Preliminary Assessment
A Review of Existing Buildings on the Georgia-Pacific Campus for Adaptive Reuse by Western Washington University
And the Suitable and Best Use of Existing Campus Space Vacated by the Potential Move to the Bellingham Waterfront

INTRODUCTION
On August 2, 2006, the representatives of the following professional consultants met on site and toured the existing Georgia-Pacific Campus, and part of the existing Western Washington University campus, listed in alphabetical order:

- Coughlin Porter Lundeen (structural & civil)
- Heery – HLM/design (architectural & LEED)
- PanGEO (geo-technical)
- Stantec (mechanical & plumbing)
- Wood Harbinger (electrical)

The assembled consultant team met with representatives of Western Washington University and the Port of Bellingham. After discussion of the vision for the re-development of the Bellingham waterfront, the team toured the existing buildings in both locations, accompanied by G-P and WWU representatives on their respective sites.

The scope of this Preliminary Assessment is focused on two primary concepts:

1. Determine that there is a reasonably feasible and acceptable design solution that would allow a portion of the WWU academic program to relocate to the redeveloped waterfront, either in renovated existing building or buildings, a combination of renovated and expanded existing buildings, or new buildings.

2. Once determined it is feasible to move a portion of the WWU program to the waterfront, what is a reasonably feasible solution for the reuse of the vacant existing academic spaces on the WWU campus itself.

Therefore, the focus of this report is to ascertain the suitability of renovation for adaptive reuse of specific existing Georgia-Pacific buildings, and the condition and flexibility for adaptive reuse of specific existing buildings on the WWU Campus.
EXISTING GEORGIA-PACIFIC BUILDINGS

Geotechnical Investigation of the Georgia-Pacific Campus:

This report presents the results of our preliminary geotechnical evaluation of the site and selected buildings on the former Georgia-Pacific waterfront property for future use by Western Washington University.

The parcel under consideration is located on reclaimed tidelands in Bellingham Bay that were filled on several occasions over the past 100 years. Industrial development of the site started in the mid 1930’s with the construction of pulp and wood processing buildings in the area that is currently being considered by the University for potential expansion.

The portion of the site that is being evaluated for potential use by the University has a rectangular footprint with a length of about 1,000 feet perpendicular to Bellingham Bay and a width of about 500 feet. The parcel is bounded on the northwest by Bellingham Bay, on the northeast by West Laurel Street Extension, on the southeast by an existing railroad spur, and on the southwest by an approximate extension of East Berry Street. The ground surface in the site area is relatively level with an approximate surface elevation of 16 feet above mean sea level (MSL) (Aspect, 2004). Historic site drawings, however, suggest a ground surface elevation of about 18 feet (Unidentified Datum). Industrial buildings currently on the site include a Barking and Chipping Plant, Chip Bins (storage silos), Chip Screen Building, and a Board Mill Building. These buildings were generally constructed between 1935 and 1955 and are reinforced concrete frame structures supported on timber piling. The ground surface between the buildings has been paved with asphalt.

On August 2nd, we attended a kickoff meeting at the site with the University’s consultant team where we were briefed on the site history and potential development plans for the waterfront property that was recently acquired from Georgia-Pacific by the Port of Bellingham. In the Port’s development scenario, the University is just one of the entities who may buy or lease a portion of the former Georgia-Pacific property for potential redevelopment. The presentation by the Port was followed by a site tour of the property and the buildings that may be potentially renovated by the University for use as classrooms, research labs, and administrative offices.

In addition to the site tour at the kickoff meeting, we conducted a separate site visit on August 30th to review Georgia-Pacific’s files for geotechnical reports, boring logs and construction records of pile driving for the buildings that may be acquired and renovated by the University. We also reviewed existing plans of the site buildings and we researched available literature on geologic hazards that may affect the site and the existing buildings. The following summarizes our observations and conclusions.

Foundation Assessment:

All of the existing site buildings are supported on driven timber piles that extend through about 15 feet of loose surficial site fill (sand) and another 15 feet of loose to medium dense estuarine sand and terminate within beach deposits consisting of very dense gravelly sand. These end bearing piles typically had butt diameters ranging from 12 to 16 inches and were generally driving at a close spacing (typically 2’-6”).
The construction records indicate that the piles were driven to achieve an allowable load capacity of 20 tons. However, the formulas typically used to derive this load capacity would suggest that the driven piles have a static factor of safety of at least 3.

Historic site drawings show the base of the pile caps at about elevation 10 feet, or about 6 feet below the elevation of the current ground surface. Current water level measurements at the site (Aspect, 2004) suggest that the piles are fully submerged.

From our site reconnaissance, we did not observe any signs of significant differential settlement or building distress that would be suggestive of adverse performance of the building foundations. However, some local sections of the Board Mill Building showed evidence of floor slab settlement of about 2 to 3 inches. Because the floor slabs are not structurally supported, this settlement is unrelated to the performance of the foundations.

Consequently, we believe that the existing piles supporting the building are in good condition and may continue to provide reliable support for the buildings. However, the condition of the existing piles should be visually checked at two or three locations to confirm the condition of the wood and the absence of deterioration.

We believe that the existing piles will have an ultimate compressive capacity of about 60 tons under static loading and about 40 tons under dynamic loading, which includes consideration of potential liquefaction of the surficial fill and underlying estuarine deposits. The tension capacity of the piles should be neglected because of the minimal embedment and lack of tension details in the pile caps.

**Geologic Hazards:**

**Tsunami:** The potential occurrence of an earthquake on the Cascadia Subduction Zone (CSZ) off the coast of Washington may result in large scale tectonic displacements of the ground surface that would generate a tsunami that could affect shoreline areas around Puget Sound. Tsunami wave run up studies conducted by the State Department of Natural Resources (Walsh and others, 2004) suggest that the effects of a tsunami in Bellingham might result in the Georgia-Pacific site being inundated with up to about 18 inches of water. The tsunami studies were based on limited data and were not intended to serve as a design standard. State and Local building codes do not currently require designs to address tsunami hazards.

However, the potential effects of a tsunami may be mitigated by raising the site grade by 18 to 24 inches or, alternatively, employing structural measures, such as break away walls, to address wave surge from a tsunami. Fill costs for raising the site grade by about 24 inches would amount to approximately $2.50 per square foot of surface area. Any gross changes in the site elevation will have secondary impacts upon utilities and roadways. Hence, any site grading should be coordinated with the Port’s Master Plan for grade improvement at adjacent areas of the site.

**Liquefaction:** The site is underlain by 15 feet of loose, surficial fill (sand) and by another 15 feet of loose estuarine deposits (sand), both of which are susceptible to liquefaction in a strong earthquake. Liquefaction of these soils could result in settlement of the ground surface and damage to concrete slab on grade floors and underground utilities. Liquefaction could also reduce the load carrying capacity of the...
existing pile foundations. However, because the existing piles derive their support from the very dense gravelly sands in the underlying Beach Deposits that are not susceptible to liquefaction, the occurrence of liquefaction in the overlying materials is not expected to significantly reduce the vertical load carrying capacity of the existing piles, as indicated above.

Liquefaction may be mitigated by installing stone columns to densify the soils within about 50 feet of the buildings. This densification can generally be accomplished at a cost of about $15 per cubic yard of treated soil (soil treated to a depth of about 30 feet). This densification, however, would not improve the ground within the footprint of the buildings. Hence, underground utilities and slab on grade floors would still be susceptible to liquefaction induced differential settlement.

**Lateral spreading**: When liquefaction occurs within about 100 to 200 feet of shorelines, the liquefied soil will tend to flow laterally towards the water. This lateral movement of the soil is also known as lateral spreading. Buildings located within zones of potential lateral spreading may be susceptible to significant structural damage.

Lateral spreading may be mitigated by installing stone columns within about 60 feet of the shoreline to create a buttress to contain any lateral movement of liquefied soil in the upland area. This densification can generally be accomplished at a cost of about $15 per cubic yard of treated soil (soil treated to a depth of about 30 feet).

**Site contamination**: The near surface site soils and groundwater have a low level of contamination that will require capping with soil or asphalt to permit unrestricted use of the site. Using soil as a cap will require 2 to possibly 3 feet of fill. Such a cap would significantly affect site grades and building usage. A 4 to 6 inch thick asphalt cap could be used in lieu of a soil cap to reduce the impact to the existing site grades. Because much of the site has been paved, it is possible that the capping may only be required in areas where the existing asphalt has been breached. Consequently, site capping may not be a significant issue in the site development. Any conclusions on the need for capping must be confirmed with the Port’s environmental consultant and it must be consistent with the Port’s plan for site grading, street elevations, and utilities in adjacent areas of the Georgia-Pacific property.

**New Construction**: Completely new construction is an alternative to renovating the existing site buildings. While some geotechnical hazard mitigation measures would be used in either scheme, such as ground densification within about 60 feet of the shoreline, new construction would be configured to meet the specific programmatic needs of the University and ground improvement techniques such as Geopiers™ may be used within the footprint of the new buildings to densify the underlying soil to allow the use of conventional spread footings for the new construction. The ground improvement and spread footing foundation system will likely be more economical than a driven pile system and it may provide a higher level of reliability in that the ground improvement would mitigate the liquefaction potential beneath the
building footprint and reduce the extent of mitigation beyond the edge of the building. Costs for Geopier ground improvement may be on the order of $5 per square foot of treated surface area.

Geotechnical Summary and Conclusions:

The following summarizes our observations and conclusions:

1. The existing buildings are supported on end bearing timber piles that terminate in very dense beach deposits at a depth of about 30 to 35 feet below the existing ground surface. The piles have an estimated ultimate static compression capacity of 60 tons and a dynamic (earthquake) compressive capacity of about 40 tons. The piles can not be relied upon for tension because of shallow embedment and lack of adequate connection details within the pile cap.

2. The lack of settlement damage or distress within the existing buildings and the inference that the piles are completely submerged suggest that the existing piles are sound and relatively free of deterioration. However, a visual check of two or three piles is needed to confirm this conclusion.

3. The Port property may be susceptible to inundation by up to 18 inches of water from a tsunami generated by a large Cascadia Subduction Zone (CSZ) earthquake. CSZ earthquakes have recurrence intervals on the order of 500 years. While current building codes do not require tsunami mitigation, the relatively minor tsunami run up may be mitigated by raising site grades by about 18 inches or by protecting the buildings from wave surge with details such as break away walls.

4. The site is underlain by about 15 feet of loose surficial fill and another 15 feet of loose estuarine deposits, both of which are susceptible to earthquake induced liquefaction. Liquefaction may result in differential settlement of slab on grade floors, and may result in lateral spreading in areas within about 100 to 200 feet of the shoreline. Liquefaction may be mitigated by densifying the soils within about 60 feet of edge of the shoreline and also within a zone extending about 50 feet from the buildings. This densification, however, would not preclude differential settlement of floor slabs of the existing buildings and damage to utilities underlying the slabs.

5. The surficial soils and groundwater underlying the property have a low level of contamination that will require a soil or asphalt cap. Because much of the ground surface within the site has been paved, the existing site conditions may not require capping. This conclusion, however, will need to be verified from the Port’s environmental consultant.

6. Renovation and reuse of the existing site buildings will require:
   - Densification of the soils adjacent to the waterfront to preclude lateral spreading
   - Densification of the soils adjacent to the buildings
   - Potentially raising the site grade with fill to cap contaminated soils and mitigate the tsunami hazard

7. New development at the site should include the following:
Densification of the soils within about 60 feet of the shoreline with stone columns to preclude lateral spreading

Densifying the soils within the footprint of the new buildings using Geopiers™ to mitigate liquefaction and allow building support on conventional spread footings and slab on grade floors.

Potentially raising the existing site grade by 18 to 24 inches to provide a cap for the underlying contaminated sediments and to mitigate potential tsunami inundation

References:


Civil Investigation of the Georgia-Pacific Campus

The purpose of this civil site assessment is to summarize our understanding of the current and proposed infrastructure at the Georgia Pacific Site as it relates to the potential development of an expanded Western Washington University Campus. Our understanding is based on our meeting on August 4th at the Georgia Pacific Site with the team and Mr. Fred Seeger with the Port of Bellingham. We walked the site and reviewed available drawings as well as the “Georgia Pacific Due Diligence Existing Building Assessment” prepared by RMC Architects, September 2004.

The Georgia Pacific pulp and paper mill complex was originally developed in 1937 with the primary buildings completed by 1949. Since this time the complex has seen continued growth until ceasing operations in 1999. The Port of Bellingham is currently reviewing possibilities to re-develop the site for several new uses including expanding Western Washington University into this area.

Existing infrastructure is believed to be in place to support the Georgia Pacific Plant. Existing infrastructure includes basic water, sewer and storm drainage facilities as well as a minor network of site access roads. Some of the buildings appear to have abandoned fire sprinkler systems and there are some fire hydrants located around the site that may or may not be active. Our understanding is that the existing infrastructure will be completely removed and new systems constructed. We therefore did not inventory or analyze the existing infrastructure.

The University is currently reviewing the feasibility of re-using some of the existing buildings and/or developing new building on the complex. Current development plans by the Port of Bellingham include construction and planning of all major infrastructures for the entire 130-acre complex in support of the
planned uses. Independent of the decision by the university to re-use existing or construct new buildings, the understanding is that the primary infrastructure to support University development will be in place.

Discussions with the Port of Bellingham indicate that the primary infrastructure they will be providing will include roadways, sidewalks, water, sewer, storm drainage, gas, electrical and communication systems. The University would likely be responsible for minor perimeter upgrades around each building including connection of utilities, sidewalk upgrades and street landscaping. We understand that the Port of Bellingham will remediate any site hazards (contaminated soils/water etc) prior to the University developing on the site.

Development plans by the Port of Bellingham will include the primary and secondary road systems at the development as well as coordination with the City to extend existing primary arterials from downtown Bellingham to the development. The University will need to develop concepts for connecting the main campus to this potential extended campus. A connection corridor should include pedestrian, bicycle, public transportation as well as private automobile pathways. At this time is not clear how the overall development will handle parking. Parking is a major issue for the university and this issue should be closely followed as the development plans progress.

The University will need to review the feasibility of providing a connection from the main campus to the “waterfront” campus. There have been discussions of possibly developing Laurel Street from the waterfront development up the hill to the main campus. This connection could provide multiple connections for both vehicular/pedestrian as well as a utility connection path. The utility connection path could be ideal to provide the communications/network link between the main campus and the waterfront campus.

Preliminary review by the geotechnical engineer indicates that between two to three fit of fill will need to be placed over the entire development site to mitigate both tsunami impacts as well as contaminated soil impacts. This recommendation could severely impact the planning for re-use of the existing buildings as the main finish floor of the new buildings would then be between two and three feet below the exterior grades. As the development plans by the Port Authority continue to develop this issue should be revisited.

**Structural Investigation of the Georgia-Pacific Campus – Board Mill Building**

The purpose of this report is to present the results of our structural building assessment and to summarize our understanding of the current building structures at the Georgia Pacific Site as they relate to the potential development of an expanded Western Washington University Campus. Our understanding is based on our meeting on August 4th at the Georgia Pacific Site with the evaluation team and Mr. Fred Seeger with the Port of Bellingham. We walked the site and reviewed available drawings as well as the “Georgia Pacific Due Diligence Existing Building Assessment” prepared by RMC Architects, September 2004.
The Georgia Pacific pulp and paper mill complex was originally developed in 1937 with the primary buildings completed by 1949. Since this time, the complex has seen continued growth until ceasing operations in 1999. The Port of Bellingham is currently reviewing possibilities to re-develop the site for several new uses including expanding Western Washington University into this area.

Building Description:
Four existing buildings on the waterfront site were assessed for re-use as potential university buildings. These buildings were built between the mid 1930 and 1940's, and were designed and constructed as industrial structures, suited to the specific purpose of housing and supporting timber processing machinery. Due to their industrial heritage and construction era, extensive structural remediation of these buildings will be required to render them useful as higher education facilities. The four buildings reviewed were the Board Mill Building, the Barking and Chipping Plant Building, the Chip Bins, and the Chip Screen Building.

The two story Board Mill Building is rectangular in shape, approximately 300 ft long (north-south direction) by 72 ft in width (east-west direction). The building is approximately 40 feet tall, with a 16ft 1st story and 24ft 2nd story. The building is comprised of structural steel framing and concrete floors with an exterior skin of unreinforced masonry walls.

Gravity Framing System:
The foundations of the Board Mill Building sit on timber piles. The foundation elements are reinforced concrete pile caps, grade beams, and structural slab-on-grade. Vertical framing elements are typically structural steel wide flange columns. At the south end of the first floor is a series of rectangular cast-in-place concrete tanks. The second floor is framed with steel beams at approximately 10ft on center, and a 6" reinforced concrete slab spanning between beams. The walls of the concrete tanks support the second floor steel framing at the south end of the building. In the original building configuration, two large areas of the second floor running parallel with the long axis of the building were left open for industrial machinery. Most of these areas were infilled with metal deck and concrete topping during a subsequent renovation of unknown date. Due to the original opening configuration, the columns at the first floor of the building are spaced closely. Average column spacing is 10ft on center in the short building direction, and 20ft on center in the long building direction. The column layout at the 2nd floor is more uniform, with a single row of columns at 20ft spacing centered at the long axis of the building. The roof of the Board Mill building consists of structural steel beam framing and precast concrete panels. The steel roof beams span across the transverse direction of the building with a single intermediate column support at the building centerline. Additional steel purlins span between beams, and horizontal diagonal angle bracing exists in four bays of the roof, interconnecting column lines and welded to the purlin members. Generally, the existing gravity system of the building appears adequate to support the code-prescribed loading required for the proposed educational facilities.
Lateral System:
The exterior masonry walls, steel framing system, concrete floor and roof diaphragms, and horizontal angle bracing act as the primary elements of the lateral load-resisting system for the Board Mill Building. Earthquake induced inertia forces occur within the concrete diaphragms, which then transfer the seismic forces to the steel frames and the masonry walls. Forces from the frames and walls are resisted by the concrete foundations and timber pile system. As with many buildings of this era, little consideration was given to seismic performance as part of the original building design; the strength of the lateral system elements and connection detailing of the elements is generally inadequate to resist current code-prescribed earthquake loads.

Adaptive Reuse - Building Rehabilitation/Conversion:
The conversion of these industrial buildings to configurations suitable for typical higher education facilities will require substantial structural upgrades. Extensive interior floor construction and re-framing will be required to create useable education spaces within the buildings. The existing industrial equipment supports and platforms must be removed; in many cases these structures also provide support to the building frame and exterior skin. The most re-useable portion of the building is typically the exterior skin and steel framing; however, the exterior unreinforced masonry walls must be supported, braced, and rehabilitated. New complete lateral systems, consisting of steel braced frames or concrete shear walls must be installed. Foundation work will be required at new elements.

The Board Mill Building is perhaps the most promising candidate for conversion into a higher education building. Of the buildings reviewed, the basic building shape and floor plate layout are most similar to a multi-level office or educational building. Renovation of the Board Mill Building would require the following structural scope of work:

- **Installation of a new lateral system.** The new system would consist of braced frames or concrete shear walls, along with drag struts and collectors to transfer load into these elements. New foundation elements and piles would be required at the new wall or frame locations.

- **Ground floor reconstruction.** To provide new utilities and services to the building, it is expected that the areas of the structural slab on grade would need to be trenched and demolished. Due to poor soils and pile foundations, reconstruction of this structural slab on grade would involve new slab design and structural reinforcing.

- **2nd floor reconstruction.** The current 1st floor column spacing is too tight to provide efficient educational spaces at this level. Many columns would need to be removed, and subsequently, the steel framed 2nd floor areas they support would require reconstruction. Part of this reconstruction would also be to facilitate the removal of the concrete water tanks at the south end of the building, which are also load-bearing walls.
• **Roof reconstruction.** The existing precast panels at the roof and the diagonal bracing are inadequate to behave as a roof diaphragm. There is no apparent connection of the precast panels to the existing steel framing. The panelized roof system should be removed and replaced with a conventional metal deck diaphragm with appropriate drag struts, collectors, and connections to the new lateral system.

• **Exterior Masonry Reconstruction and Bracing.** The existing unreinforced masonry walls are a collapse hazard in a design earthquake. These walls and the parapets of the building will require bracing and rehabilitation. Due to the tall story heights present in the building, bracing would likely be structural steel tube or channel members. A few areas of deteriorated and deflected wall were noted, these would likely need to be rebuilt.
Mechanical/Plumbing Investigation of the Georgia-Pacific Campus – Board Mill Building

This portion of the report is intended to outline the general condition of the mechanical systems within the Georgia Pacific site and suitability of these systems for Adaptive Re-use. The three buildings that are studied within this portion of the report are the Board Mill building, the Chip Screen Building, the Barking and Chipping Plant, and the Chip Bins (silos) themselves. Each of these buildings were used for industrial purposes, and as such have limited and specific mechanical systems (plumbing, heating / ventilating, and fire protection) that were specially designed for their intended use. As such; even if in good condition, the installed mechanical systems are often not suitable for typical adaptive re-use because of their initial intended use.

Board Mill Building (circa 1946)

Existing Plumbing Systems:

   Drainage Systems: All roof drainage systems appear to be original and via uninsulated internal rainwater leaders, some of which may be damaged. It is recommended that the piping system be pressure tested and replaced as needed. Roof overflow systems should be reviewed (an overflow system was not apparent) and incorporated into any building re-use strategy. The sanitary drainage and venting system was installed to serve process equipment as well as limited restroom facilities added on the second level in renovation projects (most plumbing fixtures have since been removed). A portion of the above-grade drainage could be re-used if a building re-use incorporated a similar restroom layout, however little cost benefit would result as a reconfiguration of the plumbing fixture layout would be likely. It is understood that new drainage service utilities (storm and sanitary) would be extended to this site as part of the overall utility upgrade plan – refer to civil narrative.

   Water Supply Systems: Water supply equipment and piping has been abandoned in place. It is recommended that they be disconnected and removed entirely, replaced with new systems to meet programmatic requirements if the building is reused. It should also be noted that there are other industrial use type piping systems installed in the building that would have to be removed. These systems (and any other piping system) may contain insulation with asbestos components. If not already completed, a full environmental survey should be completed to fully understand the extent of any asbestos materials so they can be properly fully removed prior to re-use or demolition.

Existing Heating / Ventilating Systems: The existing building is heated via gas fired unit heaters suitable for an industrial setting. The heating system does not incorporate any ventilation air (opening windows and roof openings provide space ventilation). If this building is to be re-used for commercial, institutional, or residential occupancy, it is recommended that the existing system be removed entirely and replaced with a new HVAC system to meet programmatic requirements.
Existing Fire protection systems: The existing building is covered with a dry type fire protection sprinkler system – assumed to be original equipment. If the building is to be re-used, a new wet type sprinkler system would be required to meet current Building and Fire codes.

Adaptive Re-Use Potential: From a mechanical systems standpoint, little of the existing systems are able to be re-used as outlined above. However, the building does have a significant floor-to-floor height, wide open interior space, large operable windows, and heavy exterior wall construction (unreinforced masonry). Each of these attributes contribute to allow for flexibility in space usage as well as HVAC system design (such as underfloor air distribution or even natural ventilation strategies). One major challenge would be to upgrade the existing exterior envelope to meet or even approach current energy code requirements. Excessive heating energy would be required for this building due to the lack of any exterior wall insulation and large single pane exterior windows. As part of a building re-use strategy, it would be highly recommended to replace the exterior windows (with high performance glazing), provide exterior shading devices, and incorporate an exterior wall insulation system.

**Electrical Investigation of the Georgia-Pacific Campus – Board Mill Building**

The major purpose of this study is to determine the feasibility of using some of the buildings owned by Georgia Pacific that are located on the Bellingham waterfront. The buildings are old and are not economically viable for use by Georgia Pacific in their current operations and the Port of Bellingham (Port) and the City of Bellingham (City) are looking at the feasibility of developing the area. The interest of WWU in these facilities, at least initially, is to consolidate the facilities for the Huxley College of the Environment in one location; as indicated in the discussions above, the college is currently located in two buildings and occupies a total of approximately 40,000 sf. Since the buildings are also used by other departments, the areas in each building that Huxley occupies are fragmented; having a unified campus on the waterfront would be potentially more efficient as well as being in tune with the mission of the college.

From an examination of the Georgia Pacific facilities, particularly the Board Mill and Chip Screening buildings, the Barking and Chipping Plant and the Chip Bin Silos, it can be concluded that there is nothing in the buildings, which date from the middle 1930s to the middle 1940s, that can be used from an electrical and communications perspective. The systems, as described for the two campus buildings above, will need to be completely constructed as new regardless of whether existing buildings are reused or new buildings are constructed.

Given that the interior electrical and communications spaces in the building will be new, the next question to address is what is needed to provide power and communications systems to the building.
It is our understanding that the Port and City are intending to provide the utility infrastructure for the development. It is not clear if this includes electrical, telephone and data systems since they are usually considered separately from civil utilities. Any significant consideration of the systems is outside the scope of this report; the system will need to be studied with respect to the overall design for the site including the types of facilities and potential dates for construction. Some general considerations are indicated below.

The electrical system demand of a new Huxley facility would be approximately 500 kVa based on the experienced demands of Arntzen Hall and Environmental Studies. This will be a factor in the overall design of a distribution system for the project.

It is assumed that the telephone system for the site will be provided by Qwest to the building. The campus IT department is the best source of requirements for a building. Since the systems were upgraded fairly recently for the campus buildings this can be a good starting point for input into an overall study.

It is assumed that the data and CATV system would have to extend back to the existing data head-end equipment on the WWU campus which is located in a building on 32nd Street. The distance between the waterfront and the campus communications center is approximately 1.7 miles. It is also possible that fiber connections can be made through Qwest. This will need to be discussed with the campus IT department.

**Architectural Investigation of the Georgia-Pacific Campus – Board Mill Building**

Of the existing Georgia-Pacific buildings evaluated for this report, the Board Mill building is the most readily usable compared to the others. Built around 1946 with approximately 43,000 existing square feet on two levels, there are significant challenges to salvage this building through adaptive reuse.

Each of the existing Georgia-Pacific Buildings were designed and constructed for the specific processing use housed in that building. Because of the enormous size and tremendous weight of much of the processing equipment housed in these buildings, the result is unusual and irregular column spacing. Designed to support equipment, columns are closely spaced in areas, wider spaced in other areas.
The lower level is a structural slab on grade, which will present problems to bring new underslab utilities into an adaptive reuse. The large and oversized concrete column bases would be intrusive and difficult to plan around in a new use for the space (see photo to the left).

In order to develop a reasonable adaptive reuse plan, many columns would need to be removed to create a more regular and useful bay spacing. This will result in areas of the 2nd floor slab being removed, re-framed, and infilled with new concrete.

Because of the industrial processing use of these buildings, there are many locations in which original windows openings have been infilled. Most of these locations would need to be opened up for natural lighting in an adaptive reuse. The openings should match in size the other remaining window openings in the building, all of which will have to be replaced with custom glazing units with heat-resistant insulated glass units.

There are ground level concrete tanks that contained process fluids. These cast-in-place concrete tanks actually support portions of the floor above. If they are removed, a large area of the second floor will need to be reframed. If the adaptive-reuse plan could accommodate the locations of portions of the walls, enough that would support the upper level, some of the walls (and associated foundation) could be left in place.

None of the existing infrastructure of stairs, restrooms, or vertical transportation (none exists) are reusable. All new exist stairs would have to be built and installed in locations and of an appropriate size to comply with current building and life safety codes. New restrooms complying with accessibility standards would be needed on each level. Vertical transportation in the form of a passenger elevator would be required.

The rectangular shape of the building, and the high floor to floor (necessitated for the processing equipment), do create some interesting possibilities for adaptive reuse. The combination of extremely high clear height on the upper level (over 20') and the large industrial windows could be an exciting
space. If all original windows openings that have since been infilled were opened up and perhaps skylights added, the 2nd floor could become a very light and airy space. The clear height adds the possibility of a mezzanine or partial floor overlooking the 2nd floor.

The exterior of the Board Mill Building is an attractive brick masonry that is unreinforced. The masonry on this building is in the best shape of the existing buildings considered, although there are significant areas of damage to be repaired. Unlike the other buildings in which the masonry damage penetrates the entire wall, most of the damage to this building is surface damage on the exterior. All existing unreinforced masonry walls would have to be reinforced, most likely on the interior of the wall with “strong-backing” structural reinforcement.
The existing façade that faces what might become the major pedestrian thoroughfare of a new campus (the Laurel Street extension) has an interesting cast-in-place concrete canopy above a raised platform almost the entire length of the building. Although program that goes into this building would influence use, the function of this covered walkway could easily be envisioned as contributing to a vibrant “street scene” through outdoor seating, retail storefronts, and other pedestrian-intensive uses.

The opposite façade of the building, and the façade facing to the south, present much simpler compositions but facades with some aesthetic potential. If the irregular openings were in-filled to match the typical window openings, and in-filled openings had replacement windows installed, there would begin to appear a cadence on both façades that would create a simple yet pleasing composition, one with historical context.

The simple conclusion of the potential for adaptive reuse of the Board Mill building from an architectural perspective is inconclusive. Detailed planning of a new use for this building will drive the decision as much as anything. The tremendous cost implications of creating a useable yet modern building shell must be out-weighted by the aesthetic and functional benefits to a potential occupant. Notwithstanding this fact, the general conclusion for the reuse of the Board Mill building is questionable.
Structural Investigation of the Georgia-Pacific Campus – Barking and Chipping Plant Building

Building Description:
The Barking and Chipping Plant Building is "L" shaped in plan, with overall dimensions of approximately 146ft x 146ft. The roof of the building has steps at many locations, with heights ranging from 43ft to 57ft. An 18ft x 16ft tower projects from the center of the building to a height of 77ft. The building is comprised of structural steel framing and concrete floors with an exterior skin of unreinforced masonry walls.

Gravity Framing System:
The foundation system of the Barking and Chipping Plant building is similar to the Board Mill building with timber piles and a concrete foundation and slab elements. The vertical framing members are steel wide flange columns, several of which are heavily corroded. The building does not have a full second floor system, instead, many pieces of steel framing were erected solely to support the industrial equipment originally housed in the building. Reinforced concrete slab was placed in several areas to access the equipment. The roof framing consists of deep steel trusses and wide flange steel beams, overlain with precast concrete roof panels. Horizontal diagonal angle bracing connects column lines and purlins at many bays of the building. Near the center of the building, the precast roof panels were designed to support floor loading at the filing room. The tower projects further above the roof of the filing room. The roof and floor areas of this building generally appear adequate to support the code-prescribed loading required for educational facilities, however, the interior layout of the second floor would require significant new work to create a continuous, useable, 2nd floor area.

Lateral System:
The lateral system for the Barking and Chipping Plant building consists of the exterior masonry walls, steel framing system, concrete roof diaphragm and horizontal bracing. The lateral load path for this building is similar to that of the Board Mill Building above. The current partial layout of the intermediate second floor area does not appear to be of sufficient size to act as a continuous diaphragm within the building. As with many buildings of this era, little consideration was given to seismic performance as part of the original building design; the strength of the lateral system elements and connection detailing of the elements is generally inadequate to resist current code-prescribed earthquake loads.

Chip Bins:
The Chip Bins are four circular reinforced concrete silos, approximately 38ft in diameter, and 67ft tall, arranged along an east/west line at the south side of the Barking and Chipping Plant building. Each bin shares a portion of wall with the adjacent bin, creating an interconnected system. The bins were designed for timber chip storage, with interior silo equipment and feeder systems. The concrete walls are 6in thick, with (16) pilasters arranged evenly around the perimeter of each silo. The pilasters extend up the interior walls to approximately 30ft elevation.
Gravity System:
The Chip Bin structures are set on timber piles and concrete foundations. The concrete walls and pilasters support the gravity load of stored materials and the structure itself. The roof of the bins is of reinforced concrete, and a steel framed conveyor system sits atop the centerline of the four silos. Primary wall reinforcing is placed in the horizontal direction to resist outward hoop pressures from the stored material. The walls are nominally reinforced in the vertical direction, and the existing pilasters have very little vertical reinforcing and no confinement ties.

Lateral System:
The circular concrete walls of the Chip Bins act as the lateral system for the structure. Due to their continuous circular configuration, the walls generally appear adequate to resist lateral forces. In the current configuration, no horizontal interior diaphragms exist within the silos, and the roof is discontinuous at the conveyor system.

Adaptive Reuse

Barking and Chipping Plant Building:
The Barking and Chipping Plant Building has limited potential for conversion. Due to the lack of a continuous interior floor, significant work would be required to create useable interior floor levels. The scope of structural work required to transform this building into a suitable facility would be:

- Installation of a new lateral system. The new system would consist of new braced frames or concrete shear walls, along with drag struts and collectors to transfer load into these elements. New foundation elements and piles would be required at the new wall or frame locations.

- Ground floor reconstruction. To provide new utilities and services to the building, it is expected that the areas of the structural slab on grade would need to be trenched and demolished. Due to poor soils and pile foundations, reconstruction of this structural slab on grade would involve new slab design and structural reinforcing. The Barking and Chipping Building has several large equipment support foundations located within the building footprint; demolition or infilling of these elements would be required.

- 2nd floor construction. The lack of a continuous elevated floor diaphragm inside the building would necessitate building an entire new 2nd floor system inside the building. The existing roof is tall enough that it may be possible to install a 3rd floor level as well. These steel framed floors would attach to the exterior columns; new columns, footings, and piles would likely also be required to support the new floor systems.
• **Roof reconstruction.** The existing precast panels at the roof and the diagonal bracing are inadequate to behave as a roof diaphragm. There is no apparent connection of the precast panels to the existing steel framing. The panelized roof system should be removed and replaced with a conventional metal deck diaphragm with appropriate drag struts, collectors, and connections to the new lateral system.

• **Tower/Filing Room Bracing.** The existing tower and upper level filing room structure would require additional bracing and a lateral system to transfer loads from these high areas to the main building roof. New steel bracing would be required at these areas. Alternately, these spaces could be removed or rebuilt as part of the roof reconstruction.

• **Exterior Masonry Reconstruction and Bracing.** The existing unreinforced masonry walls are a collapse hazard in a design earthquake. These walls and the parapets of the building will require bracing and rehabilitation. Due to the tall story heights present in the building, bracing would likely be structural steel tube or channel members.

**Structural Investigation of the Georgia-Pacific Campus – Chip Storage Bins (Silos):**

The Chip Bin Structures have some potential for conversion. As with the Barking and Chipping plant, the industrial design of the bins dictates that new floor levels would need to be installed to create useable spaces. The scope of structural work required to transform this building into a suitable facility would be:

• **Foundation work.** Preliminary analysis and geotechnical information indicates that the pile foundation is not capable of resisting uplift forces. During a seismic event in the north/south direction, overturning forces may be an issue. We anticipate some form of foundation work, such as micropile anchorage to resist uplift at the foundation/pile interface.

• **Interior Floor Construction.** The chip bins have no interior floor systems. A series of structural steel framed floor systems with metal deck and concrete topping would be installed to create occupiable spaces. The new steel framing and concrete topping would be securely connected to the exterior walls. Interior steel or concrete columns may also be required to support these floor areas.

• **Roof Construction.** The existing concrete roof system is not complete, and is discontinuous along the centerline of the bins due to the conveyor machinery. The roof system should either be demolished and reconstructed with metal deck and concrete topping, or infilled to create a continuous concrete structural roof diaphragm.
• Wall Construction. The existing pilasters are under-reinforced and do not extend to the full building height. These pilasters may be reinforced with additional structural steel or concrete pilasters carrying the full building height. These pilasters would support the new floor framing, and allow for window openings to be placed into the exterior walls of the chip bins. We anticipate that window and door openings can be placed into the chip bin walls with some additional concrete or steel reinforcing required.
2nd Floor:
- Existing 2nd floor slab are limited/unknown. Most framing exists to support original equipment positioning to define existing of 2nd floor area. Read.
- Existing framing is at varied elevation, ranging from ~6'4.5' to 42'.
- Decide initial framing to suit program.

- Building framing & height is reasonable to pursue a third floor/additional level interior to building.

Establish new 2nd floor diaphragm, largely 204, throughout building. Use 24" floor where possible.

Units: Perch/replace corroded steel members.

Barking & Chipping

2nd Floor
Mechanical/Plumbing Investigation of the Georgia-Pacific Campus – Barking and Chipping Plant Building

Existing Plumbing Systems:

Drainage Systems: All roof drainage systems appear to be original and via uninsulated internal rainwater leaders. The sanitary drainage and venting system was installed to serve process equipment including many ground floor level drains set into the floor slab. Because of the condition of the building systems and damage due to equipment removal, it is recommended that these systems be removed and replaced to suit programmatic requirements. It is understood that new drainage service utilities (storm and sanitary) would be extended to this site as part of the overall utility upgrade plan – refer to civil narrative.

Water Supply Systems: Water supply equipment and piping has been abandoned in place. It is recommended that they be disconnected and removed entirely, replaced with new systems to meet programmatic requirements if the building is reused. The piping system may contain insulation with asbestos components. If not already completed, a full environmental survey should be completed to fully understand the extent of any asbestos materials so they can be properly fully removed prior to re-use or demolition.

Existing Heating / Ventilating Systems: The existing building is heated via gas fired unit heaters suitable for an industrial setting. Many of the areas are open to the outdoors. If this building is to be re-used for commercial, institutional, or residential occupancy, it is recommended that the existing system be removed entirely and replaced with a new HVAC system to meet programmatic requirements.

Existing Fire protection systems: The existing building is covered with a dry type fire protection sprinkler system – assumed to be original equipment. If the building is to be re-used, a new wet type sprinkler system would be required to meet current Building and Fire codes.

Adaptive Re-Use Potential: From a mechanical systems standpoint, none of the existing mechanical systems are able to be re-used as outlined above. Much of the steel building structure interior to the building shell appears to be installed to serve process equipment. Because of this and the significant shell and system damage due to equipment removal, the Barking and Chipping building appears to be less attractive (than the Board Mill Building) for adaptive re-use. However, the building does have a significant floor-to-floor height, large operable windows, and heavy exterior wall construction (unreinforced masonry). Each of these attributes contribute to allow for flexibility in space usage as well as HVAC system design (such as under floor air distribution or even natural ventilation strategies). One major challenge would be to upgrade the existing exterior envelope to meet or even approach current energy code requirements. Excessive heating energy would be required for this building due to the lack of any exterior wall insulation and large single pane exterior windows. As part of a building re-use strategy, it would be highly recommended to replace the exterior windows (with high performance glazing), provide exterior shading devices, and incorporate an exterior wall insulation system.
Mechanical/Plumbing Investigation of the Georgia-Pacific Campus – Chip Storage Bins (Silos)

Plumbing Systems: No plumbing systems are present.

Heating / Ventilating Systems: No heating / ventilation system is present

Fire protection systems: No fire protection system is present

Adaptive Re-Use Potential: The Chip Bins are unique in configuration as they are approximately 38’ diameter and over three stories in height. Re-use of these structures may be valuable in terms of a historical statement; however there are no mechanical systems that can be re-used to provide additional benefit. Similar to the remaining structures on the site, the heavy weight of the structure and opportunity for high floor-to-floor distances may provides opportunities in passive HVAC system design. Again, as part of a building re-use strategy, it would be highly recommended to incorporate an exterior wall insulation system in conjunction with window openings.

Electrical Investigation of the Georgia-Pacific Campus – Barking and Chipping Building

From an examination of the Georgia Pacific facilities, particularly the Board Mill and Chip Screening buildings, the Barking and Chipping Plant and the Chip Bin Silos, it can be concluded that there is nothing in the buildings, which date from the middle 1930s to the middle 1940s, that can be used from an electrical and communications perspective. The systems, as described for the two campus buildings above, will need to be completely constructed as new regardless of whether existing buildings are reused or new buildings are constructed.

Given that the interior electrical and communications spaces in the building will be new, the next question to address is what is needed to provide power and communications systems to the building.

It is our understanding that the Port and City are intending to provide the utility infrastructure for the development. It is not clear if this includes electrical, telephone and data systems since they are usually considered separately from civil utilities. Any significant consideration of the systems is outside the scope of this report; the system will need to be studied with respect to the overall design for the site including the types of facilities and potential dates for construction. Some general considerations are indicated below.

The electrical system demand of a new Huxley facility would be approximately 500 kVA based on the experienced demands of Arntzen Hall and Environmental Studies. This will be a factor in the overall design of a distribution system for the project.
It is assumed that the telephone system for the site will be provided by Qwest to the building. The campus IT department is the best source of requirements for a building. Since the systems were upgraded fairly recently for the campus buildings this can be a good starting point for input into an overall study.

It is assumed that the data and CATV system would have to extend back to the existing data head-end equipment on the WWU campus which is located in a building on 32\textsuperscript{nd} Street. The distance between the waterfront and the campus communications center is approximately 1.7 miles. It is also possible that fiber connections can be made through Qwest. This will need to be discussed with the campus IT department.

**Architectural Investigation of the Georgia-Pacific Campus – Barking and Chipping Plant Building**

Of the existing Georgia-Pacific buildings evaluated for this report, the Barking and Chipping building, and the adjacent Chip Storage Bins, are the most interesting based on the geometric aesthetics of each. Built around the same time as the other buildings, mid-1940s, the Barking and Chipping building has an overall footprint of approximately 12,000 SF.

Because of the complex process equipment in this building, there is not a continuous floor system within the envelope of the building. Once all of the industrial equipment is removed, the resulting building shell would not be usable, even if stabilized. Complete replacement of significant portions of the building structural system would be required to present full floor plates. However, because the exterior walls are more than 50’ tall, the reconfiguration of the interior structural system could yield three levels with more than adequate floor clearance.
The ell-shape of the building creates an opportunity to define exterior spaces, such as courts and yards. As with the Board Mill building, the creation of regular size and spaced windows through adding new window openings or removing infill at others will greatly enhance the aesthetics of both the exterior facades and the interior quality of space.

The existing large opening that was used for crane hoisting logs into the building could create an interesting high opening for an entry that penetrates vertically through the building. Such a central vertical element often creates visual interest and a more captivating circulation spine for the buildings occupants.

As you walk around the building, the subtle symmetry, or potential symmetry, of the building is attractive and appealing. The geometry of the building creates inside corners in the masonry facades, always a point of intersecting planes that offers potential for pedestrian places, found elements such as art, seating areas, water features, or even people friendly landscaping.
An unusual but unique and potentially exciting opportunity exists with the immediately adjacent Chip Storage Bins. These cast-in-place concrete structures are most reminiscent of the grain storage silos prevalent in most rural areas of our country.

The four concrete structures are nearly 38’ in diameter, with approximately 6” thick circular concrete exterior walls and concrete pilasters on the interior. Although the pilasters are not continuous to the top of the cylindrical structure, stopping 2/3 of the vertical height, these cells can be reinforced structurally to present a unique but stable shell.

The narrow gap between the adjacent Chipping and Barking building (on the right in picture) and the concrete silos on the left creates a unique and intimate “alley” between buildings. With the introduction of bridging connections above, the silos could become an extension of the existing building, but with a more eccentric quality and character.

Although the size of the silos could lend themselves to some unique and creative office or classroom uses, the size and vertical volume could lend themselves to special laboratory or shop spaces. Introduction of stairs, vertical lifts, mechanical, electrical, and even plumbing with be required.

The simple yet wonderful geometry of this concrete structures should be taken advantage of and an adaptive reuse discovered. Windows can be cut into the curved exterior shell to let natural light and ventilation into the spaces. Views would be attractive, and this structure could become some of the more exciting academic spaces on this new campus.
The potential for adaptive reuse of the Barking and Chipping Building and the adjacent Chip Storage Bins (Silos) from an architectural perspective is divided. Because of the lack of usable structural frame (floors), the extensive structural work might not be an acceptable solution. However, the Storage Silos clearly offer a special and unique opportunity, and the geometry of the shapes would be an attractive and interesting part of an academic setting.

Detailed planning of a new use for this building will drive the decision as much as anything. The tremendous cost implications of creating a useable yet modern building shell must be out-weighted by the aesthetic and functional benefits to a potential occupant.

**Structural Investigation of the Georgia-Pacific Campus – Chip Screen Building**

**Building Description:** The Chip Screen building is rectangular in shape, approximately 137ft long (north-south direction) and 60 feet wide (east-west direction). The building appears to be approximately 40ft tall. Limited drawings were available for review, but the one-story building appears to be constructed similar to the Barking and Chipping Plant building, but instead having a timber roof structure. Many beams originally for support of equipment are left in place, with limited and discontinuous floor systems. The Chip Screen Building is in serious disrepair, with external and internal damage due to equipment removal and weather exposure. The assessment team has determined that this building is not a prospective candidate for rehabilitation, and therefore further review was not performed on the gravity or lateral systems of the building.

The Chip Screen Building was not reviewed for potential conversion. Please see the comments in the building description portion of this letter.

**Mechanical/Plumbing Investigation of the Georgia-Pacific Campus – Chip Screen Building**

**Existing Plumbing Systems:**

Drainage Systems: All roof drainage systems appear to be original and via uninsulated internal rainwater leaders. The sanitary drainage and venting system was installed to serve process equipment including many ground floor level drains set into the floor slab. Because of the condition of the building systems and damage due to equipment removal, it is recommended that these systems be removed and replaced to suit programmatic requirements. It is understood that new drainage service utilities (storm and sanitary) would be extended to this site as part of the overall utility upgrade plan – refer to civil narrative.

Water Supply Systems: Water supply equipment and piping has been abandoned in place. It is recommended that they be disconnected and removed entirely, replaced with new systems to meet programmatic requirements.
if the building is reused. It should also be noted that there are other industrial use type piping systems installed in
the building that would have to be removed. These systems (and any other piping system) may contain insulation
with asbestos components. If not already completed, a full environmental survey should be completed to fully
understand the extent of any asbestos materials so they can be properly fully removed prior to re-use or
demolition.

**Existing Heating / Ventilating Systems:**

The existing building is heated via gas fired unit heaters suitable for an industrial setting. The heating system
does not incorporate any ventilation air (opening windows and roof openings provide space ventilation). If this
building is to be re-used for commercial, institutional, or residential occupancy, it is recommended that the existing
system be removed entirely and replaced with a new HVAC system to meet programmatic requirements.

**Existing Fire protection systems:**

The existing building is covered with a dry type fire protection sprinkler system – assumed to be original
equipment. If the building is to be re-used, a new wet type sprinkler system would be required to meet current
Building and Fire codes.

**Adaptive Re-Use Potential:**

From a mechanical systems standpoint, none of the existing mechanical systems are able to be re-used as
outlined above. Much of the steel building structure interior to the building shell appears to be installed to serve
process equipment. Because of this and the significant shell and system damage due to equipment removal, the
Chip Screen building appears to be less attractive (than the Board Mill Building) for adaptive re-use. However,
the building does have a significant floor-to-floor height, large operable windows, and heavy exterior wall
construction (unreinforced masonry). Each of these attributes contribute to allow for flexibility in space usage as
well as HVAC system design (such as under floor air distribution or even natural ventilation strategies). One
major challenge would be to upgrade the existing exterior envelope to meet or even approach current energy
code requirements. Excessive heating energy would be required for this building due to the lack of any exterior
wall insulation and large single pane exterior windows. As part of a building re-use strategy, it would be highly
recommended to replace the exterior windows (with high performance glazing), provide exterior shading devices,
and incorporate an exterior wall insulation system.

**Architectural Investigation of the Georgia-Pacific Campus – Chip Screen Building**

The Chip Screening Building has the least potential for reuse of any building we considered for this
report. Built around the same time as the other adjacent buildings, mid-1940s, and as part of the Barking
and Chipping Complex, the building has an overall footprint of approximately 7,000 SF.
The potential for adaptive reuse of the Chip Screening Building is limited. The damage to the exterior of the building is extensive and creates an unstable situation. The interior structure is entirely in support of process equipment, so similar to the other buildings, there is not a continuous and useable 2nd floor.

Although the scale of the exterior windows produce a wonderful quality of light on the building interior, the condition of the interior suggests it would require extensive rehabilitation to return to a usable condition. The volume of the building could easily introduce a full 2nd level with generous clearances; the natural beauty of the exterior windows would be compromised. A partial 2nd floor could be created to allow natural light to penetrate both levels.
Detailed planning of a new use for this building will drive the decision as much as anything. The tremendous cost implications of creating a useable yet modern building shell must be out-weighted by the aesthetic and functional benefits to a potential occupant.

Site Sustainability Analysis – Georgia Pacific Paper Mill

**INTRODUCTION:** In August of 2006, Western Washington University began the process of validating and verifying their Due Diligence Report 2004 for the adaptive reuse of the Georgia Pacific Mill site on the waterfront in terms of using this site as an extension of the existing campus, specifically for the Huxley College of the Environment. The site was toured and information obtained during the meeting and subsequent discussions with consultants.

**SITE TOUR:** The tour consisted of walking through three abandoned buildings and two silos. The buildings were in unusable condition as they were presented.

The first building, the prior Board Mill, was in the best condition. It was a two story, un-reinforced, brick building. The main floor had a few existing walls and a concrete floor. Many of the large, multi-paned windows were broken or removed. The second floor was accessed by means of an old stair. This level also had a few existing walls and a heavy wood floor and was sectioned into three parts. The two end sections had high, open ceilings and the middle section had a dropped ceiling for office spaces. Many of the existing windows were removed and filled with block.

The second building, the prior Chip Screening Site, was in poor shape. Many of the exterior, un-reinforced brick walls were collapsing. Most of the main floor was also in poor shape with the floor requiring much repair. The walls in the space were mostly for protecting prior employees from the mill equipment. Some of the exterior windows remained. The partial second floor, or mezzanine in this building, was accessed by an aging stair. This area had a few partial height walls which created offices. The majority of windows are located in the high bay space not in the mezzanine area.