SCHEMATIC DESIGN REPORT

Chebeague Island School

May 21, 2017

Michael Pulsifer

Superintendent

Chebeague Island School Department

BRUNNER ARCHITECTS

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ARCHITECTS

May 21, 2017

Mike Pulsifer, Superintendent
Chebeague Island School
14 School house Road
Chebeague Island, ME 04017

RE: Chebeague Island School Renovations – Schematic Design Submittal

Dear Mike,

I am pleased to submit our Schematic Design Phase documents for the proposed facility improvements to the Chebeague Island School.

This work is a follow on study to previous work recently undertaken by the School Committee to evaluate existing facility conditions and evaluate a proposed range of improvements to the school.

Through our work on the project, we have defined the following goals to be achieved:

1. Bring the school facility into compliance with current building codes for the purpose of maintaining student safety and creating a healthy environment for learning.
2. Maximize educational opportunities with building space improvements that enhance student learning processes and improve staff working conditions.
3. Implement building improvements that extend the life of the building, minimize maintenance, and reduce overall energy use for lower operational cost and greater environmental responsibility.

With the involvement of the Committee, school staff and some community input, we believe the suggested improvements represented in these documents responds to the school's criteria and needs.

This package of information is intended to assist the committee further define the scope of the project and associated budget, in the interest of garnering community support and securing necessary funding to proceed with the project.

The design work to date is of a preliminary nature, intended for use as described above. Once project the project scope is determined, more detailed design work can proceed with permitting and construction documents.

Thanks again for the opportunity to work with you on this project.

Sincerely,

David Brunner, AIA

List of Work preceding this report

- Facility Condition Study, Stephen Blatt Architects; July 21, 2015
- Space Allocation Workbook, Brunner Architects; received via email Feb 23, 2016
- Energy Evaluation Report, BuildingWorks LLC; March 21, 2016
- Preliminary Building Concepts and Site Planning Studies, Brunner Architects; May 24, September 6, and November 1, 2016
- Comparisons of Probable Costs, Brunner Architects: November 4, 2016

Summary of Work

The design team for this Schematic Design Report includes the following subconsultants:

- Jay Moran, Pinkham and Greer, Structural Engineers
- Steve Bennett, Steve Jonason, Bennett Engineering, Mechanical and Electrical Engineers
- Claire Betze, BuildingWorks LLC, Energy Consultant
- Tom McArdle, TJM Consulting, Inc., Food Service Consultant

Some budgeting help was provided by Kevin Rideout of Rideout & Turner, Inc. with regard to local pricing, constructability review, and discussion of island-related construction issues.

Building Location Survey work was contracted directly by the school and performed by Bruce Bowman.

Task 1: Gather additional information

- Collected as-built information for the building and site, including a review of ongoing building location survey work
- Performed additional Zoning Research and inquiries with the Chebeague Island Code Enforcement Officer and island Fire Chief regarding zoning and building code parameters for the project
- Site visit by the consultant team on February 6/7, including more detailed building investigations, existing equipment inventory and program review with more detailed educational and functional discussions with staff members

Task 2: Develop Building Design and Systems Alternatives

- Further development of Alternative Concept B, a two-classroom addition off the rear of the building. More detailed interior improvements including administration area, kitchen, and classroom improvements. Review of structural, mechanical, energy, electrical, and food service alternatives.
- Evaluated upgrade of the existing flat roof vs. the feasibility of new gabled roof trusses. With and w/out attic storage options.
- Investigated alternatives for mechanical and lighting system design approaches, considering cost analyses to aid in decision making
- Perform energy analysis of existing building envelope and assess performance of proposed energy improvement measures. Includes life cycle fuel use.
- Progress Meeting with School Committee, Feb 7, March 21, and April 13 to present design progress and alternatives analysis

Task 3: Schematic Design Report and Project Budget Estimate

- Existing Condition Evaluations and Proposed Work Narratives by discipline
  - Architectural / Structural
  - Mechanical, Plumbing. Electrical
  - Energy Systems
  - Kitchen Design – Notes, layout and Equipment Budget Sheets

- Drawings
  - Site Plan
  - Floor Plans for all levels
  - Roof Plan
  - Building Sections
  - Exterior Elevations
  - Rendering of Building Exterior
  - Structural Design Notes, Drawings, and Details
  - Schematics for Mechanical and Electrical Lighting

- Budget
  - Scope and Budget Summary
  - Budget Summary, Alternatives Summary, and Estimate of Probable Cost
  - Cost backup: Trusses, Envelope/Energy, MEP, Kitchen

Preliminary Project Schedule

Submit final Schematic Design to the School Committee	May 16, 2017
Open House to present findings to community	May 21, 2017
Annual Town Meeting	June, 2017
Secure Funding and	
Proceed with Final Permitting /Construction Documents	July ‘17 thru March ‘18
Project Permitting	March 2018
Bidding and Negotiation	April 2018
Construction	May ‘18 thru Oct/Nov ‘18

Introduction

The Chebeague Island School was originally constructed in 1953. The single floor building is 4,568 SF n size. In the years since, the building has experienced various remodeling, including window and siding replacements, mechanical system improvements (new boiler), roofing repairs, and some miscellaneous interior partitioning changes. Generally, the building is acceptable condition. The purpose of this study is to identify and prioritize the most pressing needs, both in terms of physical plant and educational function issues.

The total student enrollment for the 2016-2017 school year is 27 students and has varied between 24 and 30 students over recent years. Future enrollment projections are difficult to quantify and are dependent on the difficulty in predicting numbers of families moving either to or away from the island. The school accommodates a grade range of Pre-K through 5th grade, after which students commute to the mainland for middle and high school.

With the small enrollment, a multi-grade classroom model is in place. This creates a unique need to have spaces that have the flexibility to work for a variety of uses. Division of lessons, student breakouts, and the ability to have multiple, focused learning activities in each classroom is essential.

Existing Architectural and Structural Conditions

There are currently 4 classroom sized spaces ranging from 440 SF to 750 SF that accommodate Pre-K, K thru 2, 3 thru 5, and Multi-Purpose activities. Generally, these rooms are large enough for the current respective student groups. The Multi-Purpose room accommodates uses ranging from Art & Music to lunchtime eating, as well as a space for larger group meetings.

Storage is a critical need that is commonly emphasized by the staff. The need to have storage systems that allow efficient switching out of learning materials is important with the flexible use classroom arrangements. Storing of general use peripherals such as technology carts, marine tank, tables & chairs, cutting boards, etc. is a constant challenge for staff and students. The classrooms now have a generally open shelving storage that is a challenge to keep organized and has a distracting effect on the learning environment.

A system of central supply and storage could be improved. Teachers tend to acquire their own supplies that may already be provided in other areas of the school.

Specialized education sessions are currently held in two undersized rooms at the front of the school that suffer from inadequate storage. One room must be accessed through the other, which causes additional distractions.

The administrative office space is in the middle portion of the building which is problematic in terms of visitor arrivals, wayfinding, and security control. The use is severely cramped in a small room for 2 people plus files, printers, and copy machine. Superintendent meetings with staff or parents where privacy is necessary must occur in other areas of the school. In general, private meeting spaces are in short supply and compromise the ability to have confidential meetings between staff, students, or parents.

The kitchen is undersized for both food preparation as well as receiving and food storage functions. There are a number of code deficiencies including lack of indirect drains, non-compliant sinks, lack of a UL listed hood assembly at the cooking equipment, and deteriorating countertops. These conditions are grandfathered in their current state, but eventually will develop into potential health and safety hazards. Food is served out of an opening in the wall to the corridor. Adequate serving space requires a table set up in the corridor where students queue up for serving. This is a fire safety/exit clearance problem.

The building is not fully compliant with accessibility and ADA requirements. Two steps at the front entrance are an impediment to the physically disabled. As a public building, it is important to make provisions for equal access and usability where feasible.
The existing flat roof material is nearing the end of its service life and is experiencing localized leaking, noticeably in the 3-5 classroom. Particularly during snow melting weather phases. Ongoing repairs are necessary.

The replacement windows currently in place are of low quality and in disrepair. Many sashes (2 in the 3-5 classroom) don't hold in the open position, held open by sticks, are safety hazards. We suggest investigating a repair solution prior to replacing with new windows. These windows are at least 7-9 years old, double hungs with solid insulated panels above which fit into the original window rough openings. The classrooms have a generous amount of natural light, and the total glass area is more than would typically be in newly built schools today. The classroom ceiling heights are over 10 feet, another unique feature of this school.

The interior is accented nicely with wood finishes that give the building a warm, comfortable feeling. Staff interviews were conducted on February 6/7, 2017. Notes from those discussions are listed in the appendix of this report.

Asbestos is certainly present given the age of the building, and would need to be removed in association with construction disturbance.

The existing 2x14 roof joists at the high roof area over the classrooms are inadequate for their 23 foot span.

Proposed Architectural and Structural Improvements

Suggested improvements included in this report are determined by a critical needs priority and are grouped according to the 3 primary goals for the project.

1. Code Compliance for Health and Life Safety
    - Provide kitchen upgrades, including Health Department requirements for counters, flooring, exhaust hood, plumbing fixtures, grease trap
    - Provide accessible entry (ADA compliant) at the main building entry
    - Upgrade the existing roof structure through either sistering/reinforcing of the existing flat joists, or adding a new trussed gable roof
    - Assess and perform asbestos removal as it becomes exposed during remodeling work

2. Educational Needs
    - Addition of 2 new classrooms for specialized education, 840 SF total add to the building
    - Additional storage along the corridor, accessible for general use
    - Improve kitchen layout, upgrade malfunctioning equipment, and student service functions
    - Relocate the administrative area to the front entry, enlarge the space, and provide reception type function with a private office/meeting room
    - Increase amount and efficiency of educational storage functions

3. Building Life Cycle and Energy Performance
    - Roof replacement
    - Additional Building Envelope energy efficiency, mechanical and electrical issues are addressed in the following sections.

Since the roof membrane needs replacing and the roof joists need upgrading, the school committee expressed an interest in exploring an alternative sloping roof concept. A gabled roof idea has some aesthetic and weatherability benefits, is more representative of traditional school building forms, and helps to create a stronger campus feel with the neighboring Recreation Center. At a 6:12 pitch, a gable roof offers the possibility to utilize the resulting attic for storage. The schematic alternate plan shows a 550 SF storage area in the attic, accessed by a legal stairway.

Based on conversation with Nick Adams, Chebeague CEO, the storage attic is allowable per the building code. Because E occupancy (school) in V-B (wood) type construction is limited to one story in base height, the storage use would be classified as a separate S occupancy. This results in a mixed-occupancy building. A 2-hour fire separation is required between the two uses.
ADA accessible route (elevator) requirements to the attic would be exempt per ADAAG Chapter 4, 206.2.3, Exception #2 where occupant load is less than 5.

Site Related Issues

With the addition of a new airlock entry (energy conservation and accessibility) in conjunction with moving the administration functions to the front of the building (better control and security) the building moves closer to School House Road. The existing building is currently 45'-7" from the Schoolhouse Road property line, which is non-conforming with the 55 foot required front yard setback. The front addition as currently proposed locates it 34'-0" from the property line which will require a variance as part of the Site Plan Review process with the Town. Nick Adams felt this request would have a good argument for approval based on the needs of accessibility, energy efficiency and building control. This is less intrusive than some other alternatives we were considering that suggested larger additions to the front of the building.

With an 18-foot addition off the back of the building, the space between it and the existing Pizza Shelter needs to maintain fire access and fire drive requirements. Preliminary discussion with Fire Chief Monroe indicates this looks to be allowable as drawn, but as the design gets more detailed, final Fire Department review and approvals should be obtained.

Chebeague Island School Renovations
Building Envelope Evaluation

Existing Conditions

Chebeague Island School was constructed in 1953. The building appears solid, but requires a new roof and associated structural reinforcement, as well as some updates. These items are addressed by other members of the project team.

Blower door testing, performed in February 2016, to evaluate overall air infiltration, resulted in 8,205 cfm_{50} or 10.2 $ACH_{50.}$ The building was depressurized to -50 Pascals and the volume of the building was exchanged more than 10 times. This is roughly equivalent to a 33" diameter hole in the building left open at all times. During normal winter conditions, the infiltration would be about 0.54 air changes per hour. An average commercial building would be 0.3 air changes per hour or less.

Insulation levels vary widely and are indicated in the table below.

Location	Insulation		Condition	Effective R Value*	Target R Value
	Type	Thickness			
Roof Assembly	Cellulose	3-16"	Poor - Good	10-15	49-60
Exterior walls	Little - None	2" or less	Unknown	0-5	20-30
Slab on grade	None	-	-	-	20
Foundation walls	None	-	-	-	10

* Calculated using areas of main hallway at R50 and other areas at assumed R11

The combined impact of the freely moving air and variable insulation levels result in a poorly performing building envelope, and subsequent higher operating costs. Substantial opportunity exists to improve energy performance.

Recommendations

1. Air seal and insulate the roof assembly. Tapered polyisocyanurate rigid foam insulation (R49 min) should be installed on the roof deck, if the flat roof is maintained on the building. If the roof configuration is changed with gable trusses, an air barrier should be installed on the underside of the existing roof framing (above the suspended ceiling) and the attic floor should be air sealed and cellulose insulation (14" for R49 min) should be installed. Any storage area should be raised to allow the full height of insulation.

2. Create vestibules at the front and rear entry. Install new doors.

3. Insulate under the new slabs for the Addition and Front Entry areas using 4" of XPS insulation (R20).

4. Insulate the new exterior walls (2x6) for the Addition and Front Entry using dense pack cellulose insulation and 2" foil faced polyisocyanurate insulation, attached to the exterior sheathing using exterior rated screws and heavy duty plastic washers. All seams should be taped with foil tape. This would be an R32 wall assembly. New siding to match existing would be installed.

5. Insulate existing 2x4 exterior walls for the admin, kitchen, bathroom, and boiler rooms in the same manner, for an R25 wall assembly. New siding would be installed on this portion of the building.

6. Insulate the existing foundation for the kitchen, bathroom, and boiler rooms and the new foundation for the Addition on the exterior from the sill plate to the footing using 2" XPS rigid foam, mechanically attached to the foundation, for R10. Cover rigid foam exposed above grade for protection from UV degradation and potential damage.

7. Install new siding for the Addition and replace existing siding for the kitchen, bathroom, and boiler rooms. This allows for an easy transition between the new and/or upgraded areas and the remainder of the building.

8. Insulate the remainder of the existing exterior walls (2x6) using dense pack cellulose insulation and 2" foil face polyisocyanurate rigid foam applied to the exterior sheathing for an R32 wall assembly.

9. Replace existing windows so that the window:wall ratio falls within a range of 15-18%. New windows should have a U value of 0.30.

10. Insulate the existing foundation for the classroom portion of the building on the exterior from sill plate to the footing using 2" XPS rigid foam, mechanically attached to the foundation, for R10. Cover rigid foam exposed above grade for protection from UV degradation and potential damage.

11. Replace siding on the remaining classroom portion of the building.

Projected Energy Savings

Items 1-7, as noted above, form the Core Project, which is a flat attic and roof. Items 1-7 also relate to the Core Project plus Alternates 1 and 2 with Attic, using gable trusses. The attic storage will be unconditioned space. Items 1-11 form the Core plus All Upgrades option.

Total energy use substantially changes as a result of improvements made to the building envelope. Both the heating design load and total amount of heating energy used by the building each year in millions of BTUs (MMBtus) are significantly reduced.

The table below indicates the heating design load and the total heating energy used by each of the options and their relative differences.

Option	Heating Design Load (kBTUs/hr)	Heating Design Load Reduction	Heating Energy (MMBtu/yr)	Projected Fuel Oil Savings (gal/yr)
Existing Building	195.5		147.3	
Core Project	112.8	42%	80.7	480
Core + Alternates 1 & 2 with Attic	109.4	44%	78.1	500
Core + All Upgrades (Alt 4)	54.6	72%	37	790

Upgrading the building envelope significantly reduces the design load, allowing the size of the heating equipment required to be substantially downsized. Although the existing boiler will continue to be utilized for the near to mid-term, the upgrades will allow for alternative technologies to be considered or a new boiler could be downsized by over 50% when replacement is needed.

Upgrades will also reduce the amount of heating energy consumed over the course of the year, thus reducing annual operating costs through fuel oil savings. An annual savings of almost 800 gallons of fuel oil would be saved by upgrading the entire building envelope.

BENNETT ENGINEERING
MECHANICAL • ELECTRICAL

Chebeague Island Elementary School (Grades PreK-5)
14 School House Road
Chebeague Island, ME 04017

Schematic Design Phase

April 3, 2017

1. EXISTING MECHANICAL / PLUMBING SYSTEM OBSERVATIONS

- The domestic water service is from a well with a hydropneumatic tank located in the boiler room.
- The existing 330 gallon oil tank is located in the boiler room.
- The boiler is a Smith Model BB14A-S/W-6 that appears to be in good condition. This boiler has not been manufactured for 12-15 years. Exact age is unknown (estimated at 20+ years) but the boiler plant should have an expected life of 30-35 years. Replacement is not recommended at this time but could be required within the next ten (10) years. A 3-way mixing valve provides a hot water temperature that is reset with the outside air temperature. Each side of the building has a thermostatically-controlled zone pump. Fintube radiation is located behind casework with no access for cleaning.
- A small Fantech HRV has been installed and ducted to all occupied spaces. However, based on the size of the supply diffusers, airflows appear to be very low, +/-25-40 cfm each. There is one diffuser in each classroom plus corridors and Multipurpose Room. Current codes would require airflows of approximately 250-300 cfm per classroom.
- There is a tankless domestic water heating coil on the boiler and a small 120V. instantaneous electric heater for use when the boiler is shut down in warm weather. This instantaneous heater has very little heating capacity and is unlikely to heat the water to 115F. if normal flow rates occur.
- The masonry chimney appears to have a clay tile liner but may not be structurally sound. Replacement with a double-wall stainless steel chimney is recommended.
- A water softener should be added to the well water system.
- The kitchen does not have an exhaust hood. LP gas is used for the cooktop and convection oven. There is a dishwasher with an electric booster heater.
- Piping is not insulated.
- The bathrooms do not appear to have mechanical exhaust.

END OF MECHANICAL / PLUMBING SYSTEM OBSERVATIONS

2. EXISTING ELECTRICAL SYSTEM OBSERVATIONS

- The building has a new fire alarm system that is monitored by Cunningham Security Systems, however there is no intrusion detection system.
- Exit signs are unlighted. The battery emergency lighting units appear to be in good condition.
- The electrical service is 100A, 240V-1 Phase. The main panel and sub panel located in the kitchen appear to be new and in good condition.
- Fluorescent Lighting appears to be adequate and in good condition.
- Lighting controls are switching only.
- A small portable generator is connected to a manual transfer switch for back-up power to the heating system when there is a power failure.

END OF ELECTRICAL SYSTEM OBSERVATIONS

3. POTENTIAL MECHANICAL / PLUMBING SYSTEM IMPROVEMENTS

- Provide an appropriately sized storage type electric water heater for summer use and to deliver water at an adequate temperature for the new dishwasher / electric booster. The existing instantaneous water heater has very limited capacity and should be removed from service.
- A Fantech HRV has been installed and ducted to all occupied spaces. However, based on the size of the supply diffusers, airflows appear to be very low, +/-25-40 cfm each. There is one diffuser in each classroom plus corridors and Multipurpose Room. Current codes would require airflows of approximately 250-300 cfm per classroom. We suggest that individual ERV's be provided above the ceiling in each classroom and the existing HRV be removed. The ERV's should be Mitsubishi Lossnay, Daikin, or equal. Outside air and exhaust air can be ducted thru the roof or exterior louvers. The ERV's shall be capable of providing 15-20 cfm per student but can be controlled from CO_2 to reduce ventilation rates when CO_2 readings are below the setpoint. Provide a hot water duct coil for each unit for space heating. Remove the existing fintube radiation and provide separate zone controls for each classroom. The same system would apply to the new classrooms. This approach will comply with the IECC 2009 and ASHRAE Standard 62.
- There is a tankless domestic water heating coil on the boiler and a small 120V. instantaneous electric heater for use when the boiler is shut down in warm weather. This instantaneous heater has very little heating capacity and is unlikely to heat the water to 115F. if normal flow rates occur. We recommend that an electric storage water heater be installed in series with the tankless coil on the boiler so the boiler can preheat the incoming hot water during the heating season and the electric water heater can provide adequate hot water year-round. The instantaneous water heater should be removed because it has limited heating capacity but represents a significant electrical load.
- Provide a new double-wall stainless steel chimney to replace the existing masonry chimney.
- The new kitchen will have a UL-listed Class I exhaust hood and fire suppression system. A new UL-listed upblast roof fan will be provided. A gas-fired make-up air unit should be provided.
- Insulate existing piping where accessible per the 2009 IECC.
- Add mechanical exhaust to the bathrooms with motion detectors for actuation.

- The new entrance vestibules should have hot water heaters installed.
- Air-to-air heat pumps have been considered but are not recommended for the following reasons:
  1. Relatively high first cost, especially in consideration of the requirement for a new electrical service to meet the higher electrical power requirements of a heat pump system.
  2. The existing generator would no longer be adequate for back up to maintain the heating capability of the system. A much larger generator would be required.
  3. The school doesn't appear to have a need for mechanical cooling.
  4. Specialized technicians may be required periodically to perform maintenance and parts may not be readily available, especially for an island community.

END OF MECHANICAL / PLUMBING SYSTEM IMPROVEMENTS

4. POTENTIAL ELECTRICAL SYSTEM IMPROVEMENTS

- The existing non-lighted exit signs should be replaced with LED type featuring battery backup.
- The lighting fixtures in the building are fluorescent type. Install LED lighting in the buildings classrooms and offices for energy savings.
- Provide motion sensors in common areas for further energy savings.
- The existing exterior building fixtures should be replaced with new more efficient LED fixtures for added security and energy efficiency.
- Install intrusion detection system for added security.
- Provide electrical systems for the new kitchen equipment and lighting for the new Attic Storage space along with smoke detectors, as required.
- Efficiency Maine rebates may be available for lighting related improvements.
- For add alternate consideration, a proposal is included to upgrade the electrical service panel capacity from 100A to 225A 1-phase 3-wire. This involves removal of the existing main panel, installation of new 225A panel, new secondary conductors from utility meter, new larger meter socket on exterior of building and re-termination of existing loads on new circuit breakers.

END OF ELECTRICAL SYSTEM IMPROVEMENTS

Chebeague Island School Renovations
Kitchen/Food Prep
Feb 16, 2017

Notes:
Based on school visit Feb 6&7, 2017

School Staff Contact:
Laura Summa – prepares meals for kids and staff; also responsible for some admin tasks, such as central storage and supply management
laurasumma@hotmail.com
School phone # 207-846-4162

Laura has a firm commitment to serving good nutritious food, as fresh as possible; some of it sourced from the gardens on the school site. She has a great recycling program going that's educating the kids about food waste.

It is noted that cooking for students and staff is done at the School. A convection oven (Blodgett Dual Flow) and a two burner unit (Montague Grizzly) that utilizes propane are the primary workhorses. The cooking equipment seems to be adequate according to Laura. If new, equipment w/ 4 burners would be plenty. The convection oven is well-used and indispensable.

A commercial grade dishwasher (Jet Tech F-18DP) is used for dish washing, with pots and pans generally washed by hand. There is currently a two-compartment sink at the wash station, with direct drain. The health department has been lenient on the school and willing to overlook things based on "grandfathering." Food prep counter surfaces are generally plastic laminate that is showing damage and delamination in some areas.

If a 3-compartment sink is provided, its desirable to have a basin large enough for large pots. Wall mounted drying racks are desired.

Two reach-in freezers (True Models T-23 and T-49F) and one glass display merchandiser (True GDM-35) are currently used for refrigeration. **NOTE: The smaller of the freezers, True Model T-23, has stopped working and is currently only used for dry storage based on discussions with Laura Summa on 2/7/2017. The frequency of requested service calls is getting old, and the expense of such is being questioned, vs. investment in new equipment.**

The freezers and merchandiser should be assessed for future service life. Evaporator coils should be cleaned and gaskets on doors should be checked. Electrical monitoring of this equipment is recommended to determine consumption as a percentage of total electrical loads and to evaluate cost effectiveness of upgrading to more efficient equipment.

There is currently a pass thru to the central corridor when children queue up and are served. A table has been added on the corridor side of the pass thru to serve as addition needed serving surface.

Most everyone seems favorable about switching the food serving to a counter (with roll-down) opening directly into the multi-purpose room, where the kids eat their lunches.

Additional wall shelf storage was requested.

A “work area” for laptop layout and meal planning would be great.

Providing the island with castors is important for flexibility of moving.

A washer/dryer would be nice for general washing – cloth napkins are used.

Dry food storage needs to be expanded/made more efficient.

A new grease trap will be required by code. Steve Doel; suggests an exterior (1000 gal.) in-ground tank with discharge line to the existing septic tank.