1 - Code Compliant	NO	40-45 Kbtu/SF/yr	NO	YES, as-is	NO	75 ft	Remain as-is	
A2 - Enhanced Sustainability		20-24 Kbtu/SF/yr						
Concept B - Renovate as New with Large Addtion								
B1 - Code Compliant	YES	40-45 Kbtu/SF/yr	NO	YES	YES	110 ft	Relocate on site	
B2 - Enhanced Sustainability		20-24 Kbtu/SF/yr						
Concept C - New Construction								
C1 - Code Compliant	YES	35-40 Kbtu/SF/yr	POSSIBLE	YES	YES	145 ft	Relocate on site	
C2 - Enhanced Sustainability		18-22 Kbtu/SF/yr						
Concept C (ALT Site) - New Construction								
C1 - Code Compliant	YES	35-40 Kbtu/SF/yr	POSSIBLE	YES, see plan for added costs	YES, see plan for added costs	145 ft	Remain as-is	
C2 - Enhanced Sustainability		18-22 Kbtu/SF/yr						
Concept C4 - New Construction Alt Site North								
C4.1 - Code Compliant	YES	35-40 Kbtu/SF/yr	POSSIBLE	YES	YES	46 ft	Relocate on site	
C4.2 - Enhanced Sustainability		18-22 Kbtu/SF/yr						
Concept C5 - New Construction Alt Site South								
C5.1 - Code Compliant	YES	35-40 Kbtu/SF/yr	POSSIBLE	YES, as-is	YES	65 ft	Relocate on site	
C5.2 - Enhanced Sustainability		18-22 Kbtu/SF/yr						

* Estimated Energy Use Intensity (EUI) Based on Similar Projects. Lower EUI may be achievable with expanded use of photovoltaic as well as adjustments based on Energy Modeling


VIGALS + PARTNERS

Appendix B
Full Size Civil Drawings

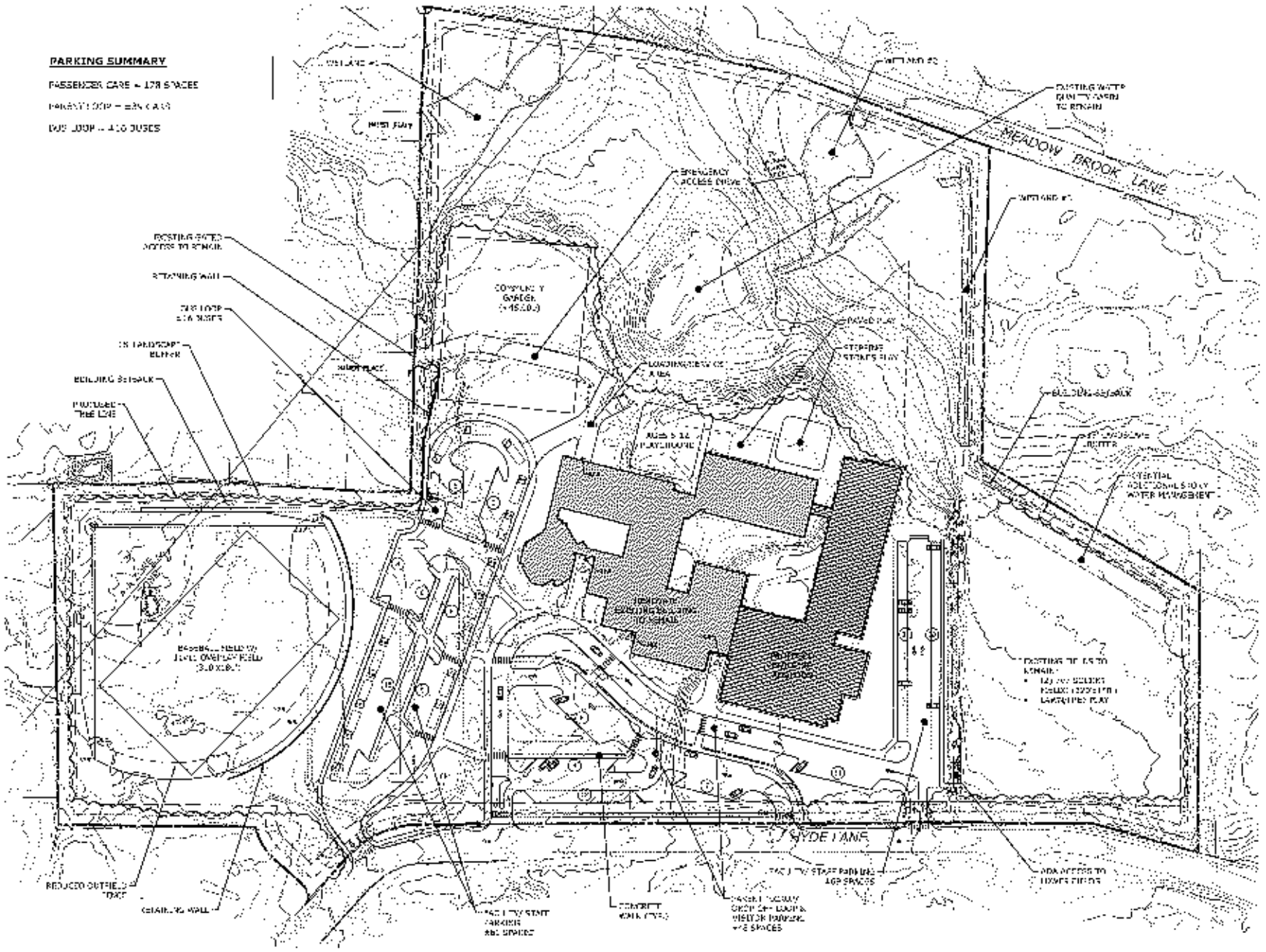


SEE PLAN - DOWNSPOUT A

LONG LOTS ELEMENTARY

SLR

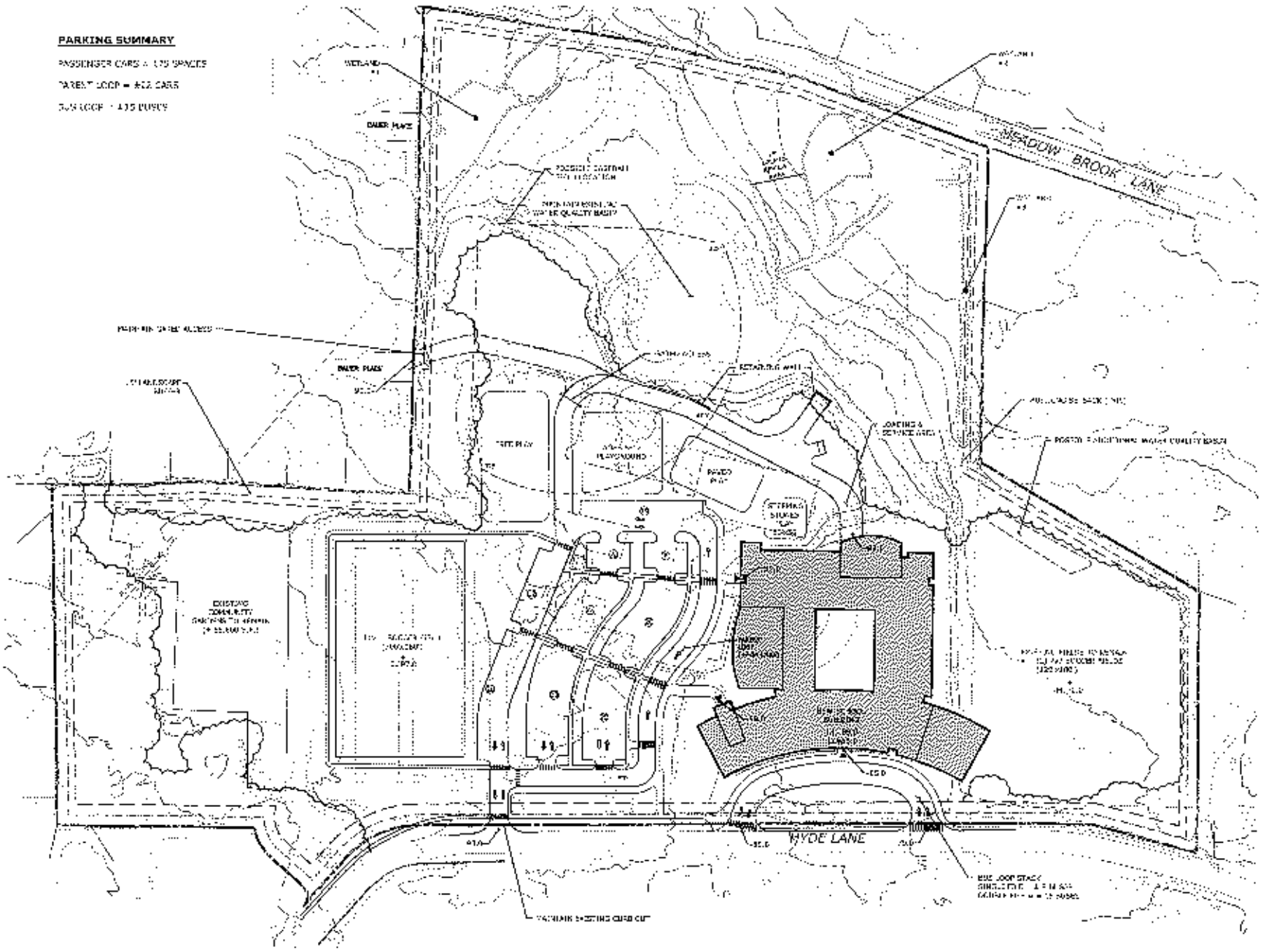
SP-A

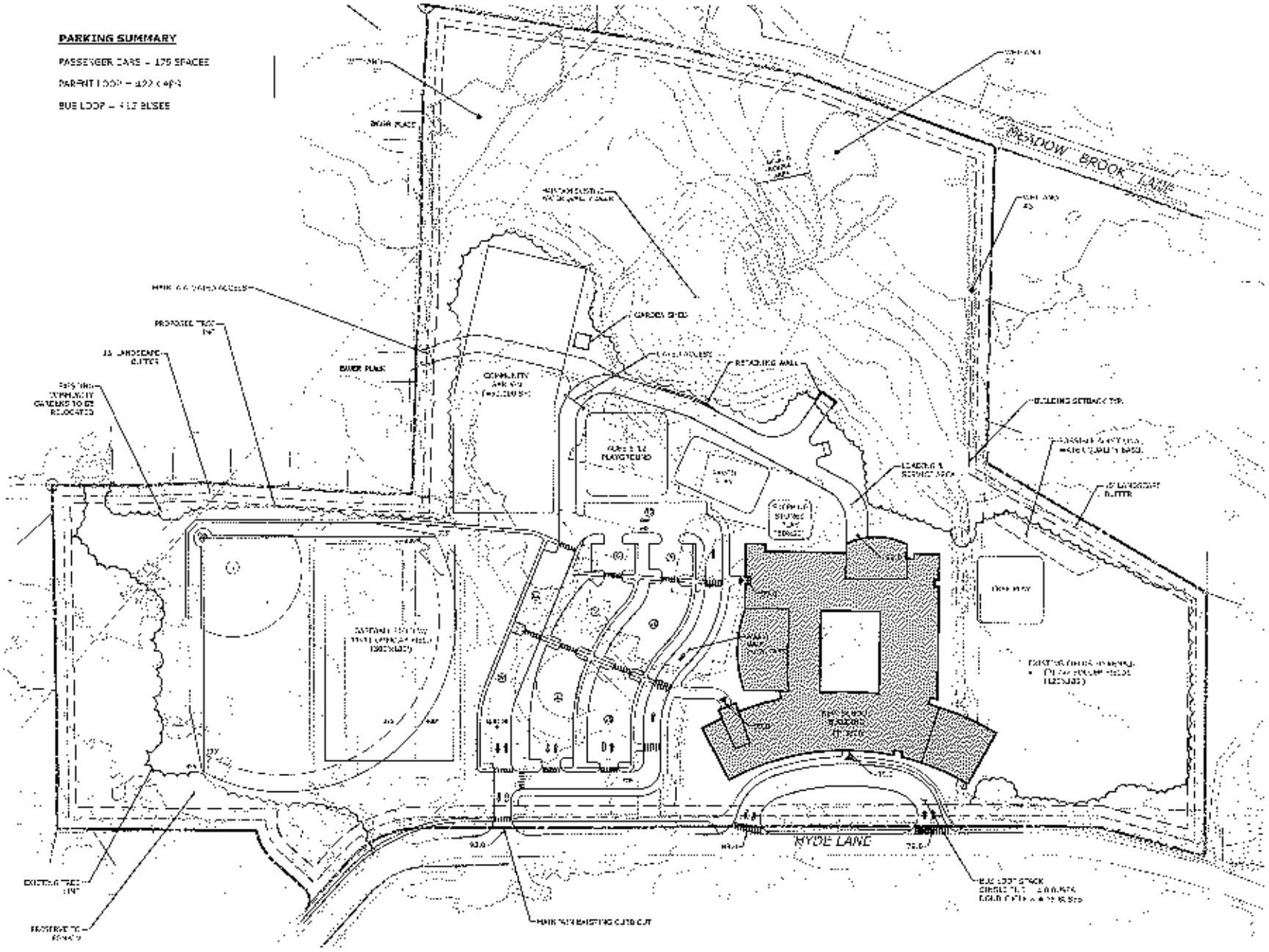


SITE PLAN - CONCEPT B1

LONG LOTS ELEMENTARY

SP-B


PARKING SUMMARY
PASSENGER CARS = 170 SPACES
"PARENT" LOOP = 402 CARS
BUS LOOP = 435 BUSES
WETLAND
BAUER PLACE
MEADOW BROOK LANE
BAUER PLACE
HYDE LANE
SP-C-ALT



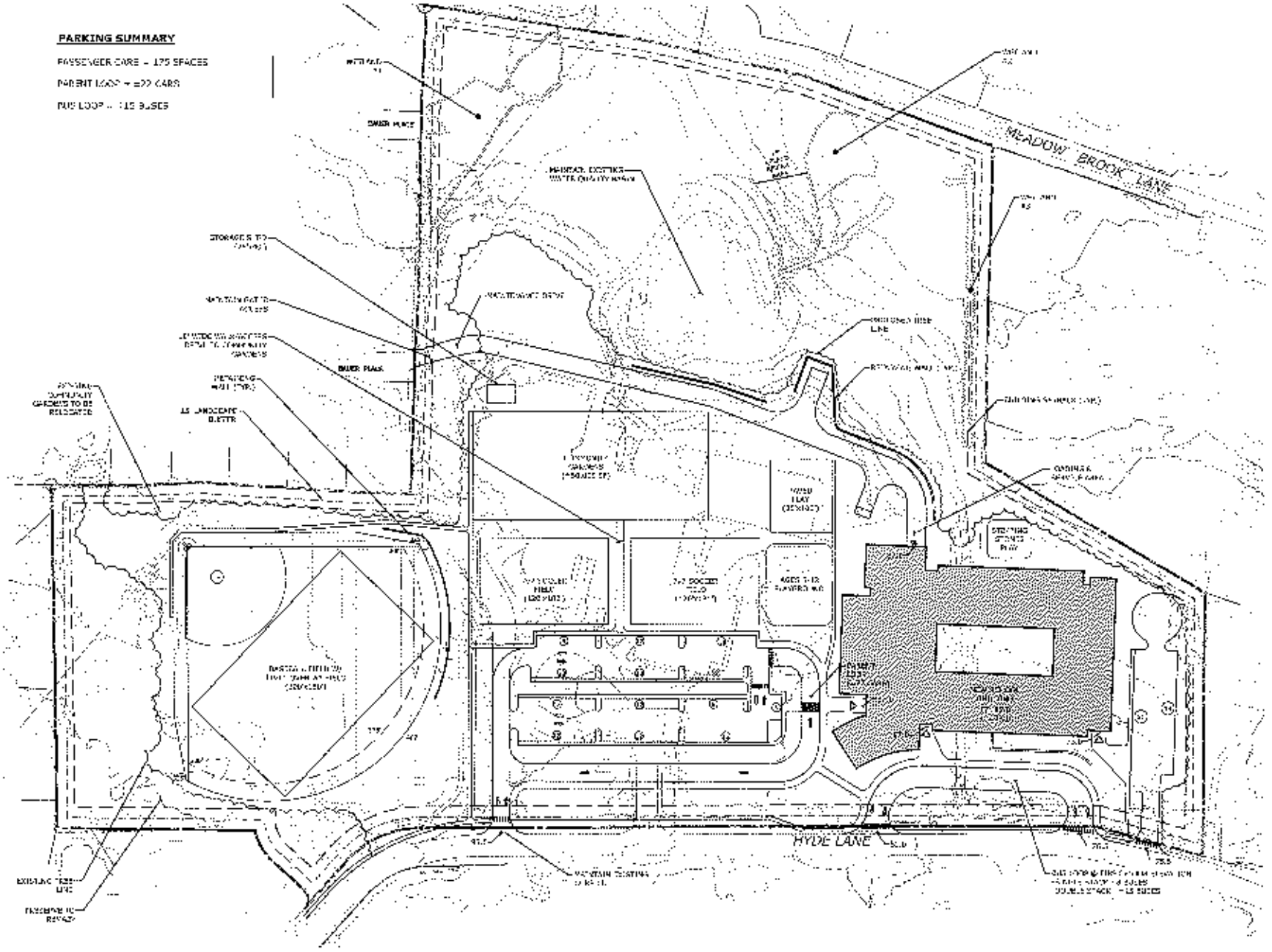
SITE PLAN-CONCEPTUAL

LONG LOTS ELEMENTARY SCHOOL

TAPPAN LANE
WESTPORT, CONNECTICUT

AUGUST 21, 2025

SP-C

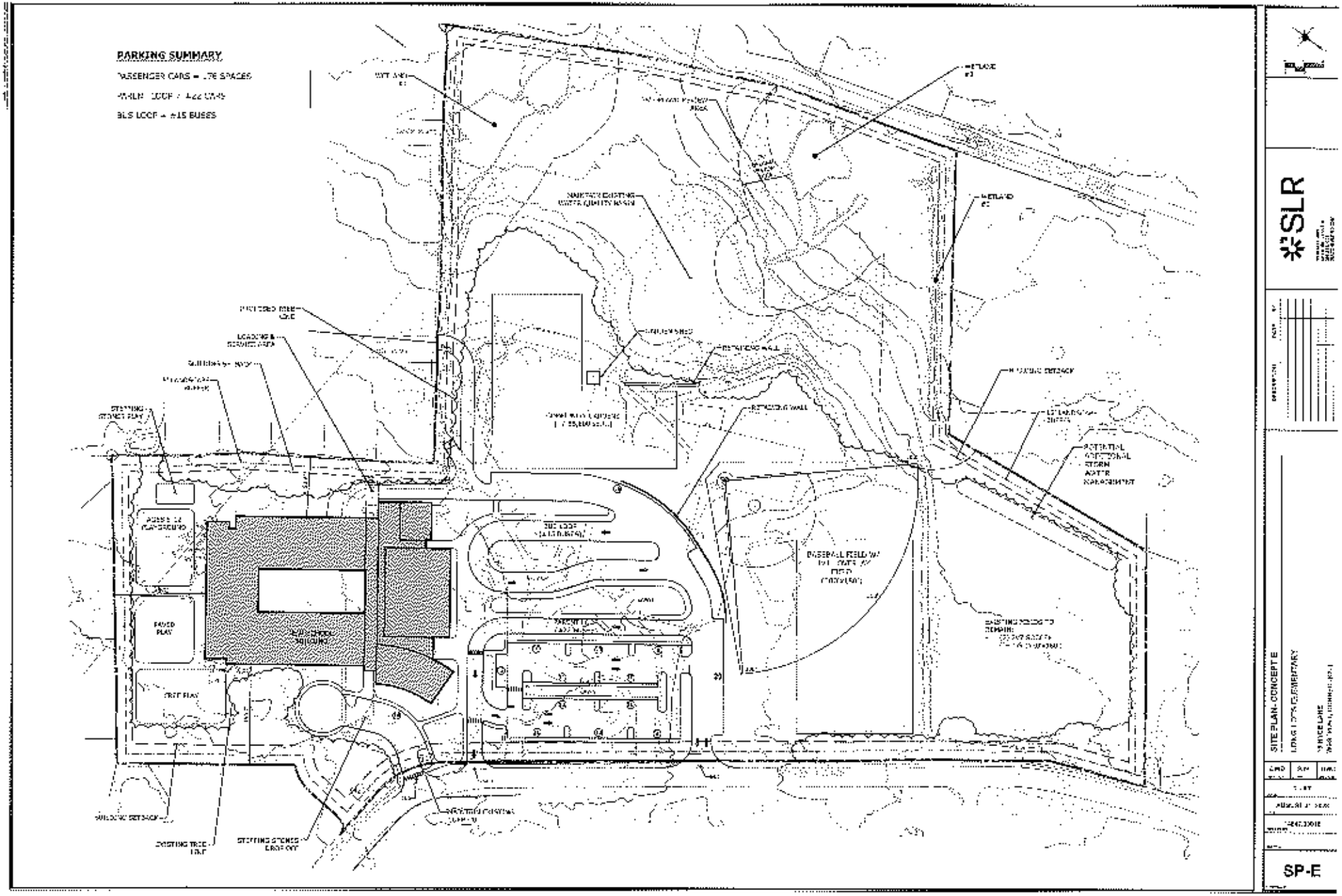


SITE PLAN - CONCEPT D

LONGFELLOW ELEMENTARY

AUGUST 21, 2020

SP-D


PARKING SUMMARY
PASSENGER CARS = 176 SPACES
WHLN LOOP = 422 LINS
BLS LOOP = 415 BUSES
WETLAND #1
WETLAND #2
EXISTING WATER QUALITY BASIN
RETAINING WALL
BUILDING SETBACK
POTENTIAL ADDITIONAL STORM WATER MANAGEMENT
BUS LOOP
BASEBALL FIELD W/ OUTFIELD FENCE
PAVED PLAY
TURF PLAY
EXISTING TREE LINE
STAGING STONES DROP OFF
SITE PLAN- CONCEPT E
SP-E