# WASHINGTON ENGINEERING

# Point Hudson Building Assessment and Maintenance Program

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# EXECUTIVE SUMMARY

This assessment represents a comprehensive study of the Point Hudson Property located in Port Townsend, Washington as requested by the Port of Port Townsend in conjunction with taking possession of the facility after being leased to a management organization for a period of many decades.

Due to the importance of categorizing the findings of this assessment into fundamentally three categories:

1. Existence of Hazardous Conditions, and Potentially Hazardous Conditions
2. 'Best Case' Conditions – Significant Systems Rehabilitation
3. Conditions Affecting Specific Buildings and Site Components

These categories each contain specific recommendations and observations, the nature of which depends to a degree on actions that are implemented by the Port.

**Air Quality/Asbestos/Safety Issues**

Due to continuing concerns regarding air quality issues, and the incidence of asbestos in specific buildings [the Duplex, the Commander's Bed and Breakfast, the Cupola Building, the Motel, the Main Building, and the Shower Building], Washington Engineering recommended the Port of Port Townsend conduct a study to confirm or deny earlier studies. This recommendation was adopted, and the firm of EHS-International was hired to perform a Safety and Health Screening Survey of Pt. Hudson Facilities; Cupola House, Commanders House, Main Building-Pavilion, Duplex Laundry/Shower Building (Boat Slip Owners), Motel. See references (i) and (j).

This study confirmed that air quality issues associated with creosote do not represent any measurable health hazard, but rather present an 'odor' problem for specific occupancies. Recommendations regarding these are presented in sections dealing with specific buildings.

**Structural Stability Study**

Washington Engineering is recommending a further structural study for the Armory Building. This is due to concerns regarding differential settlement observations, and structural movement observed as a part of this report. As of the date of this report, this study has not been conducted.

**Outcome of the Decision Making Process**

Much of this report deals with conditions that depend further on the outcome of decisions regarding specific issues. An example would be a decision regarding the Heating and Ventilation Replacement, and Insulation Recommendations regarding specific buildings. Adopting one type of heating approach over another will affect the results of insulation strategies, window strategies, and electrical systems.

**Cost Issues**

Projected Expenditures are presented in Section V, and a Cost Estimate is presented in Attachment 'B.'

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# I. SCOPE/PURPOSE

The purpose of this study is to:

A. Identify all significant deficiencies of these properties, and to estimate the scope for correcting them, and to estimate the value of the work corresponding to this scope of work.
B. Illustrate the deficiencies, the findings, and the cost estimates for these properties so that they may be incorporated into a comprehensive plan for properties owned by the Port of Port Townsend.
C. Prioritize findings for establishing action items that in turn can be incorporated into a maintenance program for purposes of establishing budgeting.
D. Provide observations regarding the functional nature of the site, the circulation system, the pedestrian connections, the public utility systems and the relationship of the site with Port Townsend as landmark properties.
E. Provide recommendations for these properties, based on economic and life cycle costing comparisons and anecdotal findings, for purposes of evaluating occupancy suitability, and property disposition.

This study does not address the following items, which are beyond the scope of a property condition assessment:

- In-depth structural calculations. This level of activity is normally required during remediation design due liability constraints, building department requirements, and similar detail oriented activities.
- Building department, or planning department review. The fire department was interviewed briefly and issues including typical hose length, and response conditions, as characteristics of the site and several of the buildings are included within this report.
- Utilities availability, or adequacy other than those reported as a anecdotal information or as observed to be at capacity. This information was included within this report.
- Line item construction cost estimating.

# II. FACILITY HISTORY AND DESCRIPTION

**Introduction**

The construction of Point Hudson was a systematic, and single time construction event that culminated in a facility that has prevailed for over sixty years. The site, utilities, and constructed systems [buildings, streets, landscaping] have been modified over the past six decades to varying degrees of success. While many of the original systems and construction methods remain un-altered and as a result can be addressed in broad terms, individual buildings, modifications, and subsequent changes in occupancy point to unique situations that will be addressed as the condition of individual buildings. Those issues that are critical for specific buildings will be discussed in following sections, and focused on those buildings.

The following discussion represents generalized discussion regarding various specific topics as they apply to Point Hudson over-all.

**Existence of Hazardous Conditions, and Potentially Hazardous Conditions**

The following conditions appear to represent a significant, and urgent hazards. All conditions are discussed in detail at the sections addressing each building.

A. Armory Building – Archaic electrical panels may represent a significant and catastrophic fire/explosion hazard in respect to bottom floor combustible organic dust, and combustible vapor conditions. Hazard: high fuel contribution, potential for extremely fast and hot fire, and limited access for second floor exiting.

   1. Recommendation – We recommend immediate elimination of dangerous electrical panels, elimination of organic dust and vapor incidence, reduce fuel-contributing storage, establish a second route of egress from the second floor, and establish an emergency plan in the case of fire. Upgrade all fire extinguishing devices according to Fire Department Recommendations. Refer to further Site Fire Suppression System section of this report.

B. Armory Building – There is indication of apparent building movement noted at column/beam connections and roofing panels indicating significant building movement. This condition appears to be a progressive problem with the joints between most of the columns, and beams showing movement exceeding ¾". Concurrently, structural connections [steel or otherwise] do not appear to exist at column/beam connection locations while column rotation, significant cracking of columns, and movement of ceiling panels point, to recent and significant [since last painting] building movement. This problem bears some urgency since the resulting effect during an earthquake event of significant magnitude, is also catastrophic collapse. That is, collapse occurring rapidly, and occurring without any warning other than earthquake indications.

   2. Recommendation – Although we believe this issue to be significant, we do not yet know how significant. We recommend conducting a structural analysis of this building in all due haste, and affecting earthquake remediation measures that are the result of that study.

C. All Buildings Built With Creosote Foundations and Enclosed Crawlspaces [Excluding Office Building/Artful Dodger, and those with Concrete Slab Foundations] – We believe that there exists the potential of exposure to creosote materials for the occupants has been identified and found to be negligible within these buildings. See references (i) and (j).

3. Recommendations – Our recommendation is to establish written creosote, asbestos and lead management plan. We recommend that all asbestos located in the crawl spaces of these buildings be demolished under conditions established by environmental laws.

We recommend the following tasks:

a. Install a passive vapor barrier attached to batt insulation between floor joists. This vapor barrier could be non-continuous and designed to increase the resistance of the floor construction to passing creosote-laden vapor from the crawl space to the occupied areas.
b. Install a 'draft stop' at the bottom of the floor joists to further increase the resistance of the floor construction.
c. Increase the ventilation of the crawl spaces by deleting the perimeter plywood attached to the wood latticework.
d. Install a 'positive pressure' ventilation system when new heating and ventilating systems are provided for selected buildings. This type of system will provide additional ventilation that these buildings need, and will provide ventilation during times of vacuum producing wind velocities.

D. Other Hazards – While other hazards exist including friable asbestos at specific building crawl spaces, lead paint, and physical hazards including exposure to electrical shock hazards, potholes in the road, illegal egress issues in specific locations, these conditions do not appear catastrophic in nature and are discussed elsewhere.

Recommendations – Included elsewhere.

**Building Codes – Prevailing Administrative Jurisdictions**

All work that is completed on this site will be subject to the City of Port Townsend Building Department requirements. Additionally, this site is subject to all mandates over this property as established in the Port Townsend Historical Overlay District, the Shoreline Master Program, the City Engineer Design Standards, Urban Waterfront Special Overlay Planning District, Design Review Manual, Point Hudson Master Plan [12/1994], Port Townsend Zoning Provisions for zoning classification M-II(b)-Pt. Hudson Marine Related Uses.

Other provisions may apply according to PSAPCA, The Washington State Energy Code, and The Washington State Regulations for Barrier–Free Facilities. Projects affecting the site may or may not require associated permits, depending on the scope and nature of specific work being addressed.

It is safe to assume that any project that modifies the buildings structurally, or that changes occupancies; projects that modify impervious site areas including graveled surfaces; or projects that affect demolition of buildings will be subject to permitting authority review. All work completed on the site and the buildings will have to conform to the current adopted versions of their respective governing regulations.

In discussions with the Building Official, adopting provisions of historical planning for this site could bring this property to conform to local historical building code provisions that could be considerably more liberal regarding modifications to these properties.

**Rehabilitation of Properties versus Demolition and Replacement**

The discussion regarding rehabilitation versus demolition and replacement of these facilities will continue to be a contentious argument. Whereas rehabilitation of these buildings up to first class standards will require a persistent and lengthy program and will be expensive, construction of new facilities will require considerable effort, time and costs associated with the permitting process and the costs associated with demolition. These conditions exist regardless of the heated viewpoints expressed by various factions within the Port Townsend Community. No matter the direction that the Port of Port Townsend elects to pursue, this site is so extremely valuable that the direction chosen should reflect goals in the Port's Comprehensive Scheme.

**Facility Physical Characteristics**

The physical characteristics and historical disposition has been documented in previous reports. It is important to note for purposes of this document that this facility was constructed in 1933-34 as an immigration facility, designed and built according to federal specifications, and constructed but never utilized as an immigration station. It was converted to an Army Reserve training station in the 1950's, subsequently decommissioned with demolition of several barracks buildings and similar structures, burned and bulldozed into the Puget Sound. See photographs, Page 7. The remaining buildings and land were deeded over to the Port of Port Townsend in the 1956 and leased to the current tenant in 1962. All management functions have been the responsibility of the lessee during this period of time. Refer to previously noted published references for comprehensive information.

At this time this property consists of thirteen buildings, forty-four acres, a forty-five slip marina, a boat storage facility, a variety of storage buildings and sheds and a variety of recreational vehicle parking slips for purposes of temporary, transient vehicle parking, and beachfront with public access. See Site Map Page S-1.

**Occupancy of Point Hudson**

Point Hudson is occupied by business that include marine dependent businesses, marine related businesses, non-marine related businesses and residential tenants. All tenants appear to be now renting the various properties month to month while negotiating more permanent relationships with the Port of Port Townsend.

Those businesses that have established 'lease rates' with the existing management company have done so based on the existing conditions of the various buildings. Many of these relationships are discounted due to the perception that these facilities are substandard, non-finished non-heated, or otherwise limited in some capacity. The natures of these businesses vary widely from building to building, or even vary widely within a single building. Because the occupancies differ widely, their specific requirements regarding their businesses have also varied. The various tenants have, therefore adapted the buildings and grounds to meet their needs often incurring considerable expense improving their respective spaces. Most tenants appear to have contributed substantial time, work and capital towards improving their conditions within the buildings to the extreme of not being able to recoup these assets once this situation changes.

Some businesses, apparently not willing to improve facilities without a substantive agreement are being restricted with their business offering, or are incurring hazardous conditions by extending services [particularly electrical power] beyond their reasonable limits. This last condition is particularly so with the Otter Crossing Restaurant, located in the Main Building, and the boat repair building located in the bottom of the Armory

Building.

There are occupants of Point Hudson that exist therein because their means of livelihood is compatible with the 'ambiance' exhibited there. An example is the solitary boat builder working on a wooden boat in the lean-to shed adjacent to the old armory building.

Additionally, there are those renting facilities from the existing management company for the sole purpose of establishing a primary residence, while the bed and breakfast and the motel appear to be organized for the purpose of renting rooms to visiting clientele. These businesses appear to be operating in the face of the pervasive 'smell' associated with vaporization of creosote from structural components contained within the piling foundation system, the main supporting structure, and the sub-floor associated with these buildings; archaic heating and ventilation systems; woefully inadequate insulation in ceilings, walls and especially floors; and in the face of extremely anemic pedestrian oriented amenities and connection to Port Townsend generally offered by the overall Point Hudson site design.

**Change of Occupancy of Point Hudson Buildings**

As an immigration station, Point Hudson was designed as a limited access facility. That is, the function of this facility as an immigration station was defined around bringing people to shore from waiting watercraft, processing those people, and then ushering them to various other transportation points. The transportation system utilized to do this appears to be designed around horses and wagons. See Page 7, Coast Guard Map.

This property has since it was constructed has changed occupancies several times. Whereas it originally consisted of buildings and supporting infrastructure associated with processing immigration activities, it now consists of multiple small business concerns, residential, storage and similar activities. Occupancy considerations are discussed later in this report.
But he change of occupancy has resulted in demands of property features, of utilities features and of building features. Often the adaptation of these features to occupancy demands has resulted in unfavorable or detrimental results. The demand for change, and the response or lack of response to that demand, has affected many significant and far reaching systems. This motivating factor is one of the greatest impacts on the condition of this site, lands, streets, buildings, marina, and utilities.

Similarly, as occupancies of Point Hudson have changed, the connections to Port Townsend have changed. Thus at this time, the demand placed on the site by transportation interests has overshadowed other spatial requirements; utilities and individual building services are archaic to the point of public hazard and to the restriction of the effected businesses; environmental conditions appear to be hazardous to the occupants of several buildings; the marina appears to be in need of substantial improvement, and the image and access by Port Townsend appears to be poor.

**Image of Point Hudson**

Similarly, the image Point Hudson conveys appears to revolve around misallocation of public space, and ignoring informal institutions that a community fabric requires. Where pedestrian interests should prevail, they currently do not. Where Point Hudson should gracefully recognize, respond and compliment Port Townsend as a Victorian Seaport, it does not. Where Point Hudson should adapt to, and promote the businesses that support it, while encouraging others to participate within the Point Hudson community, it currently does not.

The image of Point Hudson conveys a sense of shabbiness, isolation, inflexibility, and exhaustion. It is conditions of the sum of the parts, the overall condition of the site, the condition of the relationship of the site

to Port Townsend overall, and the condition of the allocation of space, that results in this image.

**Allocation of Space of the Point Hudson Site**

In addition to building occupancy and space assigned to buildings, private property that is a focus of this report, allocation of space within the Point Hudson site will also be a part of it. However, other than cataloging space, and attempting to dissect this issue in terms of comparative analysis, we will conduct a visual illustration of several key locations of the Point Hudson site and conduct a verbal evaluation of these sites, for purposes of allowing a view of the utilization of Point Hudson that may not otherwise become apparent.

The definitions that include the allocation of space to various functions are those that determine how Point Hudson presents its self as both a separate part, and an integral part of the community, and yet how it also requires the community to function within it. We will therefore discuss the importance of the allocation of space within the definition of community vitality, and as the key component to the definition of 'community.'

It is true that the definition of this site appears to revolve around space allocation given over to transportation interests at the expense of space allocated to pedestrian interests, and to public access. As pedestrian interests are those that provide the greatest actual connection to Port Townsend, both as a vital community and as a designated Victorian Seaport within the historical register, this report will illustrate the condition of these interests.

**The Definition of 'Community' and The Allocation of Space**

The topic of 'community', the feeling of community and the need for people to function in larger holistic groups, is a topic of public debate coming to grips with the dissolution of the community 'fabric.' The feeling of lack of community is often a contrast to those who feel they have a 'community' and are perfectly content. The debate appears to have settled on the 'urban village', and constructing enclaves within the current definition of urban life. Yet even so, there appears to be a lack of language that can be applied to this condition, and those faced with contrasting their condition with those solutions proposed to solve this malaise. And the layman remains faced with the feeling of 'lack of community.'

In this assessment, we propose a way to look at key components for the way communities are defined. This view includes the recognition that pedestrian institutions, and the allocation of community space are the primary components from which communities are defined.

**Community Fabric**

It is true that communities are the manifestation of associations of people, and those physical fabrications that support those associations. Buildings, streets, water supply and countless other support systems are the result of communities manifesting themselves.

One of the primary ways these things are defined in contemporary communities includes the 'urban choice'. That is, the choice to choose those members of the public that will participate in one's own circle of people manifested within the community. Sometimes the 'Urban Choice' has also included a desire to exclude those one's 'community' finds undesirable. Thus, the homeless or those electing to live in an otherwise public space are made to be contrary to law.

This ability is empowered by the prevalence of the automobile as the predominant mode of transportation as the personal responsibility to face one's neighbors, strangers, and other components of 'community' that are

required for the 'community' to exist.

**Communities and Informal Pedestrian Institutions**

However, the urban choice also results in sequestering families, individuals, and higher institutions without another option for community participation. And communities are stitched together through informal institutions that dissolve in the face of the 'urban choice.'

These institutions are pedestrian in nature and perform similar functions to the:

- Display of the elderly as an illustration of community wisdom
- Display of the courting of the vital young as an illustration of community vitality
- Display of play by the adolescent and the young as an illustration of community hope
- Display of processes business as an illustration of community prosperity
- Display of space for transients as an illustration of tolerance and accommodation
- Display of those expressing a desire for spiritualism as a statement of spiritualism
- Display of personal contact establishing loose recognition and involvement

Thus, the display of the functions of society, the act of people watching people, is a cohesive function of the community at large. More so, it is the displays of these types of functions are those that define communities.

And these definitions require both those who are viewing and those being viewed, to be present as opposed to being present and involved in a transportation system. Informal relationships and chance encounters are those that provide the glue holding the community together. As an example, neighbors who retrieve their mail each day simultaneously are given the opportunity to recognize their relationship and perhaps to converse about a third neighbor who might be ill. They might as a result decide to look in on the third neighbor. This chance face-to-face encounter, and resulting action is the 'informal institution' that holds communities together.

Without the existence of similar informal pedestrian institutions, the definition of the community dissolves. Thus we are living in an era where the feeling of the loss of the community is prevalent, but without significant debate as to why this is so.

This loss is directly the result of the loss of informal pedestrian institutions that are routinely displaced by transportation interests. The allocation of space to transportation interests at the expense of pedestrian and other public space is resulting in the dissolution of the fabric of the community. Further, the misallocation of public space may actually result in a hostile image of the community as viewed by various community inhabitants. Thus, youth without recognition by the community as valuable participants may begin to feel like they are outsiders and express confusion, anger and aggression as a result. Families without support of the community at large may become an armed enclave, an expression of general anxiety, feeling that the community at large is an adversary. This same concept applies to the elderly, the non-landed, the transient, and the poor, the courting young, and those without automobile transportation.

**Victorian Era and Pedestrian Institutions**

The Victorian Era was characterized by extreme economic prosperity, and extreme technological advance. This era saw the invention of the automobile, structural steel, and the elevator and similar technological advances incorporated into mainstream society within the period of ten years. Where previously to this time buildings were normally three stories, they were able to exceed eight stories. Where stairs provided access to upper floors, elevators addressed the problem and overcame fear issues associated with their utilization. Where animal powered transportation prevailed, the automobile entered and became established as a reasonable mode

of transportation.

But the Victorian Era was predominantly organized around transportation based around animal labor, and community [informal] institutions based on pedestrian activity. These concepts are germane to Port Townsend, and to Point Hudson.

**Connections Between Point Hudson and Port Townsend – Evaluation of Space Allocation**

The connections from Point Hudson to Port Townsend to are limited to two vehicular access points [actually one], and that streets are narrow and restrictive. And the site was never 'designed' for pedestrian access. See Page S-2. This diagram illustrates vehicular access to the site; pedestrian access to and around the site; where sidewalks coincide with pedestrian access; where pedestrian access is devoid of sidewalks; where pedestrians are required to defer to vehicular traffic [occupy the same space], and where pedestrian access is appropriated from spaces not allocated to it. This page also identifies further photograph evaluation of how space at critical locations is allocated to various community functions. Areas similar to these and the space that is allocated to various community functions are those values that define the accommodation, the function and image of Point Hudson to the public at large. Refer to Page S-2.

These are definitive conditions affecting the 'condition' of Point Hudson, and affecting the function of Point Hudson as a fraction within the Port Townsend community, and are issues that will be addressed in this report.

**Point Hudson as a Landmark Property**

Point Hudson is geographically predominant for Port Townsend, and Jefferson County as a whole. This property due to its age, and due to the participation of individuals in the various activities that have been held at this property over the years find the property familiar, and significant within memory. This is the value of a place as a landmark: it remains significant to many people for personal reasons. These things transcend dollar-based value. Therefore Point Hudson is a community landmark, and is thereby significant.

But the position of Point Hudson as predominant to Port Townsend, and to Jefferson County carries the responsibility of it also being well managed, well maintained, supportive of the Port Townsend community, and efficient and easily accessed by the public at large.

**Point Hudson as Historical Property**

The buildings and site of Point Hudson are built to medium grade, federal specifications, non-standard military issue, and represent a custom design. It was likely the Immigration Service in contrast to the Corps of Engineers that built these buildings, and developed this site. The site appears to be the result of fill associated with dredging or other fill procedures.

While these buildings are unique in their construction, they do not feature exceptional architectural design of historical value. Similar buildings are currently being demolished at military bases throughout the country as a means of reducing infrastructure costs. The buildings at Point Hudson, which appear to have historical value, are the Armory Building, the Cupola Building and the Commander's house.

**Visual Access of Point Hudson**

Although it is positioned as a unique landmark located end of a main Port Townsend arterial [Water Street], this property, including the buildings and transient vehicles of Point Hudson function as a visual obstruction to

remote foci [mountains, Puget Sound, ship traffic, etc] depending on the location of the viewing point.

The visual access of the site is generally local [close foci] with remote visual access occurring around the circumference of the site. See Viewpoint Analysis, Page S-3. Similarly, the first comprehensive view of Point Hudson occurs at the end of Water Street. See Page 22. Here the horizon is generally restricted providing a local view only. The site generally represents a barrier to remote viewing, while representing a local viewing opportunity from the standpoint of Port Townsend. Neither viewing opportunities appear to be a factor in the design of Point Hudson as a site.

The visual access within and around the perimeter of Point Hudson, and the visual access of Point Hudson from Port Townsend does not appear to have conscious recognition as to it's significance, and in some instances seems to represent purposeful and annoying obstructions. This statement may be illustrated by considering the location of vehicular parking, and non-transient RV parking, at the perimeter of Point Hudson between viewing opportunities, and publicly accessible beach.

**'Substantial' Quality Governmental Construction Effecting Current Occupancy Conditions**

Additionally, although the construction systems utilized for these buildings were 'substantial' at the time of construction, and in large measure remain in substantial condition, changes in occupancy resulting in adapting these buildings for purposes of comfort or thermal efficiency has resulted in compromises to heating and ventilation systems, and has resulted in the introduction of potentially hazardous conditions and materials exposure for the occupants, and those utilizing or working on these buildings. See References (i) and (j).

These conditions include exposure to hazardous materials, flammable or explosive conditions, electrical shock exposure, substandard exiting, and similar dangerous conditions.

**Creosote Impregnated Structural Systems**

As an illustration of substantial construction becoming a liability, the majority of the buildings on this site were constructed on creosote impregnated piling, floor structure, floor substructure, and diagonal floor sheathing. The original design specified that these buildings were heated with steam, without appreciable wall insulation, minimal ceiling insulation, exhibited single glazed windows and wide open crawl spaces. The volume of creosote contained in the primary and secondary structural systems for these buildings continue to off-gas potentially hazardous components.

Due to enclosure of the crawl space [thermal efficiency strategy], installation of marginally competent Heating and Ventilation systems [low first cost design, marginal fresh air design], the foundation system of these buildings while neither moving perceptibly nor deteriorating what so ever, but still has resulted in a significant business impact for the occupants of these buildings. See references (i) and (j).

**Friable Asbestos, and Asbestos Management**

Asbestos may be managed by encapsulation, isolation or other means preventing it from becoming 'friable.' Friable is the ability of asbestos to escape into the air similar to dust, to be accessible to those breathing air. The entire original steam heating and condensate return system for Point Hudson is constructed with iron piping and insulated with approximately 2" of asbestos jacketing. The asbestos jacketing is not friable when it is not disturbed.

Thus, Point Hudson has developed an asbestos management policy of leaving asbestos in place and not

disturbing it. The extent of the asbestos jacketing includes a perimeter loop, and two lateral connectors servicing each steam radiator which was originally located at multiple locations within each of the buildings.

Additionally, the steam condensate return piping appears to also be insulated with asbestos. The steam supply piping for some buildings, and the return condensate piping appears to generally exist in the crawl spaces for these buildings. The asbestos jacketing in the attic spaces appears to only have been disturbed during the decommissioning of the system and removal of the steam radiators, with the associated piping and insulation often removed at the attic level [See Photographs 1.1, 1.2, 1.6, 1.7, 10.1, 13.3, 20.1, and 25.11]. However, the insulation jacketing located in the crawl space of buildings also inhabited by Otters appears to have been severely disturbed rendering that space full of friable asbestos. Refer to References (i) and (j).

**River Otters, Building Occupancy and Hazardous Materials**

The habitation of the crawl spaces of those buildings built on piling by River Otters, a marine mammal subsisting on ecological sensitive food sources such as Urchins, was not considered in the original design of these buildings. The population of Otters has been described as being numerous. The access points they've dug under crawl space skirting easily witnesses their presence, and generally confirms that they are numerous. Additionally, they are acknowledged by some of the residents of the area in humor, and while others refer to them in disdain.

The River Otters are responsible for disturbing a considerable volume of asbestos steam piping insulation, fiberglass floor insulation, and in the case of the Marina Shower Building, the heating and ventilating ductwork itself. Additionally, the smell that River Otters exude is also often objectionable. The operator of the Commandant's Bed and Breakfast, The Motel, and to a lesser degree the Main Building has issued complaints during this assessment regarding their smell.

Whereas the existence of 'smell' is an aesthetic issue, the creation of friable asbestos within the crawl spaces, and subjecting the River Otters to transmittable hazardous conditions [both creosote and asbestos exposure] appears to be a dangerous situation to those workers accessing the crawl space, and a release of creosote and asbestos into the food chain of the Puget Sound. Both of these conditions appear to come with liability, and both appear to reflect on the quality of the image of Point Hudson as a beneficial landmark.

Therefore, the presence of hazardous materials should be addressed, remediated or managed, and an alternative living arrangement provided for the River Otters that allows for their existence while separating them from objectionable habitation effects.

**Heating and Ventilation Systems, Energy Consumption, and Hazardous Materials Exposure**

Due to changing the nature of the occupancies of the buildings, increasing the demand for comfortable interior environments, and due to the recent increase of the costs of energy, energy efficiency for Point Hudson has become a defining issue.

These buildings were designed with no exterior wall insulation, three inches of blown cellulose insulation in the ceilings, no floor insulation and single glazed double hung windows and doors. The interior finishes of the buildings is multi-layered plaster over metal lath. The heating system was a coal fired steam radiator heating system that has been decommissioned.

These buildings still exhibit very large heat loss due to radiation, convection and air infiltration. They exhibit high exterior air infiltration characteristics due to the number of windows and doors, the design of windows,

the general inadequacy of weather stripping, and particularly appropriate during high wind conditions.

The current heating systems for the Shower Building, the Main Building, and the Motel Building are fuel oil fired, forced air, re-circulation air system with 10% or less fresh air make-up. These systems are approximately 30 years old. According to Sunrise Mechanical, and Mr. Don Campbell, who has been maintaining these systems since 1982 and with exception of the boiler located in the south side of the Duplex building, and the tenant installed boiler system in the Commandant's Bed and Breakfast, all of the equipment is 'old and tired.' Particular problems will be addressed in the descriptions contained herein regarding each building.

The Commandant's Residence, and the Duplex are fuel oil fired, hot water re-circulating systems utilizing original steam piping and radiators that also rely on windows and doors for fresh air make-up.

Finally, the Landfall Restaurant, The Otter Crossing Restaurant, both floors of the Armory Building, and Pigmy Kayak building are tenant supplied electric forced air. Individual resistance heaters strung out on extension cords heats the Wooden Boat Foundation building. A propane catalytic radiant heater heats the Foundation library.

Each of these conditions are far less than desirable, and in the case of the Motel, Shower and Main Building are actually compounding the environmental problems emanating from creosote vapors by condensing the contained atmospheres. Similarly, these same buildings show signs of higher levels of carbon dioxide, another characteristic of minimally ventilated, forced air re-circulation systems with inadequate supplies of fresh air. These are the three buildings subject to a recent Safety and Health Safety Survey, and that has the greatest possibility of problems associated with air toxicity and quality problems. See references (i) and (j).

As a summary, these buildings are thermal sieves drastically leaking expensive energy into the atmosphere, equipped with inadequately designed and antiquated HVAC equipment installations.
Concurrently, all buildings should have existing dirty and inadequate cellulose insulation removed, and replaced with non-combustible insulation in accessible attic spaces, have floor joist cavities insulated effective vapor barrier installed to the warm sides, have thermally efficient windows and doors installed, and systematic weather stripping installed.

**Chimneys, and Flues Original Steam Heating System**

Likewise, the brick masonry flues, which originally served, as exhaust for coal-based combustion products often have been decommissioned and do not function what so ever. Although these chimneys are substantial construction showing little indication of movement or other types of deterioration, they represent considerable hazard during earthquake events to building occupants, pedestrians and to the buildings themselves.

Similarly, the decommissioned steam heating system with asbestos insulation has generally not been demolished. In some cases this system has been adapted to provide hot water heating run through original steam radiators, but with asbestos insulation representing a friable asbestos hazard where it has been disturbed.

**Brick Masonry/Flues**

The motel building has no masonry flues. The adjoining building, the laundry building which was previously utilized as the boiler plant for the entire site, has a masonry flue. (See photographs 4.2; 5.1, 5.2). Flues for all Point Hudson buildings were constructed in similar if not identical construction techniques and with identical materials. These were built with a double wythe, kiln fired brick and Portland cement mortar. These were constructed utilizing a running bond brick design with a single header

course located at each 6th course. This brick design is otherwise known as 'common' bond. The top exhibits a concrete cap canted to drain to the exterior, and masonry flu liner. See photograph 26.9.

All flues are installed with crickets up slope of the roof. These crickets, and the perimeter flashing appears to be constructed from soldered, sheet copper. No leakage around flues, no flue movement due to earthquake, and no movement, cracking, mortar displacement or other forms of deterioration was observed at any masonry flues. These flues while stable likely due to their substantial initial design and high quality materials remain a significant hazard in an earthquake event of sufficient magnitude.

The metal brace work appears to be deteriorating due to marine environment atmospheric conditions. The resulting rust is running through the roof gutter and downspout serving the roof of this building is draining to the adjacent roadway. See photograph 5.1.

**Roofs and Roofing Materials**

The roofs of Point Hudson have performed as they were installed for over 60 years. Currently, these roofs show little indication of failure resulting in leaks showing at the ceilings of the occupied spaces. Three 'roof' leaks were discovered during this assessment. The first is located on the South side of the Duplex Building expressed as a leak directly located in front of the entrance door. The second is located at the Wooden Boat Foundation at the vertical joint located at the cupola and is expressed as an active leak caught in a plastic wastebasket in the attic space. The third is located at the Armory building and is expressed as a leak over the computerized sail plotting table of the sail making business located on the top floor.

Of these leaks, of these none appear to be directly related to the condition of the roofs but rather high wind conditions and pressures associated with windward and leeward forces created by the buildings themselves.

**'Transite' Roofing**

The predominance of the original roofs [those installed on a slope] on the buildings at Point Hudson consist generally of Portland cement and asbestos assembled under pressure. This was a common, durable building material similar to that often referred to as 'Transite.' This material was utilized as siding, wallboard and roofing during the 1930s, 1940s and 1950s. The sloped roofs for the Point Hudson appear to consist of Transite roofing tiles. Although this material has a reputation for durability, it is also brittle. Where this material has been subjected to foot traffic, it has been damaged. Where the flat roof on the Motel has been accessed across the Transite tiles, these tiles has been damaged and repaired over the years. See photograph 3.6. The roof of the Office/Artful Dodger appears to be incurring damaged tiles at the roof overhang, and several other locations. See photograph 21.4. This appears to be the result of foot traffic, and ladder access.

Also, in conjunction with the concentration of asbestos making it a 'hazardous material', it has the weakness of connector failure. So where this material has been disturbed, or where the connectors holding it in the proper location have failed, the material essentially has failed. Removal of Transite tiles may render it hazardous material without the ability to reinstall it, although it remains in a non-friable condition.

**Ridges Located on Buildings With Transite Tiles**

The ridges on buildings constructed from 'Transite' material appear to be failing due to failing connectors, exposing the material located directly below the roofing material. In this instance the predominance of the roof ridges as a part of this assessment have failed, but have yet to express as building leaks. See photographs 3.1 through 3.3, 3.6, and 26.6

This is most probably the case with all of the Transite ridges on the Wooden Boat Foundation building, the Motel building, the main building, the office/Artful Dodger building, the Duplex, the Commodore's Bead and Breakfast and the shower building, while these conditions can be seen to be failing on the Motel, and the Wooden Boat Foundation building roofs. To some extent for a few of these ridges has been repaired by lifting the ridge Transite tiles, and installing galvanized flashing. See Photographs 3.1 through 3.3, 3.6, and 26.6.

**Galvanized Ridge, Copper Flashing and Moss Growth**

All Transite roofs are porous to the extent that they are excellent growing locations for moss. Moss growth is prevalent on locations not directly exposed to the sun [north slopes] and that retain moisture releasing it slowly. Therefore for all existing Transite roofs, present an ideal medium for growing moss. Where galvanized flashing at the ridge, or other roof details exist, or where copper flashing has existed, the oxidation of zinc or copper has suppressed moss in streaks on specific locations on these roofs. This zinc or copper component also progresses to the storm drainage system and is ushered directly into the soil at the base of the storm drainage system, or into the outfall system to be discharged directly into the Puget Sound. It is unlikely that repairing the ridges of these buildings with zinc or copper components that have the ability to leach into storm water system will be allowable for these buildings due to their contribution of heavy metals into the Puget Sound. Additionally, replacement of contributing ridge installations during any proposed repair of the ridges would be beneficial.

**Copper Roofing and Copper Flashing Details**

Secondly, flashing details surrounding masonry flues, roof 'crickets' and specific 'feature' roofs were constructed of soldered joint copper. See photographs 3.4, and 13.2. With the exception of roofs that are subject to continuous movement due to wind pressure differential [Motel Building], and to foot traffic [Motel Building emergency access from the 2nd floor, see photograph 3.4], these roofs appear to be without appreciable deterioration. In those locations noted, the copper material appears to be failing with the expectation of roof leaks to be occurring within the next five years.

**Flat, Built-up Roofs**

Thirdly, there are 'flat' portions of the roofs located on several buildings: The Landings Restaurant, the entire Armory Building, portions of the Motel, and portions of the Main Building. These roofs appear to have been maintained, or re-roofed during the facility remodeling in 1970. These are multi-layered bituminous asphalt, built up roofing installed with a ground located hot kettle. These roofs we believe are represented by that located on the Motel. This roof was installed with an extremely hot kettle supplying bituminous material to the roof. This material was actually heated to the point of being oxidized, and therefore less resistant to weathering conditions. The roof on the Motel has worn down since 1970 to expose the fiberglass felts utilized in its construction. Although not failing now, we anticipate that this roof will fail to the point of leaking water within the next ten years. See Photographs 3.3.1, 3.6.

**Roofing Recommendations**

The issue of non-controlled moss growth presents the problem of roofing tile movement and eventual roofing failure. However, that moss growth condition is extreme and with yearly moss removal when dry conditions prevail, these roofs will continue as they have.

We would recommend replacement of all damaged tiles, or tile connectors [galvanized nails] without incurring further damage to the existing roofing. Similarly, we would recommend removal of existing roof ridge tiles and installing either a synthetic [plastic] flashing, or installing a coated metal ridge flashing.

In the instance of copper roofs, we would repair those areas that appear to be failing. This is achieved by removing those areas that have failed and replacing that material with similar materials, i.e. copper with soldered joints, while conducting foot traffic elsewhere.
In the instance of bituminous asphalt built-up roofing, we would wait until the roof shows more aging.

**Windows, Glazing, and Maintenance**

The windows for most of the buildings on Point Hudson are those originally installed in these buildings. They characteristically are multiple 'lite,' double hung, single glazed, wood sash utilizing counter hung sash weights. For most windows with exception of those subject to Southwest weather exposure, or those subject to very high levels of relative humidity, further repair may not be necessary.

However, those windows subject to Southwest weather exposure and those condensing considerable volumes of water are suffering from dry rot and deterioration of exterior glazing putty. This is the case with the South Side of the Shower Building, the South wing of the Motel adjacent to the handicapped access ramp, in locations along the South side of the Northeast wing of the Main building, South and West windows in the Commander's Bed and Breakfast, and South West windows in the Duplex. Additionally, those windows in bathrooms, and those windows installed to enclose porches [South side Duplex], appear to be subject to this type of deterioration.

**Windows as Thermally Efficiency versus Windows as Historically Significant – General Findings**

While the condition of the glazing for most of the buildings on Point Hudson appears good, those that are failing are failing rapidly.

This raises a defining issue. From a thermal standpoint, all of these windows should be replaced. However, depending on the nature of improvements to these buildings and how the view of history prevails in this effort, these windows are historically significant.

On one hand, double glazed windows with thermal break jambs would increase the thermal resistance for these buildings considerably. And while these windows could 'look' like the original windows, that 'look' is achieved surficially. Secondarily, the greatest impact for increasing thermal resistance over-all can be achieved by increasing ceiling and floor insulation, and installing more efficient resistance to over all exterior air infiltration.

Our recommendation, if Point Hudson capitalizes on it's historic value, is to repair those windows failing and retain the over all original design. We would further recommend installing thermally efficient shutters for these windows that are commercially available for purposes of increasing their thermal resistance and

for reducing infiltration.

**Site Fire Suppression System, Fire Hazards, Building Construction Types, and Specific Building Occupancies**

The Point Hudson fire suppression system appears to be connected to the potable water supply system. It tees in the proximity of Jackson Street to supply two fire hydrants in proximity to the Armory Building. See Page S-4. The same potable water line appears to run through the Point Hudson main water valve vault See Page 29. From this location it services the fire hydrant located in front of the Wooden Boat Foundation Building, and the two locations in proximity to the Main Building. The other fire hydrant location shown in proximity to the intersection of Water Street and Jefferson Street is shown to illustrate the location of water lines off the Point Hudson installation.

None of the buildings located on Point Hudson are currently sprinklered.

Page S-4 illustrates the overlapping nature of the fire hydrant system locate on Point Hudson. The Port Townsend Fire Department reports that the hose length for a residential scale fire would be approximately 600-feet long. This would be augmented by various truck approaches that would increase coverage at any location. Therefore by reviewing this site for overlapping coverage utilizing a 100-foot hose length points to overlapping coverage for the entire site. However, a fire located at the Armory building would place adjacent buildings at serious risk. And a fire located at the motel, would void access to the two fire hydrants further south, and place the pavilion, the Main Building, the Shower Building, and the Office/Artful Dodger building at risk.

The Wooden Boat Foundation although a little building, has an addition that is now occupied by small office workstations, and a library. The people working in this area have installed multiple, high wattage devices on 'power bars' that are 'chained together.' See photographs 25.4, and 25.5. Eight of these devices were counted servicing this area. We are recommending the installation of two new circuits run to new breakers locate in the panel under the stairwell closet.

Although this addition was built as some kind of temporary structure, this building also contains a library of considerable volume, and the main Wooden Boat Foundation building [Cupola Building] represents one of the most significant on Point Hudson both from a historical, and a landmark standpoint. And although sufficient exiting is present for these buildings, their loss would affect the duplex, and the boat haul-out business that is adjacent, placing both at serious risk.

It is important to recognize that a fire in any of these buildings would be very hot, and in a matter of three minutes [literally], the fire temperature could easily exceed 1,000 degrees. Therefore, the hazard associated with conditions located in the Armory building bring with them considerable gravity, as many people and businesses are at risk.

We are recommending that the Armory Building, the Motel Building and Laundry, and The Main Building be sprinklered, in addition to those immediate recommendations listed at the front of this document. Additionally, we are recommending connecting the fire line running down Jackson Street with the line serving the hydrant located at the junction of Water and Jefferson Street be connected to provide a fire water loop. Additionally, fire hydrants should be changed to conform to Port Townsend Fire Department standards [1,000 g.p.m. versus 800 g.p.m. existing].

Additionally, we are recommending a general decrease of fire contributing materials in all buildings, a

general improvement of potential fire hazard response similar to that noted for the Armory Building. This would include upgrading and testing for all existing fire extinguishers, elimination of the plethora of extension cords and the establishment of emergency evacuation plans for all major buildings.

We are also recommending a decrease of debris, miscellaneous structures and refuse from around all buildings. See photograph 24B.9.

**Metering for Potable Water System**

The current potable water system for the Point Hudson Site is served by a single 8" water main and is billed for the size of the service entrance in lieu of the water demand. We are recommending that each building be installed with a water meter, with tenants responsible for the cost of actual water utilization in lieu of arcane formulas applied to lease rates. We are also recommending that Point Hudson also be monitored, and the system is pressure tested to confirm or deny that the system maintains its integrity.

**Electrical System- General Findings**

1. The primary service for this facility may be adequate to feed the connected loads, but there appears to be excessive voltage fluctuations that the various tenants experience which may be the result of the length of power line from Point Hudson to the electrical utility substation. One remedy for them would be to feed Point Hudson with three-phase power and to serve the individual single-phase pole mounted transformers with different phases.

2. There are several pre-war electrical panels with fused circuits [one in the hotel, two in the armory] and a couple of pre-war service disconnects feeding wire-ways with individual fused circuit taps, [one in the Shanghai Restaurant and on in the armory]. The panels, while not exactly illegal, represent significant risk due to either explosion or fire, and cannot be serviced with replacement parts. The panels in the armory particularly, are not suitable for the area classification [Class II, Division 2; combustible dust].

   The service entrances feeding these wire-ways are bulky, difficult to modify and have irreplaceable components. Modern circuit breaker panel boards with 400 amp mains would better serve future growth.

3. There are many branch circuits fed by the older panels that do not have grounding conductors. While legal as a 'grand fathered' installation, any further modifications will require legal ground bus connections, and three wire circuits to all receptacles. 'Legal' in this respect will mean 'conforming to current adopted code [1999 National Electric Code] requirements.'

4. Most of the smaller services are fed by individual feeders (Artful Dodger, Marina Office, Landfall Restaurant, etc). While the service is adequate and panels are modern, all available circuits are fully utilized. Existing panels should be replaced with larger panels [more circuits, and larger mains] to provide spare circuit capacity for future growth. Several tenants have multiple small load centers that have been added to the distribution system, each one of them fully utilized to capacity. This represents a poorly planned situation and could present an overloaded condition. We would propose installation of one or two 42-circuit panels at the main service entrance to these locations.

5. NEC requirements for receptacles in restrooms, kitchens, outdoor locations, etc have changed in the last decade to require Ground Fault Interrupting capability for all such receptacles either on the

circuit or at the receptacle. While not strictly 'illegal' in their present condition due to 'grand fathered' construction, these conditions may represent potential liability for the Port for public oriented businesses, and may represent public safety issues. We would recommend GFI receptacles be installed at legally required locations subject to public safety issues.

6. Exterior electrical panels servicing the marina appear to be adequate and have spare circuit capacity. They are deteriorating in the marine environment. We believe these will soon have problems with electrical component connections. We recommend these panels be replaced with panels built for use in marine environments.

**Specific Findings**

1. The branch circuit panel feeding the Otter Crossing Restaurant is under-sized and fully utilized. It needs a larger branch circuit feed from the main service entrance located at the Shanghai restaurant, and a larger panel with a main breaker and a 42-branch circuit capacity.

2. Two panel boards serving the shower facility are located outside in panels that are deteriorating from rust. These should be replaced and moved indoors.

3. A service entrance panel board located at the east end of Jackson street appears to feed only a sewage transfer pump at the end of the pier. The panel board is falling apart due to corrosion. This load could likely be served from the panel board serving the rest of the pier.

4. There is a load center fed from the main panel of the Landfall Restaurant that is in an over-utilized condition. Several of the breakers in this panel are duplex units. Duplex breakers should not be used in non-residential applications.

**Electrical System Recommendations**

Item 1- Upgrade the Primary Electrical Service to Point Hudson

This is an electrical utility cost that PSE would need to estimate. If they could add a couple of cross arms to the poles and reconnect existing pole mounted transformers extending from the proximity of the Armory to the rest of the site, three phase power could supply the entire site. This might be considered by the Utility as a logical upgrade to the power system for the site in response to inadequate and fluctuating power experienced by some of the users.

Estimate of the Cost of this Recommendation - a week's worth of work for a four-man line crew.

| | |
|---|---|
| Subtotal [4 men x $75/hr X 8hours x 5 days] | $12,000.00 |

Item 2-Replace Obsolete Branch Circuit Panels in Various Buildings. Reuse existing wires. Provide new panel and breakers.

Motel Lobby – Provide a 100amp load center.

| | |
|---|---|
| Subtotal including labor | $1,000.00 |

Shanghai Restaurant Kitchen- Provide a new riser and 400-amp main distribution panel.

| | |
|---|---|
| Subtotal | $10,000.00 |

Armory Building, Main Floor – Provide a 400 amp main distribution panel

| | |
|---|---|
| Subtotal | $7,000.00 |

Provide a 250-amp branch circuit panel

| | |
|---|---|
| Subtotal | $5,000.00 |

Item 3 – Provide code legal ground bars in approximately 10 panels for use with 3 conductor 'grounded' receptacle circuits

| | |
|---|---|
| Subtotal [10@$500.00] | $5,000.00 |

Item 3 b) – Provide all two wire receptacle circuits with 3 conductor Romex and replace all two-prong receptacles with 3 prong receptacles.

| | |
|---|---|
| Subtotal [estimate 100 receptacles @ 2 hr each, $50/hr] | $10,000.00 |

Item 4 – Replace service panel with 200 amp panels with main breaker and 42 branch circuits. Transfer all branch circuit wiring over to new panels.

| Locations: | |
|---|---|
| Artful Dodger, incl. Labor | $5,000.00 |
| Marina Office | $5,000.00 |
| Landfall Restaurant | $5,000.00 |
| Otter Crossing | $5,000.00 |
| Shower Building | $5,000.00 |
| Shower Building [two required] | $5,000.00 |
| Subtotal | $30,000.00 |

Item 5 – Provide GFCI receptacles in all restrooms, kitchens, showers, outdoor locations, etc.

| | |
|---|---|
| Subtotal [estimate 50 ea @ 2hr x $50/hr] | $5,000.00 |

Item 6 – Replace all marina electrical panels with new panels listed for use in a marine environment.

| | |
|---|---|
| Subtotal [4ea @ $1,500.00 + 20hr each x $50/hr] | $10,000.00 |

| | |
|---|---|
| Grand Total Electrical Recommendations | $95,000.00 |

**Interior Design, Space Planning and Building Modifications**

The interiors of these buildings have in large measure been maintained or modified by the various tenants according to the demands of their respective businesses. Although perceived by a majority of tenants as perfectly functional and adequate, others have expressed the opinion that their respective businesses are being hampered spatially or functionally. This is the case with the management of the Otter Crossing Café, Pigmy Kayak, and the Landfall Restaurant each expressing a desire for increased electrical service, greater space, or a more clearly defined lease arrangement allowing for the ability to expand their respective businesses.

The Motel and many of the occupants of the other buildings appear to be hampered by poor space planning, antiquated finishes, and the general lack of quality storage and maintenance facilities. Additionally, the air quality while discussed as smelling like creosote, or otter musk also exhibits the smell of accumulated dust

rendering it 'old.' This smell is the result of accumulation of dust, combustion products, and by-products of human habitation accumulating for over 60 years. This includes thirty-year-old carpets, and ductwork, sixty-year-old ceiling insulation.

The incidence of 1/8" Luan Mahogany plywood utilized for wainscoting, and interior-ceiling materials is an interesting study of inexpensive detailing in these buildings that, once installed, has prevailed since 1960's. This material was introduced in that era as one of the most inexpensive materials that was offered in 4'x 8' sheets. This material was installed due to the associated first cost, but is perceived now as it was then as an inexpensive, and not particularly attractive, and not particularly amenable to attractive details. See photographs 2.4, 2.5 2.6, 6.2, 11.4, 11.9.

**Leases, Agreements, and Maintenance**

The 'leasing mechanism' that binds the management of this facility to both the Port of Port Townsend, and the leasing mechanism to those 'leasing' the various components of the facility, appears to be instrumental in accruing differed maintenance and lack of interest in continuing improvement for this site.

**Implications of Property Management**

Maintenance that was required for critical repair, (that is, repairs of systems which are necessary for safety liability issues); repairs necessary for continuation of conducting business within income producing ventures; or those repairs the result of addressing lessee complaints) appear to have been only rudimentarily addressed for a long time. Capital improvement, and systematic maintenance issues appear to have been ignored for decades, as the cash-flow resulting from the various agreements appears to be flowing to other interests than these.

It is our opinion that this facility has been accruing differed maintenance deficits since these building have been built, and to some greater degree since the facility has been generally leased by an outside management company. It appears that this relationship between the Port of Port Townsend, and the current management company, and the current tenants is one of the reasons this facility is in the condition that exists at Point Hudson, both in positive and negative aspects. The dedicated and loyal tenants and a facility that is extremely valuable would be included in the positive aspects.

Among the negative aspects include a facility in dire need of physical improvement, the result of differed maintenance, poor planning, and the lack of capital investment. A cohesive vision for this facility achieved through planning, and capital expenditure, strong management, sound well-considered agreements, and the establishment of well-integrated connections with Port Townsend as a community via the Port Townsend Comprehensive Plan, desperately needs to be achieved for this astoundingly valuable property.

It is largely the result of substantial building materials that these buildings and utility systems have survived as well as they have.

# III. ASSESSMENT OBSERVATIONS FOR THE POINT HUDSON BUILDINGS

The following observations have been itemized according to facility, and component for purposes of illustrating the magnitude of work associated with keeping this facility viable, safe and functional. The following divisions are utilized for purposes of developing this discussion:

1. Motel and Laundry Building
2. Pavilion
3. Main Building
4. Duplex
5. Shower Building
6. Pigmy Kayak/Storage Building
7. Commander's Bed and Breakfast
8. Marina Office / Artful Dodger
9. Armory
10. Wooden Boat Foundation [Cupola Building]
11. Landfall Restaurant
12. Site and Site Components

## 1. Motel and Laundry Building

### Motel

This two-story structure was built on a platform of creosote treated piling, main structural members, floor joists and diagonal sheathing. This structural system has been particular effective showing no signs of settlement or movement whatever. Additionally the creosote treatment has effectively protected the structural platform against insects, or other pathogens that routinely attack wooden structures. Significant air quality issues were noticed during the assessment of this building and an independent air quality assessment is being conducted at the time of this report. The attic space photographs 1.3 through 1.9 give an indication of the volume and size of framing material for this building. These are 'stout' buildings, with framing supporting the ceilings generally sufficient to support another floor at this elevation.

No signs of significant insect or rodent activity were noted in this assessment, save that of River Otters that routinely inhabit the crawl spaces of all buildings on this site built with crawl spaces. Minor signs of birds, and insects were noted in the attic [See photograph 1.3], and some rodent droppings were also noted there. Insect screen installed over ventilation space was missing. In the attic space, indications of covering the attic ventilation louvers can also be seen, implying an attempt to decrease the volume of air infiltration that is quite dramatic during times of high exterior wind conditions. This air infiltration also affects the air located in the crawl space due to the presence of duct chases that extend from crawl space to attic space. The connection of these spaces makes this building quite active from the standpoint of air pressure differential between the crawl space and the attic space during times of high exterior winds.

The buildings were retrofitted with enclosures for the crawl spaces for purposes of attempting to increase resistance to heat loss for these buildings once occupancies changed from military activities, to commercial and residential occupancies. See photographs 1.1 through 1.2.

The building is constructed from the sub-floor upwards in a classic 'balloon' structure, utilizing high quality dimensional lumber [2x4s, 2x8s and heavy timbers]. See photographs 1.1 through 1-9. The ceiling structure spans from exterior bearing wall to corridor bearing walls on both sides of corridors. These are subsequently built on the centerline of beams and pilings at the crawl space.

This building is particularly stable exhibiting no signs of movement whatever as evidenced by a lack of cracking at interior plaster surfaces, movement at the foundation and any cracking observed at masonry flues.

### Motel Structural System

The Motel structural system appears to be composed of framing extending from the structural platform supported by the piling and beam system, to the roof framing system. Both sides of the corridor walls are framed from the structural platform to the roof joists. This system can be seen in photograph 1.9 with the vertical framing representing the framing for the corridors. The ceilings are independently framed with 2x8 spanning from exterior walls to the corridor wall framing. Similarly, the roof joists span from the exterior walls to the faming for the corridor walls. The corridor walls therefore are bearing walls that translate all ceiling loads, and all roof loads down to the piling system that is also centered on these walls. Lateral stability appears to be achieved by the integrity of these walls, the

ceiling and the roof deck each acting as lateral shear walls.

Where these walls are integral to the structural system, they may be modified to include headered openings. In an extreme example, they could be replaced in sections with columns and beams as long as the associated load is effectively translated to columns and the columns translate the loads effectively to the piling system. It is unlikely that they can be completely removed without additional shear capacity being established elsewhere. This has the potential of resulting in considerable effort and cost. We recommend that the corridor walls of this building remain largely intact with only sporadic openings constructed through them.

**Laundry Building**

A. The Laundry Building is a balloon-framed building with a recent built-up roof, while constructed over a concrete slab foundation system. Thus this building avoids the problems associated with Transite roofing, and the problem of creosote.

Although this building functioned originally as the steam plant for the entire Point Hudson complex, and as a result has retained some asbestos insulated piping. See references (i) and (j). The Building contains laundry equipment generally fired by LP [propane] gas, which is supplied via tank. The propane-fired equipment retains combustion air from an existing double hung window that is open or closed during equipment operation.

The original boiler flu no longer functions and appears to have been decommissioned. See photographs 8.1 & 8.2. This flu is approximately thirty feet tall, is a double wythe brick masonry structure utilizing competent Portland cement mortar that shows no signs of deterioration or movement. While showing no signs of movement it remains a non steel-reinforced masonry structure which is not allowed in currently adopted building codes for this area. And even though braced, it remains a hazard to pedestrians, occupants of the building, and the building under an earthquake event of significant magnitude.

The floor elevation is approximately 30" lower than the Motel building and access to the Laundry by the cleaning staff of the Motel appears to be inconvenient, and inefficient.

These building otherwise shows no signs of movement, with no cracking of interior plaster finishes.

**Motel Heating and Ventilation System**

A central steam boiler plant providing steam to individual buildings and to radiators distributed via insulated piping throughout individual buildings was the original source of heat for this building. This heating system included supply and return piping branching off to individual cast iron heating radiators. Those radiators in this building were demolished, and the supply piping decommissioned, otherwise leaving it in place.

This piping is located in both attic space [steam supply] and in the crawl space [steam return]. See photograph 1.1, 1.2,1.6,1.7 & 1.9. The steam piping system was insulated with asbestos insulation with it largely appearing to be intact and non-friable where this is the case. However, at each crawl space entrance a warning sign appears indicating that the insulation contained therein is hazardous due to becoming disturbed, and therefore friable. River Otters are disturbing the insulation.

Once decommissioned as steam heated, this building is heated by a pair of fuel oil fired furnaces utilizing supply the various rooms ductwork in the crawl space and plenum return ducts drawing air from the building via the stair enclosure. This system was designed as a re-circulation air system utilizing minimal fresh air makeup [≤10%]. This system when operating supplies the various ooms.

Both oil fired heating plants ventilate combustion air to a solid refractory lined metal flue. (See photographs 3.4; 3.7). This flue is deteriorating internally as noted by the profuse amount of rust staining visible on the roof [sheet copper]. The liner flue has failed, and the refractory lining appears to be dissolving and flowing into the exhaust flue connecting the furnace to the stack. (See photographs 3.4, 3.7, 4.5, 4.8 & 4.9). The barometric valve installed in the exhaust flue prior to the exhaust flue has accreted in an open position for the north heating plant. Corrosion at the base of the refractory lined flue is visible at the flue foot base bracket (See photographs 4.8 & 4.9).

The forced air heating system is supplemented at individual rooms via electric baseboard heating devices. This appears to be the case due to apparent inadequate output of the oil fired heating plants, but also to allow the control of heat to individual spaces by the client than is possible with the forced air system. In light of the lack of insulation in both walls, and floors and the minimal amount in the ceilings, it is not clear as to how actually effective this system has been.

The exhaust flue and the make-up air vent, and the combustion air vent to the room containing the oil fired heating plants are subject to atmospheric pressure affecting the building. Thus, carbon that is the result of incomplete combustion products, is being drawn from the flue gasses of the heating plants through the atmospheric damper and through the combustion air vent, is coating the entire windward side of the building. Thus, during times of high winds, these systems appear to be dysfunctional during these times as flu gas containing small particulate carbon, carbon monoxide, carbon dioxide and similar corrosive gasses is being expelled within close proximity to the fresh air intake of the building.

This flu and the connecting exhaust and fresh air ductwork system should be demolished and replaced. In light of other air quality issues, the air handling equipment, and the fuel-fired heat exchanger should also be replaced and upgraded to provide adequate outside air.

**Water Heaters**

Six fifty-gallon hot water heaters, three each are located on either side of the building in attic spaces adjacent to the north and south rooms. Additionally, a large capacity water heater is located in the center of the men's showers in the south wing of the building. This large volume water heater services the 'common' shower rooms for the utilization of those guests occupying six rooms in the south wing. None of these rooms are provided with shower-toilet facilities but rather have access to 'common' toilet shower rooms provided in a separate room for each men and women.

Drip pans are provided for three water heaters located in the attic space, while they are not for the remaining three. It is not clear why the location for the large water heater was chosen to be within a guest accessible room, as the space available, the structure and utilization of the attic space for water heating appears appropriate. Likely the size of this unit presented a formidable challenge, and the idea of cutting a hole in the corridor ceiling did not appear a palatable option.

**Exiting From the Top Floor Motel Building**

Although ingenious, utilizing a window hinged sideways for exiting across the roof and down a set of

stair for emergency is not legal and represents a legal liability. Exiting signage is insufficient, and stepping up to a windowsill via a wooden stool and the hardware utilized to open the window is insufficient. A new secondary exiting scheme should be designed and built to service this floor.

**Fire Alarm System/ Fire Suppression System**

While a fire alarm enunciator board appears at the front 'lobby' of this building and appears to respond to various heat detectors located throughout the building, no other alarm features, strobe lights or warning devices appear in the various corridor segments or in the rooms.

We are recommending that a fire sprinkler system be installed in this building. See earlier discussions.

**Exterior Weathering Envelope and Interior Surfaces**

Exterior weather resisting components, [doors, siding, roofing, flashing, gutters and downspouts] with exception of windows appear to have survived very well, not exhibiting any signs substantial deterioration, of roof leaks, or of water migration through exterior walls. The windows are single glazed double hung sash with small glazing 'lites'. On the Southwest side of the building, the windows that are subject to prevailing weather are showing signs of deterioration. These should be repaired at the least. See earlier window discussion.

The building envelope as a whole is subject to air infiltration due to the connection of the crawl space to the attic space via pipe chases extending from one to the other. The individual rooms are relatively resistant to air infiltration due to the continuous plaster on metal surfaces of the walls and the ceilings.

While the exterior doors appear to be in workable condition, a pair of doors located in the north side of the bottom floor corridor, and a window adapted to provide egress from the top floor appear to present a liability issue regarding safety.

All single glazed windows to the south appear to be deteriorating at the glazing mullions, and glazing putty should be repaired.

If single glazed windows appear to represent a thermal efficiency deficit and it is determined that they should be replaced with thermal efficient, double-glazing, all the existing windows should be systematically demolished [or salvaged] and thermal glazing and frames be installed.

The siding is a high grade, horizontal lapped siding installed over diagonal sheathing. The siding has been drilled at each stud space and synthetic insulation pumped into the interstitial air spaces (See photograph 3.4). The holes used to access these spaces were then retrofitted with a metal ventilation cap. This process appears to coincide with a non-reputable phase of the insulation industry that utilized polyisocyanureate as the insulating media. This media had the double effect of off-gassing cyanide based gases, and of quickly loosing any possible insulating value, collapsing into the bottom of the wall cavity as dust. It is likely that this is the process was utilized to 'insulate' this building and the building remains non-insulated in wall cavities. Additionally, these holes appear to facilitate air infiltration, as air can be felt moving through non-capped holes during incidents of higher wind conditions.

The roofing for the sloped roof of this building appears to be constructed from the material known as 'Transite.' For lower slopes, most roofing materials consist of soldered, heavy sheet copper. For the

top roof, which is nearly flat, the roofing is a multiple layered, bituminous built up roof. These roofs are discussed in detail earlier in this report. Although not leaking as of the date of this report, portions of these roofs will likely fail within the next ten years without repair. See photographs 3.1, 3.2 & 3.6.

**Motel Thermal Efficiency**

Single glazed, multiple pane glazing installed in weight balanced double hung windows, although reasonably tight remains conductive of radiant heat and subject to air infiltration. See previous discussion.

Similarly, doors do not have weather stripping that is effective, nor does this building have foyers for reducing air infiltration.

The walls are not effectively insulated and previous insulation attempts have actually increased the air infiltration through exterior walls. See photograph 4.2.

The attic insulation located between ceiling joists is approximately 2.5" of cellulose loose, blown insulation. This material is dirty, and has compacted over the years. See photograph 1.8. This photograph shows a Swiss Army knife stuck into the insulation to solid material. The photo color is accurate, as the dust over the years has turned this material, and the adjacent framing gray.

The floors are generally not insulated, and the crawl space has been enclosed by plywood over the existing latticework.

**Summary of Motel Energy Features**

To summarize the physical thermal resistance of these buildings:

| Existing 'R' Value | | Approximate WSEC 'R' Value |
|---|---|---|
| Ceilings: | R-7 | R-30 |
| Walls: | R-6 | R-19 |
| Floors: | R-6 | R-19 |
| Windows: | Single Glazed | Double Glazed Thermal Break Frames |
| Weather stripping compromised | | Effective weather stripping |
| Air infiltration is high. | | Air infiltration would be much lower |

It would be appropriate to classify this building as 'energy inefficient.'

**Recommendation Regarding Motel Thermal Efficiency**

We would recommend demolition of the existing cellulose insulation in the attic including dirt, replacing it with a vapor barrier and blown insulation to depths exceeding 9", consider replacing all windows with thermally efficient double glazed thermal break frames, and insulate the floor space with fiberglass batts and an efficient vapor barrier, install effective weather stripping at all exterior doors, and consider constructing foyers for all entrance doors.

**Plumbing/Plumbing Fixtures/Space Planning – 1960 Remodel**

Bathrooms were added to this building approximately 1960. To this end, significant modifications

were completed on this building apparently to include the installation of Luan Mahogany wainscots, carpeting, vinyl floors and bathroom partition walls and plumbing fixtures. Although functional, these finishes and fixtures represent a 'marginal' grade installation. The carpet in the corridors is fully adhered, low commercial grade carpet, and sheet vinyl flooring for the bathrooms appears dated. See photos 2.5 through 2.9.

**Northwest Corridor and Hollow Core Corridor Doors**

Additionally, to accommodate bathrooms in the Northwest Wing, the corridors were diminished to 3'-8" and the access doors to the affected rooms were swung in a variety of directions to include into the corridor. Those three doors are non-rated, hollow core doors and do not conform to the intent of any recent interpretation the building code. These doors should be replaced with solid core doors.

Although solid core doors and solid wood jambs have been an approximate substitution for 20 minute rated doors set in steel jambs in the recent past, hollow core doors have no smoke or fire resistance what ever. Further, in concert with diminished hall widths, the out swinging doors are objectionable and the corridor is claustrophobic.

In photograph 2.3, the original doors with original in-swinging transoms, door closers, and surface mounted keyed bolts that were provided in response to making this building conform to requirements with a 'rated' corridor, and securing each room.

To help reduce the corridor width, a header was located within room 20. See photograph 2.1, 2.2 and 5.1. This header was added in the belief that the corridor provided the structural support for the ceiling rafters, and adding the beam would somehow compensate for the movement of that support. Actually the structural aspect of the corridor translates to the roof rafters from the piling and beam construction in the flooring system, and installing a header at the location it was installed does little within the overall structural scheme. However, it may have helped support the ceiling joists in that area.

**Handicap Accessibility**

There is one entrance at the south side of this building and one sleeping unit that vaguely conforms to 'handicapped accessibility' standards. It is shown in photographs 2.7, 2.8 and 2.9. The bathtub installation while generally conforming to handicapped standards regarding handrails may actually represent a slip hazard and does not conform to hardware requirements of current handicapped codes [there is not 48" clearance in front of the entire length of the tub].

The top floor of this building is not ADA accessible.

**Hazardous Materials**

The presence of hazardous materials, asbestos and lead, appears to exist as described in detail in other sections, as noted in references (i) and (j).

## 2. PAVILION BUILDING

The pavilion building is a wood framed building built partially over a concrete slab/footing design and wooden piling design. It was remodeled to house a community playhouse which entailed construction of the covered porch to the west, construction of additional space on the South side, installation of a central skylight and clear-spanning the central area with scissors trusses and tension rods. With exception of settling of the Southwest corner of this building, no other apparent movement was noted.

Modification of this building also included installing a large volume electrical air heating system, and modern and large capacity electrical system. See photographs page 6. The heating system is also located in an area utilized for landscaping maintenance, as pesticide, fertilizer and similar materials are also stored in the same room as the air handling equipment. The air heating system appears to be decommissioned, and the electrical system does not appear to be utilized. In the area of the back-stage, the high ceiling utilized during stage productions appears to be covered over with painted Luan Mahogany plywood. In one location, water damage appears to have resulted in de-lamination of the plywood. See photograph 6.2.

The building is heated now with electric baseboard heat with ceiling mounted circulation fans provided for purposes of reducing air stratification. Lighting levels appear to be very low.

The addition, which was constructed to accommodate community theatric productions, appears to be settling with the Southwest corner of the building out of level. See photographs 6.5, 6.6, 6.7 and 6.8.

Entrances from both East and West sides include no handicapped access rather relying on the connection to the Main building and the handicapped ramp at the Shanghai Restaurant with a circuitous path through three intervening spaces to achieve handicapped access for this building. Additionally, while one bathroom in the Main Building is accessible along this route, appears accessible, the other is not. [See photograph 5.2.] The Women's toilet is not wide enough according to meet ADA requirements.

### Presence of Hazardous Materials

This building exhibits the presence of creosote, lead paint and asbestos. See references (i) and (j). The roof of this building is predominantly 'Transite, with the characteristics of that type of roofing discussed in depth elsewhere in this report.

The fire alarm system for this building appears to consist of smoke detectors. Fire extinguishers are provided at all exits.

### Connection Corridor

The connection corridor between the Main Building and the Pavilion is a non-heated light framed building that is carpeted, and provided with locking doors on the Main Building side. This structure had minimal lighting and appears to also function as incidental storage. The lack of air supply within this corridor was particularly obvious.

## 3. MAIN BUILDING

This one-story structure, constructed with a cavernous attic space, was built on a platform of creosote treated piling, main structural members, floor joists and diagonal sheathing similar to those other buildings built on Point Hudson utilizing this construction method. Likewise, this structural system has been particular effective showing no signs of settlement or movement whatever. And the creosote treatment has effectively protected the structural platform against insects, or other pathogens that routinely attack wooden structures. Significant air quality issues were noticed during the assessment of this building and an independent air quality assessment is being conducted at the time of this report. See references (i) and (j). The attic space photographs 10.1 And 10.4 give an indication of the volume and size of framing material for this building. These are 'stout' buildings, with framing supporting the ceilings generally sufficient to support another floor at this elevation.

No significant signs of significant insect or rodent activity were noted in this assessment, save that of River Otters that routinely inhabit the crawl spaces of all buildings on this site built with crawl spaces. The buildings were retrofitted with enclosures for the crawl spaces for purposes of attempting to increase resistance to heat loss for these buildings once occupancies changed from military activities, to commercial and residential occupancies. See photograph 11.6, 12.2.

The building is constructed from the sub-floor upwards in a classic 'balloon' structure, utilizing high quality dimensional lumber [2x4s, 2x8s and heavy timbers]. See photographs 10.1 through 10.4. The ceiling structure spans from exterior bearing wall to interior bearing walls. This building also utilizes two significant truss structures for clear spanning the interior space in proximity to the center of the building between the two 'wings' toward the West. These are subsequently built on the centerline of beams and pilings at the crawl space.

This building is particularly stable exhibiting no signs of movement whatever as evidenced by a lack of cracking at interior plaster surfaces, movement at the foundation and any cracking observed at masonry flues.

### Main Building Thermal Efficiency

This building has virtually the same argument applied to the Motel Building. That is, the attic has minimal cellulose fiber insulation [<3.5"] that is covered with grime, the exterior walls are non-insulated, the windows are single glazed double hung wooden windows, and the floor is non-insulated. The thermal resistance is low and the air infiltration is high. Refer to previous discussions regarding the specific effects of this type of construction.

### Recommendation Regarding Motel Thermal Efficiency

We would recommend demolition of the existing cellulose insulation in the attic including dirt, replacing it with a vapor barrier and blown insulation to depths exceeding 9", consider replacing all windows with thermally efficient double glazed thermal break frames, and insulate the floor space with fiberglass batts and an efficient vapor barrier, install effective weather stripping at all exterior doors, and consider constructing foyers for all entrance doors.

**Main Building Heating and Ventilation System**

The Main building was originally connected to the steam heating system and included supply and return steam piping branching off to individual cast iron heating radiators. Those radiators in this building were demolished, and the supply piping decommissioned, otherwise leaving it in place. The general discussion regarding these issues included earlier in this report applies to this building.

This piping is located in both attic space [steam supply] and in the crawl space [steam return]. See photograph 10.1, 1.2,1.6,1.7 & 1.9. The steam piping system was insulated with asbestos insulation with it largely appearing to be intact and non-friable where this is the case. However, at each crawl space entrance a warning sign appears indicating that the insulation contained therein is hazardous due to becoming disturbed, and therefore friable. River Otters are disturbing the insulation also in this building.

Once decommissioned as a steam heated building, it was heated by a pair of fuel oil fired furnaces utilizing supply the various rooms ductwork installed overhead. These furnaces were located in each wing. The furnace located on the South side of the building is not in good shape and should be replaced. See photographs 10.6, 10.5. This system was designed as a re-circulation air system, and although fresh air makeup [≤10%] would normally be expected, no supply ductwork, is readily observable. See photographs 10.5 and 10.6. This system when operating supplies the various rooms, with the offices in the North and South wings probably heated via resistant baseboard heating. The Otter Crossing Restaurant is not heated via this central system.

Both oil fired heating plants ventilate combustion air to metal flues. (See photographs 10.5) The flue serving the South heating plant is showing extreme indications of corrosion, and has failed. It is deteriorating internally as noted by the profuse amount of rust staining visible on the flu surface. The liner flue has failed, and the refractory lining appears to be dissolving and flowing into the exhaust flue connecting the furnace to the stack. The barometric valve installed in the exhaust flue prior to the exhaust flue has accreted in an open position for the same heating plant (See photographs 10.5, 10.6).

The forced air heating system is supplemented at individual rooms via electric baseboard heating devices. This appears to be the case due to the desire to allow the control of heat to individual spaces, as both North and South wings are occupied by a variety of clients. In light of the apparent poor air quality, the lack of insulation in both walls, and floors and the minimal amount in the ceilings, it is not clear as to how actually effective this system has been.

In light of air quality issues, both air handling units, the flues and the connecting exhaust and fresh air ductwork system for both systems should be demolished, replaced and upgraded to provide adequate outside air, and full building coverage.

**Decommissioned Equipment In Attic Spaces**

There are a significant number of non-functional ventilation pieces of equipment located in the attic space that no longer function. See photographs 10.4, 10.3 and 10.2. This equipment appears to be corroding, and otherwise failing and should be demolished at the roof penetrations with the roof repaired at this location.

**Interior Finishes and Businesses Occupancies**

This building is occupied by a variety of small and larger businesses. The North and South wings are largely occupied by small office spaces with the Northeast wing functioning as the office space for the Point Hudson management group. The Shanghai Restaurant occupies the predominance of the building, with a minor amount going to the Otter Crossing Restaurant, and to various banquet rooms, and minor serving areas. The Shanghai Restaurant, operations appears to be operating at a disadvantage with antiquated or inadequate electrical services [See photograph 11.9] provided for this area and stairs located between the kitchen operation and the cold storage facilities [See photograph 11.7], a cramped grill area [See photograph 11.1] and a general lack of storage space.

Similarly, the Otter Crossing Restaurant is operating at a disadvantage with inadequate electrical capacity [See photograph 12.5, 12.7] and cramped kitchen. They also appear to lack sufficient storage space [See photograph 12.6].

This building is also filled with Luan Mahogany that poses no problem other than aesthetic issues, that of a perception of poor detailing [See photographs 11.4, 11.9, 12.1, 12.8]. Attention to janitorial spaces, storage spaces, painting, flooring and similar finishes issues would benefit the interior of this building enormously. [See photographs 9.3, 11.2, 11.1, 12.9.]

We are recommending that a painting, and finishes upgrade program be established and added to the maintenance plan for all of these buildings, inside and outside.

**Electrical Recommendations**

For the Shanghai Restaurant, provide a new riser and 400-amp main distribution panel. For the Otter Crossing Restaurant, replace service panel with 200-amp panels with main breaker and 42 branch circuits.

**Fire Alarm System/ Fire Suppression System**

While no fire alarm enunciator board was apparent for this building, Heat/smoke detectors are installed at various locations throughout the building. No other alarm features, strobe lights or warning devices appear in the various corridor segments or in the rooms. Fire extinguishers appear to be provided at all exits.

We are recommending that a fire sprinkler and alarm system be installed in this building. See earlier discussions.

**ADA Accessibility**

Entrances from both East sides of this building include no handicapped access rather relying on the handicapped ramp at the Shanghai Restaurant, which provides a circuitous path for handicapped access to the various spaces to achieve handicapped access for this building. Additionally, while one bathroom in the Main Building is accessible along this route, and appears accessible, the other is not. [See photograph 5.2.] The Women's toilet room door is not wide enough [2'-6" wide] to meet ADA requirements.

**Presence of Hazardous Materials**

This building exhibits the presence of creosote, lead paint and asbestos. See references (i) and (j). The roof of this building is predominantly 'Transite, with the characteristics of that type of roofing discussed in depth elsewhere in this report.

## 4. DUPLEX BUILDING

This building is a residential occupancy, constructed from similar materials, built on a creosote timber foundation as discussed earlier, a roof covered with Transite, and copper materials, the thermal characteristics are almost identical to that of the Motel with the predominance of that discussion applying to this building. The difference is that the attic space in this building has had fiberglass insulation installed at the ceiling joist space. See photograph 13.3.

Two slender flues exist in this building, with the discussion regarding flues applying to this building also.

**Duplex Heating And Ventilation System**

Complaints regarding high humidity content of the interior air, and considerable growth of mould and mildew were noted in the North Duplex, while not noted in the South Duplex. Interior air quality appeared poor. An attempt by the occupants to reduce the humidity in the air of the unit includes the installation of a dehumidifier in the bathroom area.

Review of the heating system indicated that the original steam piping system has been modified to conduct hot water to the existing steam radiator system. This is an oil fired boiler arrangement located in a dedicated boiler room, and supplied by a single fuel oil tank. The South boiler appear to be new with new flue attachments to the existing masonry flue, while the boiler system serving the North Duplex appears to be 'old and tired'. The flue serving this equipment is suffering from accretion from the masonry flue, including the barometric damper encrusted with corrosion. The flue serving the South unit also appears to be receiving material from the main masonry flue. See photograph 13.5 and 13.6. Additionally, both units appear to be heating the water past the set value of the pressure valve for the boiler to the result of discharging water. This intermittent discharge is seen as staining on the sides of the boiler units, and the standing water on the floor.

As this system is strictly a piped hot water heating installation, it is not related to air quality problems experienced in the interiors of these units. However, the lack of insulation and the perception of draftiness due to air infiltration could.

The electrical system is an amalgam of new breakers installed into old fused breaker panels. This is an infraction of the Electrical Code. See photograph 13.4.

Whereas the conversion of the steam piping system for this building was completed to utilize hot water, the conversion appears to not be very clean at some locations. See photograph 13.5 top, showing friable asbestos at the culmination of the piping and insulation. The extent of piping can be seen at photograph 13.3.

Copper roofing can be seen in conflict with an existing tree. We'd recommend pruning the tree, and encouraging it to grow further from the edge of the roof.

Plumbing fixtures are original installations and are wearing out. Adjacent finishes have reached their useful life and should be replaced. See photograph 13.1.

The face of the Duplex oriented toward the Southwest [Western and Southern faces] is showing signs

of persist ant deterioration. The devices that are showing wear include the shutters on both top and bottom floors, an ornamental window in the center of the building, the door and door enclosure for the boiler room, the ladders that provide access from the second floor in the instance of fire, and the porch enclosure located on the South side of the building.

The porch enclosures on both North and South sides are constructed around ornamental columns, and molding details. These columns are traditionally hollow, prefabricated and may or may not be structural. The exteriors of them exhibit a vertical or lateral crack from top to bottom, and extending through the associated molding at the base of the column. This may be seen at photographs 15.7, 15.8 and 15.9. Although this type of cracking does not imply failure, it does imply persistent water migration and movement of a semi-structural component. These features should be repaired.

The roof leak in proximity to the front door appears to be the result of high wind/rain conditions and is likely related to water being drawn up around flashing details at the roof/ wall conjunction.

**Duplex Landscaping and Grounds**

The tenants of this building have both invested a considerable effort into the exterior vegetation and landscaping features of the Duplex grounds. The North side tenant particularly has invested a large sum in landscaping, raising planting beds, installing an outbuilding, and planting extensive volume of plants in the back yard. See photograph 14.2, North Duplex.

## 5. SHOWER BUILDING

This building is a multiple function occupancy building, constructed from similar materials, built on a creosote timber foundation as discussed earlier, a roof covered with Transite, the thermal characteristics are almost identical to that of the Motel and Main Building with the predominance of that discussion applying to this building.

This building has the service entrance and the breaker panels located on the outside of the building. This is a violation of the National Electrical Code. In addition the area around these devices is saturated and the installation represents a shock hazard.

This building functions as the shower facilities, and the laundry facilities for the marina occupants. Additionally, there is a dedicated living space for maintenance staff, storage rooms and a transient sleeping room. Newer aluminum windows have been installed in the caretaker's residence, while a secondary entrance to the same area on the East side of the building has been decommissioned. The entire building needs repair and repainting. Rust from siding, and window flashing is staining the exterior of the building. See photograph 16.4. The conflict of a Holly tree with the building near the East entrance needs to be corrected. See photograph 16.2.

Floor finishes appear to be particularly in need of replacement, while plumbing fixtures and storage closets at various locations would benefit from updating. See photograph 17.1

Windows located on the South and West sides are deteriorating quickly. The discussion regarding window replacement applies particularly to this building, as both original and newer windows coincide. The problem associated with damaged steam pipe insulation being disturbed by River Otters is pronounced in the crawl space of this building.

The occupancy of this building does not appear very well assigned or utilized. As the building is located in a predominant location on the site, it is surprising that the two functions assigned to the most significant views are essentially residential, and that both areas largely have their windows covered from inside. See photographs 16.1, 16.3, and 16.4. Additionally, it is here that pedestrian interests regarding the allocation of space appear to be defining as to Point Hudson community values. That is, all interests other than those associated with vehicular traffic do not exist. See photograph 16.6.

### Shower Building Landscaping and Grounds

The space surrounding the shower building is not in good condition. On the South side, vehicles park directly against the building. The same is the case for directly in front of the building were one would expect reasonable and welcoming pedestrian access. To the rear in proximity to the caretaker's residence, a chained dog has filled the area with feces, and torn the grass into a circle of semi-mud.

The overall impact of these things appears to be that of disregard, and disrepair.

### Hazardous Materials

This building is subject to the conditions regarding hazardous materials discussed elsewhere. This includes the incidence of creosote, asbestos, and lead paint.

## 6. PIGMY KAYAK AND STORAGE BUILDING

### Pigmy Kayak Building

Both the Pigmy Kayak Building and the building located to rear of it to the West are constructed significantly different from those buildings built on piling. The Pigmy Kayak Building is built on a concrete slab, thus escaping issues associated with piling buildings. The lessee of this building has made a considerable amount of modifications and improvement to this building, all relatively beneficial. Thus, he has installed new windows; a relatively new electrical service entrance and distribution panel, new finishes, has insulated the ceiling above the office space, and has maintained the interior finishes.

This building exhibits no sign of movement and the roof appears to be without significant distortion. See photographs 18.3, 18.1. This building is non-heated. The attic of this building is utilized for storage.

No building envelope leaks were reported by the lessee, with exception of a periodic leak occurring at the South East corner of the building near the floor. See photograph 18.3. This leak is likely the result of high storm water conditions resulting in poor adjacent grade conditions, and the draining storm water from the roof directly to grade. The lessee indicated a desire for additional space and preferred a location to the rear of this building depending on the status of the adjacent Storage Building.

### Storage Building

This building exhibits construction details similar to that of the Pigmy Kayak Building, with exception that it does not have a concrete floor slab. The floor appears to be native dirt. The exterior siding, the windows, the doors and all connections appear to be failing due to water infiltration. The siding has a hole that is approximately 2' x 2' exposed to the Southwest that is totally open to ambient weather conditions.

Ironically, this roof that is similar to all buildings and apparently covered with Transited shingles, still does not leak in any significant fashion. The roof gutters are failing however, and when they do, all fascias, and siding will deteriorate very quickly. See photograph 18.2. This building is still utilized by various people for storage of 'stuff.' It does not appear to have any electrical capability what so ever.

## 7. COMMANDER'S BED AND BREAKFAST

This building exhibits similar characteristics to all buildings built on piling, similar roofing material, similar problems associated with River Otters, exhibiting hazardous materials exposure from creosote, asbestos and lead.

However, this building has largely been maintained. And although the window debate is particularly important here especially in respect to considerable damage reported by the lessee to windows located on the second floor, the lessee is of the opinion that they all should be replaced with thermally efficient windows.

Additionally, combustion devices are utilizing both brick masonry flues, one being a propane new boiler installed by the lessee, the other by the living room fireplace. See photographs 19.3. The propane boiler appears to be a very high quality installation and includes a very clean installation utilizing the existing steam piping. The piping insulation appears particularly well maintained. Both boiler installation and fireplace insert were installed at the cost of the lessee.

The interior air quality for this building is particularly important, as the clientele of this business is generally very sensitive to perceived qualitative issues. The air quality of this building is not good.

Appliances in this building appear to be dated, and the condition of the electric oven and microwave appear to be a problem with the Health Department due to the condition of the door seals.

The landscaping around this building appears to be important to the lessee who perceives it as a feature that supports his business. A submarine can be seen from a vantage point similar to that, which is anticipated by the clients of this business. See photograph 19.7.

There is a handrail that should be constructed for egress from the porch to access the yard. See photograph 19.3.

## 8. MARINA OFFICE/ARTFUL DODGER

This building while a miniature version of the Shower Building and exhibiting all the same construction issues has avoided most all the problems by not having an enclosed crawl space, no steam piping, and limited exposure to the Southwest. With exception of the roof, which needs as much attention as any of the Transited roofs with damaged gable edges and loose tiles in the center of the roof, the building appears to be in good shape. This roof appears to have been damaged by foot traffic, and should be repaired.

There is some indication that the floor deck located at the addition to the rear of the building is being consumed by fungus. See photograph 21.6, and 21.3. This condition however appears to be very slow and likely easily stopped.

Although many buildings in this complex have creosote piling, and substructure, this building appears to have been constructed with a different type of floor deck. Whether the lesser amount of creosote under this building, a different characteristic regarding vapor transmission to the inhabited space, or simply wide open below floor ventilation is the reason, this building does not appear to have an air quality problem what so ever.

Even so, the pilings under this building are the only ones that appear to have any weathering affecting the creosote. See photograph 21.5.

## 9. ARMORY BUILDING (SAIL LOFT)

Of all the buildings on Point Hudson this one is probably the most unique. This building is called an 'Armory,' and has functioned as an armory, but it also has functioned as a repair facility for the 'motor pool' with vehicles being repaired on the bottom floor area. Thus the concrete floor has varying elevations, and is designed to be accessible from adjacent grade at different locations. It is most likely a piling supported perimeter concrete grade beam or similar structure.

**Fire/Explosion Hazard**

Due to the original installation of archaic electrical distribution panels that service this building, and associated sub-panels in the presence of organic dust, and potentially volatile vapors, in conjunction with the general construction type and in the face of considerable potential fuel contribution due to materials storage, and the general work product on the bottom floor, this building is at risk of fire, and probably explosion. With the second floor occupied by a business that employs several people, and a single point of egress from that floor, we believe this to be a serious, and immediate condition.

A fire in this building could easily be very fast, and reaching 800 to 1,000 degrees literally in a matter of three minutes. This building possesses the characteristics that could easily result in 'flashover' conditions wherein all organic materials reach a combustion temperature almost simultaneously. From this standpoint we are recommending extreme caution with this building.

The fuel contribution is enormous, and there is nothing that would restrict oxygen from reaching a fire. Additionally at risk are all businesses and buildings, and all vehicles surrounding the site. Once started, nothing would slow a fire down in this building.

We are presenting recommendations for this building regarding this hazard near the front of this document, but generally consist of sprinklering, and providing a fire alarm system, providing an alternate route of egress from the top floor, developing emergency egress plans from all areas, increasing the number and the capacity of incidental fire extinguishers, and establishing a program for decreasing potentially hazardous conditions in and around this building. This would include following the directions of the Fire Department, decreasing fuel contribution in terms of materials storage, and the elimination of refuse, miscellaneous structures, and trash accumulations from around this building. We also recommend that this work be accomplished immediately.

**Armory Building Structural System**

The bottom floor, and all of the perimeter foundation appears to be without significant movement although the bottom floor does exhibit an area of significant 'warping' towards the Northwest quadrant. Neither floor slab nor perimeter foundation exhibits any large-scale cracking. This would be consistent with a piling supported foundation.

Structurally it represents a series of interesting problems. It appears to be constructed with a series of structural 'bents', or column organized structural frames, running roughly east and west. These are constructed from large timber columns extending from the bottom floor to approximately the floor elevation of the second floor. These columns are braced laterally by knee braces. See photographs 23.2 and 23.3.

In the other direction they support timber spandrel beams that in turn support floor joists, and roof rafters spanning the lower roof structure.

This building can be seen to exhibit differential movement in proximity to Column line #2, Photograph 24C.2. The effect of the movement can be seen in photograph 24C.4, 24C.5 and the ponding on the top roof seen in photographs 24C.3, 24C.6.

In photograph 24C.5 at the point indicated as '1', the roof appears to be in a straight line while by point '2' it has clearly lowered by as much as 8 inches. This movement appears to translate from lower roof to upper roof, while becoming more accentuated at the upper roof. It also appears that while one column line has become lower, the overall pitch of the North end of the building has also changed. See photograph 24C.4. This movement has occurred without appreciable apparent movement of the foundation has no significant cracking can be seen above grade at the perimeter of the building.

To complicate matters, the entire ceiling of the top floor shows an indication of lateral movement. This is expressed as cracking through recent paint at the edges of ceiling panels. This cracking runs in both directions in the plane of the ceiling. See photographs 24.5, 24.6, 24.3, and 24.4. This type of cracking is extensive.

Additionally, torsional [i.e. rotational] movement of 40% [approximately] of the columns appears at the connection with the roof beams. See photographs 24.7, 24.8 24.9 and 24.10. This movement appears to exceed ¾" in some locations and appears to have occurred since these components were most recently painted. See photographs 24.10, 24.8. Also, in photograph 24.10 the cracking pattern suggests a 'rocking' movement back and forth. There are no connectors visible at the junctions of the beams and columns, nor are there any indication of moment connections at these joints.

Although cracking of the beams over this area exist being visible at their vertical faces, this cracking resembles 'checking' of heartwood installed with high water content. These cracks appear on one side of the beams and do not appear to go through the entire width of the beam.

However, there are some cracks that appear to resemble beam or column failure in proximity to beam/column connections. See photographs 24.8.

Therefore, structurally, this building is showing signs of movement. This movement is vertical along column line 2, and it appears to have moved in the most recent earthquake event laterally. How and why columns might be moving torsionally is not clear. That the connectors from beam to column cannot be seen and may actually not exist is a concern, but that consistent movement of most structural feature on the second floor is a real concern.

Additionally, by reviewing the structural conditions on the first floor, that the only lateral stiffening that is apparent appears to be knee braces at the central columns without any other shear capacity in the stairwell, or end walls confirms our suspension that the lateral stability of this building does not look good, and likely due to these conditions, is expressing movement of its structural components.

**Structural Recommendations for the Armory Building**

We are recommending a structural evaluation be conducted for this building focusing on lateral stability issues, and on why a single column line would diminish in height at one location. This evaluation should include an earthquake stability component.

**'Roof' Leak at The Second Floor of The Armory Building**

Somewhere in proximity to the 'tower' on the Armory Building, a persistent leak has been occurring and showing up at a critical location within the business occupying the top floor of this building. The leak has been migrating down the structural support on the Southwest side of the building. See photograph 24.2.

In review of the tower conditions, the effort to solve this problem that has been focused at caulking the windows, did not succeed because the migration problem likely involves the entire face of the exposed walls on East, South and West sides of the tower. Due to the tower height, the configuration of the building over all, the combination positive pressure on the windward side of the tower and building, and the negative pressure on the leeward side of the tower, produces a combination negative pressure within the tower which pulls water from the outside siding in through any path available to satisfy the vacuum. Thus, the entire wall leaks, and accumulates water in puddles on both tower floors, and illustrated in photographs 24B.1 through 24B6. This water migrates to the bottom floor of the tower and leaks directly down to the enclosed space at the Armory second floor.

When the tower receives significant sun exposure all saturated materials dry, releasing considerable water vapor that migrates back through the exterior walls and ceiling. The extreme deterioration of the paint at the tower top floor is the result of moisture migration back and forth through the plywood ceiling material. See photograph 24B.1.

We recommend applying new siding directly over the existing siding installation with a product similar to 'Hardiboard', which is a durable, Portland cement product that is manufactured in larger sheets [4'x8']. This could be detailed at the corners and edges to look similar to the existing siding, and would function to short circuit the vacuum generated by the tower. Additionally, the tower roof should be replaced, and bona fide windows in jambs installed in the glazing rough openings now occupied by plastic.

**Armory Building Roofs**

This building has had its roofing replaced within a recent timeframe [last 15 years], and has been repaired and insulated for a portion of the top floor. This may bee seen in Photographs 24C.3 and 24C.6. The remaining portions of the roofs appear to also be without significant problems and should perform well for the next two decades.

**Windows/Doors**

Most of the windows located on the bottom floor of this building consist of single glazed, multi pane wooden sash components and are original issue. These windows have similar problems described elsewhere in this report for these buildings. On the second floor, however, many of these windows although not all have been replaced with vinyl framed double-glazing that is reasonably thermal efficient and infiltration resistant.

The 'barn door' occupying the South end of the building appears to swing freely in its jambs exhibiting little distortion. The door located on the East side and near column line 2, is clearly trapezoidal illustrating the building movement discussed earlier.

**Thermal Efficiency**

Most downstairs workspaces are dedicated shops and utilize sources of heat that are focused on work areas rather than ambient air conditions. The top floor on the other hand, has unit heaters installed [by the tenant], which pump hot air into the workspace.

With exception of the top floor, thermal efficiency is a moot point. At the top floor thermal efficiency includes 2" of roof insulation applied over a part of the roof, and insulated windows [some of them]. There is no wall insulation and the floor is non-insulated. This later condition probably results in the top floor being the recipient of any excess heat generated on the bottom floor.

**Storm Drainage Around the Armory Building**

The roof drains discharge a considerable volume of water directly at the location of public entry into this building. This appears to be a problem with the various tenants applying creative solutions to the problem. See photographs 24B.10. Surface water appears to be directed to a few catch basins and subsequently directed into the waters of the Puget Sound through the marina. Otherwise this water appears to perk directly into adjacent grade. Neither approach appears to be very satisfactory and may be related to the eventual planning needed for this facility.

## 10. Wooden Boat Foundation (Cupola Building)

The main portion of this building is typical of all Point Hudson Buildings that are built on piling. However, the addition to the rear while appearing to be temporary also appears to be constructed on concrete piers, avoids problems associated with creosote, crawl space asbestos, and probably lead paint. The main building however is subject to these conditions. This building is the subject of discussion in roofing sections, heating sections, and roofing sections of this report. The brick masonry flue in this building is not currently being functionally utilized.

### Historical Value/Landmark Building

Where the attitudes that exist for this property utilize historical significance interchangeably with landmark significance without recognition of the difference between them, both terms can apply to this specific [and probably only] building located on the Point Hudson site. When people think of Point Hudson, this building, and the associated occupancy, is likely the one that surfaces first. The reason for this opinion is that it is located at a predominant crossroads for both vehicular, and pedestrian site access, it is a distinctive building with a single occupant, it is a clear statement of the vernacular of the site, and it has landscaping and signage that reinforces it's function.

Limited pedestrian allocation of space, the shape and status of the 'addition', the location of the fence at the adjacent bottom wash facility, and general lack of access to viable parking are disadvantages which detract from both historical and landmark values for this building.

### Wooden Boat Foundation Recommendations

We would recommend installing a forced air heating system to service this building to replace the individual resistance heaters that accompany the various places people work, repair gypsum and building paper siding for the addition and installing siding over that entire structure, insulating the addition, and providing additional electrical circuits as indicated in recommendations elsewhere in this report. We would insulate to excess those areas that are accessible in ceilings and floors. We would upgrade all fire extinguishers, and increase their individual capacities.

We also recommend providing a bona fide ADA accessible route into the building [See photograph 25.6] and providing accessible toilet facilities [See photograph 25.10].

We recommend finding the roofing leak, and fixing it as discussed elsewhere.

### Materials Located Around the Perimeter of the Buildings

We also recommend moving the accumulation of materials located around the perimeter of these combined buildings to a central location and storing them in an organized, secure and dry manner.

## 11. LANDFALL RESTAURANT BUILDING

Whereas the Wooden Boat Foundation Building is both a landmark and posses historical significance, the Landfall Restaurant is a landmark building only. In this instance, the location and ambience of the combination of buildings makes it a predominant feature of the neighborhood, and community.

Local people driving or walking by these buildings consistently look to see who is seated there, and those seated therein look to see who is driving or walking by. This mechanism is an example of that which is termed 'informal pedestrian institution' elsewhere in this report. In this case however, half of the viewing is achieved via automobile. This is one of those institutions that define the Point Hudson Community, and this collection of buildings as a landmark.

The buildings are in a variety of conditions, none of which appear to be of significant concern to the lessee. His opinion is that once lease conditions have been successfully negotiated, he will be free to upgrade these facilities. However, the buildings exhibit some weaknesses including areas of the roof that have leaked in the distant past, visible air gaps at the dining area, a site drainage issue at the front door, and lack of electrical panel capacity. See photographs 27.2, 27.3, 27.4 and 27.5. The lessee plans to eliminate the floor step shown in photograph 28.3, and modernized toilet facilities.

The spaces of all of these buildings appear to be fully utilized with the kitchen shown as an example. See photograph 28.2. We believe that the lessee is aware of all of the advantages and disadvantages this site has to offer, and is waiting for lease conditions to firm up prior to proceeding with modification plans.

## 12. Site and Site Components

### Potable Water

The main water supply for this facility is located in a box in proximity to Jefferson Street. See photograph 29.1. This main provides potable water and firewater to Point Hudson Proper. This system is not metered and is discussed earlier in this report. Recommendations regarding metering this system are likewise contained within the same discussion.

### Site Electrical Service Recommendations

Site electrical service recommendations are located elsewhere within this report.

### Sanitary Sewer System

Anecdotal information regarding this system has indicated that the sanitary sewer system serving Point Hudson appears adequate, with a intermittent problem occurring at the lift station located off of the Point Hudson property, and maintained by the City of Port Townsend. No other indication, or complaint of the functionality of this system has been documented in this assessment.

### Solid Waste System

Solid waste dumpsters at various locations around the site appear to require basic concrete pads and should be provided with enclosures. The dumpster site located in proximity to the Commander's Bed and Breakfast appears to be hazardous as the dumpster is located on plywood and is not level. If this dumpster were accessed by someone slightly off balance, the lid or dumpster movement could incur personal damage.

### Roads, Sidewalks, Curbs and Storm Water System

Approximately 50% of the paved road system for Point Hudson appears to be failing with sub-base and paving course deterioration, with the remaining 50% deteriorating at various degrees. The edges of the predominance of the roadways are non-distinct, often transitioning into gravel 'parking' areas over curbs and into beach access areas, and handicapped parking is not clearly identified. Parking over all appears particularly poorly planned with some parking areas carved from landscaping areas and over curbs.

Additionally, sidewalks, which may be largely seen as not adequately servicing the pedestrian utilization of this site, are either located in the wrong places or are absent. See Page S-2. Pedestrians often cross vehicular transportation paths, and often occupy the same spaces. Sidewalk or other pedestrian oriented features generally do not serve entrances to buildings adequately.

The storm water system appears to involve intermittent catch basins piped directly to Puget Sound without treatment and day lighting at various locations around the perimeter of Point Hudson. The remainder of storm water that is generated by the various impervious materials at this site, apparently discharge to adjacent grade and percolates down to the water table.

The State of Washington, Department of Ecology has recently upgraded their Storm Water

Management Manual for Western Washington. This manual has implemented more stringent requirements for retention, and for water quality treatment. These requirements will apply for any future improvements for Point Hudson.

**Sink Hole**

There is an area located near the jetty in proximity to the Shower Building that has been receiving additional fill material for a considerable period of time. This 'sink hole' is located near the fire pit in that area. The nature of this apparent anomaly is not clear at this time but points to the active nature of the tidal zone in that location.

# IV. RECOMMENDATIONS FOR FACILITY UPGRADING AND REPAIR

## A. Assumption of Occupancy

### Estimate of Deficiencies

This report addresses issues that are 'critical,' those that are associated with 'best case' conditions or those issues unique to specific buildings.

Whereas 'critical' issues are those which need to be addressed with all due haste, 'best case' conditions should be addressed in an organized maintenance plan considering the effects of capital expenditures, and phased over a specified period of time. In an ideal world these items would make Point Hudson conditions less costly, efficient, more appealing, or would be reasonable maintenance items associated with preventing conditions from deteriorating further. Conditions Affecting Specific Buildings and Site Components are those issues unique to specific buildings and generally tend to be minor in nature.

It is important to note that accrual of maintenance items will eventually accumulate sufficiently to prevent a facility from functioning efficiently. Whereas these items are 'best case' conditions, they may eventually become 'critical.'

A statement regarding the existence of hazardous conditions, and potentially hazardous conditions is contained at the front of this document.

### 1. Critical Items - Safety Issues

A. Armory Building – Archaic electrical panels. Panels should be demolished and new panels installed. See item 2G, below.

B. Armory Building – There is indication of apparent building movement. We are recommending a structural assessment of the building be conducted with emphasis placed on earthquake resistance.

D. Friable Asbestos, and Asbestos Management. We are recommending abatement of all friable asbestos located predominantly in crawl spaces of buildings with piling foundations. Other locations noted at specific buildings not contained within the crawl spaces may also be 'friable', and should be abated. The asbestos management plan should be modified to include these conditions. Tangentially, as a part of this work item, we are recommending that mammal barriers to include above and below grade wire mesh, be install

### 2. 'Best Case' Conditions – Significant Systems Rehabilitation

A. Heating and Ventilation Systems, Energy Consumption. We are recommending that all insulation that is accessible in all buildings with appropriate occupancies, be demolished [dirty, blown cellulose] for specific buildings, and a vapor barrier and excess values of blown insulation be re-installed. For buildings with fiberglass insulation, we are recommending additional fiberglass be installed.

B. Brick Masonry/Flues. We are recommending that those flues not otherwise being utilized to conduct combustion gasses from buildings, and those that represent especially tall slender construction types be studied

for demolition, with the associated buildings repaired.

C. Roofs and Roofing Materials. We are recommending that all roofs with Transite shingle materials and failing ridges, be installed with new ridge materials. We are recommending that this shingle material be repaired where foot traffic, or other damaged areas exist. Where copper roofing exists and is failing due to movement or foot traffic, or to tree interference, that a means of rerouting foot traffic be constructed, interferences due to trees, or that is suffering fatigue due to movement, be replaced in kind.

D. Windows, Glazing, and Maintenance. We are recommending that all single glazed, double hung windows with multiple lites be replaced depending on the status Point Hudson being utilized as historical capital. If this emphasis were not to be a strict conformance to original building conditions, this recommendation would be to replace all of these windows with double glazed, thermally efficient windows. Otherwise this item would be placed in an extended maintenance plan addressing each window periodically.

E. Fire Suppression System. We are recommending that specific buildings be provided with fire sprinkler systems. These buildings include the Armory Building, the Motel Building, and the Main Building. We are also making recommendations regarding providing a loop connection of the fire main in proximity to Water Street, and upgrading the fire hydrants to conform to Fire Department standards. Extensive recommendations are also presented in this report regarding specific buildings, site debris, and accumulation of fuel contributing materials, fire extinguishers, and emergency planning.

F. Metering for Potable Water System. We are recommending that the potable water system for Point Hudson be provided with a system meter, and that the individual buildings, and marina, be provided with water meters.

G. Electrical System. We are recommending that:

1. The primary service for this facility is changed to 3-phase service.

2. There are several pre-war electrical panels with fused circuits [one in the hotel, two in the armory] that will be replaced.

3. There are many branch circuits fed by the older panels that do not have grounding conductors, which will be provided.

4. Most of the smaller services are fed by individual feeders (Artful Dodger, Marina Office, Landfall Restaurant, etc). While the service is adequate and panels are modern, all available circuits are fully utilized. We are recommending providing adequate circuits.

5. NEC requirements for receptacles in restrooms, kitchens, outdoor locations, etc have changed in the last decade to require Ground Fault Interrupting capability.

6. Exterior electrical panels servicing the marina appear to be adequate and have spare circuit capacity. They are deteriorating in the marine environment.

H. All Buildings Built With Creosote Foundations, and Enclosed Crawlspaces; Otter Infestation [Excluding Office Building/Artful Dodger, and those with Concrete Slab Foundations]:

1. Results of air testing for these buildings have confirmed that materials associated with creosote are not a hazard to occupants. Therefore, the existence of creosote in the crawl space while being above

perceptible thresholds associated with smell, does not represent a problem otherwise for the occupants of the various buildings. This item is therefore no longer a critical item. But the buildings that represent businesses with a relatively high user rate, or that cater to clients who remain for extended periods of time within these buildings, report an impact to their businesses due to the creosote 'smell'.

2. Insulation. For the following buildings: Motel and Laundry Building; Main Building; Duplex; Shower Building; Commander's Bed and Breakfast; Wooden Boat Foundation [Cupola Building]. We are recommending that batt insulation equaling R-19 be installed between the floor joists. This insulation should have an aluminum faced vapor barrier installed to the warm side [up]. Additionally, a draft stop should be stapled to the bottom of the floor joists [Tyvek, or something similar].

3. The crawl space should be opened back up to ambient air. That is, the plywood that is applied to the perimeter crawl space lattice should be removed. A wire mammal barrier consisting of wire mesh similar to McNichols 'Weldmesh' [5/8"x5/8"x.063"; 6 feet wide by typical lattice width; galvanized with trimmed stubbs] 1-800-237-3820. This material should be stapled to the inside of the existing lattice at the perimeter on the inside with approximately half bent horizontal with the adjacent grade and buried 6" minimum below grade. Additionally, once the river otters have been evacuated from a space, they should be provided an alternative shelter to migrate towards. They will attempt to reclaim this space and are smart enough to burrow under any barrier that is utilized to stop them.

It is important to note that this recommendation occur in tandem with changing the Heating and Ventilation Systems for these buildings to effectively reduce the 'creosote' problem.

J. Heating and Ventilation of Buildings With Creosote Foundations, and Sensitive Occupancies

A new heating and ventilation system design should be installed for the following buildings: Motel Building [but not the Laundry Building]; Main Building; Duplex; Shower Building; Wooden Boat Foundation [Cupola Building].

These systems should provide excess air supply to the ambient air space, and fueled economically. The primary systems could be systems ranging from fuel oil fired, single zone forced air system similar to those existing, to multi-zone heat pump systems, several issues will quickly become apparent. The first is that any new system installed in these buildings should supply a greater mix of fresh air to the occupied spaces than is currently being supplied. This should be in addition to providing a positive pressure to these spaces for purposes of reducing the infiltration of air from creosote-laden spaces. The combination of insulation and positive air pressure in these buildings will provide a higher quality of air within the occupied spaces.

Secondly, the various spaces should be considered carefully according to the requirements of the occupancies regarding zoning of the systems, and subsequent systems controls. This work should be achieved subsequently to increasing the site power to 220V, 3phase [for heat-pump systems], and subsequently to re-insulating the various buildings.

Regardless of the system selected to fuel these heating and ventilating units, the ductwork supplying the various areas and the ductwork providing for fresh air requirements should be designed for the dynamics of this site, and to accommodate these occupancies. The existing ductwork would largely be demolished.

**1. Heating and Ventilating System Considerations-Motel Building**

In addition to inadequate Heating and Ventilation systems, this building also has some functional problems. The Heating and Ventilation furnace room appears to occupy square footage that could provide access between the motel operations on the bottom floor, and the laundry facility. This areaway also may be the key to providing amenities for guests. Therefore movement of this function to a different location (i.e. attic) could be a tangible asset to the functionality of this building. A complexity associated with an installation in this building would be the ability to vary heating functions to the various rooms due to the wide variety of exposures, and occupancy fluctuation this building experiences seasonally, and by demand. Thus, efficiency of operation will be a challenge for the design of the Heating and Ventilation system for this building.

Additionally, due to the orientation and exposure of the building, combustion heating with the associated requirements regarding exhausts and intakes, place real design conditions regarding actual boiler locations, combustion air access from the ambient air and similar handicaps regarding long-term functionality of combustion furnaces in this location.

We would recommend that a split phase heat pump system, perhaps consisting of smaller multiple units.

**2. Heating Ventilation System Consideration-Main Building**

This building is faced with similar options as to the Motel Building. However as the occupancy of this building is less mercurial daily, but represents occupants with widely varying requirements [large volume restaurants, to small single room offices], system controls will be important. It is likely that smaller volume individual heat pumps could service the smaller spaces, while a multiple zone larger system could service the other spaces in the building.

**3. Heating and Ventilating System Considerations-Duplex**

Conversion of the heating systems for this building from oil fired, hot water boilers utilizing existing radiators and radiator piping to a forced air system is not logical. However, replacing the north boiler in kind or providing a propane fire system for both north and south duplexes is possible. If a combustion-fired system is retained for this building, the connection flues and barometric dampers should be replaced. Additionally, pop-off valves should be plumbed to outside of the building.

An additional source of ventilation should be provided for both North and South Duplex units and could actually take place as ventilators for bathrooms and/also kitchens. This work should take place after crawl space, and attic insulation work has been accomplished.

**4. Heating and Ventilating System Considerations- Shower Building**

Although the furnace for the shower building appears to be in really bad shape, the utilization of this building is so questionable, that providing a new system should be delayed until a determination of use has been achieved. A new system could be designed which would accommodate the new occupancy[ies]. Likewise the type of system should be determined at that time. If the occupancy of this building generally remains [i.e. shower, laundry facility with an attached residential unit, and considerable volume of miscellaneous storage space], then the

existing furnace could be replaced in kind, or converted to propane. Whereas insulation strategies should be pursued with this building as soon as possible, the heating and ventilation systems should be upgraded upon deciding how this building should be optimally utilized.

**5. Heating and Ventilating System Considerations- Cupola Building**

The cupola building while retaining parts of the original steam piping and asbestos insulation system, have decommissioned this system. It is not clear to what degree this system is in tact. It is likely that it cannot be rehabilitated. Thus, the cupola building and the adjacent workshop and library are without heat. These buildings are excellent candidates for forced air systems due to attic and crawl space access, and the institution demeanor of their occupancies.

A disadvantage for these buildings would be the utilization of storage space located otherwise in the attic spaces for air ducting systems. We would recommend installing two split-phase heat pumps, while locating the air-handling units in the attic of both buildings. This installation should also occur after insulation of the floor, and attic spaces for both buildings.

**6. Heating and Ventilating System Considerations- Commander's Bed and Breakfast**

The Commander's Bed and Breakfast is serviced by a modern propane fired furnace, pressure tank and controls. It also exhibits the greatest sensitivity to the creosote problem. Opening the crawl space to additional ventilation, and providing new insulation, vapor barrier and draft stop will reduce the magnitude of the 'creosote smell,' but without a positive pressure ventilation system for this building, the problem is likely to be sporadic depending on the air movement around this building. For this building, therefore we are recommending installation of a 6 mil polyethylene vapor barrier wrapping the joists to the sub-floor and installation of friction fit batt insulation to the cold side of that vapor barrier. The polyethylene should be installed with staples, and extend to the outside edges of the flooring structural system, performing effectively as a vapor barrier.

K. Brick Masonry/Flues

Brick masonry flues exist in the following buildings: Laundry, Main Building, Shower Building, Duplex, Commandant's B&B, and Cupola Bldg.

**1. Combustion Gas Flue At The Motel Building**-The flue that services the oil fired furnace extending from the porch on the bottom floor, through the porch roof and extending above the top floor roof should be demolished. This appears to be a refractory lined metal flue ['0' clearance flue], and is the primary exhaust flue for the oil-fired furnaces.

Depending on the nature of the heating and ventilating equipment installed in the motel, this flue should be replaced. However, if another combustion device is employed to provide heating and ventilation for this building, for example a multiple zone split phase heat pump, no combustion stack would be required, and therefore the roof would be repaired.

**2. Combustion Gas Flue At The Laundry Building**-The Laundry Building has a brick masonry flue [approximately 26 feet tall] that is currently not being utilized. Our recommendation is to demolish a similar flue, perhaps the flue in the Main Building, to verify that it is non-reinforced. If this is a fact, these flues should be systematically demolished and the buildings repaired. If this flue is reinforced adequately, then only those flues that have been decommissioned should b

demolished.

**3. Combustion Gas Flue At The Main Building** –The Main Building has several exhaust, or combustion flues penetrating the roof to include: a decommissioned ventilation system probably servicing previous kitchen functions, and an attic ventilator that appears to be either non-functional or failing; a large brick masonry flue [approximately 28 feet tall] that appears to be servicing the oil fired furnace on the South side of the building. Depending on the Heating and Ventilating system adopted for this building, we believe this flue should be demolished. All other non-functional devices in the attic area that penetrate the roof should be demolished and the building repaired.

**4. Combustion Gas Flue At The Shower Building** - The Shower Building has a relatively small, short brick masonry flue [16 feet tall]. The oil-fired furnace is also utilizing this flue. If this equipment is replaced with non-combustion heating and ventilating equipment, or if this building is considered to be moving elsewhere, the flue should be demolished and the building repaired.

**5. Combustion Gas Flue At The Duplex Building** – The Duplex Building has two very tall [28 feet tall], thin masonry flues. It also appears that the lining of these flues may be deteriorating. Although it is possible that the fuel oil combustion furnaces could be replaced with heat pumps, it would make more sense to replace the North Boiler, associated metal flue, and barometric damper. These flues could remain. If it appears that these are truly non-reinforced masonry as determined by demolition of the flue in the Main Building, then they should be demolished, and the Heating System converted to another form of energy.

**6. Combustion Gas Flue At The Commandant's B&B** – The Commandant's Bed and Breakfast has two masonry flues that are relatively tall [28 feet], but are also significant design features for this building. Both are utilized. We are recommending that these flues be considered for structural earthquake augmentation, and left in place.

**7. Combustion Gas Flue At The Wooden Boat Foundation** –The Wooden Boat Foundation has a single relatively short [14 feet] brick masonry flue. This flue has been decommissioned. Our recommendation is that this flue is demolished, and the building be repaired.

L. Roofs and Roofing Materials

**Sloped Roofs with 'Transite' Shingles – Motel Building, Pavilion Building, Main Building, Shower Building, Commander's Bed and Breakfast, Duplex Building, Marina Office Building/Artful Dodger, and the Wooden Boat Foundation Building** -Our recommendation is that all sloped roofs with 'transite' be repaired to include removal of the ridge caps, installation of new plastic flashing, and re-installation of roofing shingles.

**Sloped Roofs with 'Transite' Shingles – Motel Building, Pavilion Building, Main Building, Shower Building, Commander's Bed and Breakfast, Duplex Building, Marina Office Building/Artful Dodger, and the Wooden Boat Foundation Building** - Our recommendation is that all sloped roofs with damaged 'Transite' tiles be repaired to include removal of the damaged tiles, and replacement tiles be installed. We believe that this may be a difficult solution as new tile would need to be identified that would generally match the existing tile, that surrounding 'Transite' tile be removed to install the new tile, and the existing non-damaged tile be re-installed. This problem appears to be focused on the Motel Building and is approximately 50 square feet,

and the Marina Office Building/Artful Dodger Building, and may be approximately 80 square feet.

An alternate solution for the Marina Office would be to demolish the entire roof and utilize those tiles to repair other roofs, while installing a new roof.

**Sloped Roofs with Copper Sheet Roofing – Motel Building -** We are recommending that where foot traffic has damaged copper roofing, that those areas be identified and repaired.

**Flat Roofs with Built-Up Asphaltic Roofing** – For those buildings with flat roofs, the Motel Building, The Main Building, and the top roof at the Armory Building Tower, a new top coat should be provided before the building felts become more exposed. This work should occur with the next five years.

M. Windows, Glazing, and Maintenance

Window Repair Original Windows – Original wood jamb/wood mullion window that have deteriorated should be repaired. This includes approximately 10 windows for the Motel Building, 10 windows for the Main Building, 20 for the Duplex Building, 28 for the Commander's B & B, and 8 large [8x10] multiple lite windows for the Armory Building, 10 for the Wooden Boat Foundation Building, 4 for the Marina Office/Artful Dodger and 8 for the Shower Building. Depending on the designation of this area as historically significant, and the definition of that determination, when these buildings are insulated and other remodeling projects are identified, as many of these window as is possible should be replaced with energy efficient, thermal block, insulated windows. This is a significant volume of work.

**3. Conditions Affecting Specific Buildings and Site Components**

**1. MOTEL AND LAUNDRY BUILDING**

We are recommending that the floor finishes, and wall finishes in the main entrance, and corridors be considered for replacement. We are recommending that the finishes for all toilet areas be replaced. We are recommending that functional changes be completed for the building including modification of the front entrance area to resemble that of a hotel, the side entrances to include new doors conforming to legal egress requirements, three interior doors providing legal fire rating, and providing legal secondary egress from the second floor. We would recommend painting the entire building and porch once the mechanical systems have been replaced.

We would recommend that all miscellaneous storage devices, and spaces be eliminated in favor of genuine janitor's areas sufficient to provide space for housekeeping activities. This would include eliminating the temporary structure on the second floor corridor, and upgrading the housekeeping areas on the bottom floor. Upon replacing the mechanical systems, we would recommend extending a corridor from the bottom floor and out to the Laundry Building through the back porch.

Additionally, we would recommend elimination of the 'gang' showers in favor of a redesigned first floor – South Wing. We would also recommend re-configuration of the substandard corridor in the North Wing, although this would take considerable construction cost.

## 2. PAVILION

We are recommending that the handicapped access for the Pavilion Building be achieved through a direct means rather than through the main building. Similarly, we believe that the connector from the pavilion to the Main Building be modified to provide light and ventilation. We understand that some plans exist to modify this connector to provide additional egress to both buildings. Our recommendation would be to provide handicapped access while modifying this connector.

We would recommend improving ceiling finishes over the 'bar' area demolishing the Luan Mahogany plywood ceiling surface, and replacing it. We would increase the lighting levels for the building. We would paint the existing West Porch.

We would move landscaping functions to a dedicated area and locate all fertilizers, pesticides, painting materials and all other maintenance items to that area. The area currently utilized for this function should be cleaned up and utilized for storage.

Structurally, this building should be jacked up in the Southeast corner and the area leveled. We believe that either the posts associated with the foundation system have deteriorated, or the footing in the corner has moved.

## 3. MAIN BUILDING

The Main Building needs significant basic maintenance. The porches need to be repaired and painted, and the synthetic floor finishes both in tenant spaces and common areas [toilets, etc] need to be updated. Those areas currently utilized as utility closets, and those work spaces utilized by cooking staff would appear to benefit by resurfacing as those areas seem to be very hard to keep clean as they are. We would systematically begin upgrading wood paneling on walls to washable, paintable finishes.

Whereas handicapped access to this building is provided via ramp through the Shanghai Restaurant or through the banquet facilities, and may generally meet several requirements of the Washington State Accessibility Code requirements. Providing handicapped access to the Pavilion Building via this route, and providing access to the various office spaces via this route may not be legal as the handicapped access is not a legal egress. Ironically, the actual door to the only handicapped women's toilet can't be accessed via wheelchair.

Therefore, the intent of the code is to allow the handicapped a sense of normalcy in accessing the various functions of this building has not been met in this building [nor the Pavilion Building]. We are recommending that additional handicap access be provided on the East Side of the building with accessible to toilets be located for access from both all functions within the building. In addition these toilets [both locations] should be redesigned to provide adequate space, modern surfaces, adequate ventilation, and new toilet partitions.

## 4. DUPLEX

The plumbing fixtures for both sides of the duplex should be evaluated and for those found to be past their useful life, should be replaced. The roof leak located near the South Duplex entrance should be located and

repaired. This repair may include replacement and reinstallation of flashing, roofing and similar materials.

All features of the Duplex Building exposed to the weather, porches, exterior doors, shutters, window trim, siding corners, columns and stairs, should be repaired and painted.

Emergency egress stairs from the second floor should be tested for integrity and repaired if they are in good shape, or replaced if not. Vegetation that is crowding around the perimeter of the building and responsible for hastening the deterioration of the building should be cut back.

## 5. SHOWER BUILDING

This building is under-utilized to the point of being dysfunctional. We would recommend redesign of the building and/or relocating it to serve another occupancy, while building a separate building to accommodate the functions it currently houses.

Otherwise, we would recommend redesign of the shower and toilet rooms, provide handicap access to the building and to functional areas, provide new flooring where the synthetic flooring has failed, provide new plumbing fixtures and shower stalls, provide adequate housekeeping space, and rehabilitate the attached living quarters.

The exterior of the building should be repaired and repainted.

## 6. PIGMY KAYAK AND STORAGE BUILDING

The current tenant has maintained this building. We would recommend that exterior siding repair be completed and the building repainted. At the building entrance, accretion of asphalt pavement near the front door paved area has created an accumulation area adjacent to the front door. This area accumulates road debris, and ponding water that is subsequently tracked, or leaks, into the building. We would recommend cutting the pavement away from the front entrance and a two or three foot transition area [landscaping] be constructed adjacent to the front 'porch', and to the south side of the building. We would recommend all other ponding that is adjacent to the building be directed away from the building. We are recommending that a gutter and downspout be installed on the back roof drip edge and the water be directed to a location where it can percolate into the site.

This tenant has expressed the desire for more space and has indicated that additional space to the rear of the building would be desirable.

The Storage Building appears to be in a state of extreme disrepair. The choices are to raze the building and demolish any remaining footings and utilize the space for some other function, or spent considerable money rehabilitating this building. It is difficult to anticipate how far rehabilitation would have to extend into the existing building's structure or other systems to improve its viability.

Our assumption would be that the roof, roof sheathing or substructure, some structural components, all windows and doors, all gutters and downspouts, 30% of the siding and wall framing, most of the perimeter sill plates would require replacement. Additionally, we believe that a new floor system would be necessary, and the building would be provided with an electrical system. Plumbing requirements would depend on occupancy types and there does not appear any additional parking capacity within proximity to this building. Our estimate for rehabilitation for this building will reflect approximately $75/SF.

## 7. Commander's Bed and Breakfast

The Commander's Bed and Breakfast building should have the exterior repaired and painted. The enclosed porch column should be repaired, the shutters should be repaired and a single handrail should be provided from the porch to adjacent grade.

The plumbing fixtures and kitchen appliances should be evaluated and replaced if they have reached their useful life. Specifically, the kitchen range, oven and microwave should be replaced. There may be other plumbing fixtures that should also be replaced.

## 8. Marina Office/Artful Dodger

The Marina Office / Artful Dodger should have two areas of structural decking [North and South Sides] dried, repaired and covered with a water shedding surface [sloped roofing]. The entire roof fascia should be repaired and painted. The floors should also be insulated similarly to those with Otter problems.

## 9. Armory Building

The Armory Building has several sub-standard buildings located to the South. These buildings should be evaluated in respect to occupancies, and space utilization and should be rehabilitated to provide effective utilization, or should be demolished. Spaces currently utilized should be provided with power, lighting and access that conform to current building code requirements. We are recommending that the building exterior siding and fascias be repaired, and painted within the next five years. Additionally, we would demolish the existing surfaces for the existing stairs, and wrap the staircase walls and riser bottoms with 5/8" Type 'X' gypsum wallboard to provide an additional measure of fire protection for those occupying the top floor of this building.

The front of this building, similarly to that of the Pigmy Kayak Building has accreted pavement at its front entrance creating roof drainage problems. This building should be considered for removal of materials and vegetation stored or growing around the building. We are recommending that the pavement be demolished two or three feet between entrance and roadway and landscaping be installed to mitigate storm water run-off problems from the roadway.

## 10. Wooden Boat Foundation (Cupola Building)

We are recommending that the addition to the rear of this building be finished with exterior siding similar to that of the Cupola Building proper, and both buildings painted. Handicapped access and some provision for handicapped accessible toilets should be provided for this building. Remote storage for equipment and boats should be identified, and dry, lighted weather cover should be provided. All materials should be moved away from the perimeter of the building. Parking should be identified specifically for this building, and exterior display areas improved by landscaping, sidewalks and similar features. We would recommend utilizing this building, and building area as a pedestrian focus for this site, and constructing some pedestrian area in proximity to this building which represents a pedestrian destination and provides some amenities to provide pedestrians a reason for walking there as a destination. This may include revising a fence between the Cupola Building and the adjacent boat hull cleaning area, as well as other image related issues.

## 11. LANDFALL RESTAURANT

The Landfall Restaurant is a special case among these Point Hudson buildings. The tenant is particularly aware of the physical disadvantages that these buildings possess. He is also aware of the advantages that this specific site brings to his business. Once his lease agreement situation has been confirmed with the Port of Port Townsend, he will decide to what degree he will modify the buildings on this site.

Therefore, we recommend cutting pavement away from the front entrance of this building, and installing landscaping for a distance of two to three feet, to eliminate the ponding that is occurring at the front entrance. We would clearly identify parking for this facility, and would separate it from pedestrian access.

## 12. SITE AND SITE COMPONENTS

We would recommend the following:

1. Comprehensive Site Planning and Landscaping – The entire site is devoid of comprehensive planning. Comprehensive landscape planning to include significant site features, pedestrian ways, transportation strategies, solid waste management, event access, signage, circulation and public access among other topics should be completed to augment the Port of Port Townsend Master Plan.

2. Site Access – A planning characteristic that is both positive and negative is that this site is relatively restricted for access by vehicular traffic. On one hand, this has represented a point of isolation due to allocating most of the space to vehicular [transportation] interests. This one characteristic places the de facto utilization of this site to those who drive representing a considerable restriction on this site. On the other hand, the site is postured to extend non-commercial pedestrian interests of Port Townsend. This represents virtually a unique opportunity.

3. Pedestrian Destinations – We are recommending that this site be organized around the interests of the pedestrian community in lieu of transportation interests. We are also recommending that this goal be adopted as a feature in conjunction with planning associated with the Port Townsend Historic Overlay District and that the two districts be tied together very carefully via pedestrian informal institutions.

In this regard, we are recommending that this site be provided with pedestrian destinations, free from commercial interests, and tied into the development of this site as a specific feature. These destinations could be relatively small areas but designed to provide amenities such as shelter from the weather, potable water, seating and other features that would provide a reason for pedestrians to walk from destination to destination.

4. Storm Water, Paving and Parking – These three issues are tied together. Current parking is disorganized, inadequate, and is displacing other functions of the site. Modification of parking will require new gravel surfacing or other paving. Likewise repairing traffic pavement, pedestrian walkways, and similar features will change the permeable areas of the site. Changing these will trigger applicable storm water regulations. It is likely that to modify the parking, vehicular paving or pedestrian sidewalk conditions of this site, a storm water treatment system will be required. This system would likely require tying several existing paved areas together with storm water piping and process this water through an oil water separator, or meter it into discharge areas through retention systems, or similar approaches.

5. River Otters – While the River Otters are not listed as an endangered species, they appear to be flourishing at this site. They also appear to be a cultural icon of the area. Once removed as a nuisance, so that they may

remain but not be a further nuisance, we would recommend that an appropriate habitat be developed as a part of the shoreline so that they may remain as an integral part of the local ecology, and local culture.

C. Categorization of Deficiencies

Significant Physical Deficiencies are classified as occurring in High, Moderate and Low magnitudes. For purposes of this report physical deficiencies are classified as:

| Magnitude | Description |
|---|---|
| Low | Repairable through minor construction activity [or through demolition] without affecting component structural integrity; moderate or low cost. |
| Moderate | Repairable through construction activity possibly affecting component structural integrity; moderate or high cost. |
| High | Repairable but problematic, requiring significant construction activity; moderate or high cost. |

| **Physical Deficiencies** | **Magnitude of Deficiency** |
|---|---|
| **1. Critical Items - Safety Issues** | |
| A. Armory Building-archaic electrical panels | High |
| B. Armory Building –apparent building movement | Likely will be High |
| C. All Piling Foundations - Creosote Foundations | May be High |
| D. Friable Asbestos-all crawl spaces with asbestos, other. | High |
| **2. 'Best Case' Conditions – Significant Systems Rehabilitation** | |
| A. Heating and Ventilation Systems, Energy Consumption | High |
| B. Brick Masonry/Flues | High |
| C. Roofs and Roofing Materials | Moderate |
| D. Windows, Glazing, and Maintenance | May be High |
| E. Fire Suppression System | High |
| F. Metering for Potable Water System | High |
| G. Electrical System | High |
| **3. Conditions Affecting Specific Buildings and Site Components** | |
| Generally minor conditions unique to each building | Mostly Low |
| Site components | Moderate |

# V. PROJECTED EXPENDITURES

A. Physical Deficiencies and Maintenance

The following costs were developed were developed to reflect conditions discussed within this Condition Assessment Report. These costs include work associated with earthquake remediation, repairing structural deficiencies, and with items associated with continuing maintenance. These items are distributed over a seven-year period in Attachment 'A' to include inflation; the total of each line item is presented as a lump sum as follows:

| | | |
|---|---|---|
| A. | Estimate of Hazardous Conditions | $ 498,356 |
| B | All Buildings | $ 858,311 |
| C. | Overhead, Contingency & Profit | $ 313,117 |
| **Total Estimate** | | **$1,805,451** |

**See Attached Estimate, Attachment 'B.'**