City of Des Moines

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January 23, 2024

ERRATA SHEET

NOTICE OF UPDATED SEPA RECORD AND EXTENSION OF PUBLIC COMMENT PERIOD FOR THE ZENITH PROPERTIES BUILDING DEMOLITION APPLICATION DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

On **January 9, 2024** the City of Des Moines issued a Notice of Availability and Notice of Public Comment for the Zenith Properties LLC's proposed action filed under **LUA2019-0032** for a demolition permit to remove all structures of the former Masonic Home (formerly Landmark on the Sound) located at 23660 Marine View Drive South (Parcel No. 1722049023).

The City of Des Moines SEPA Official has updated the SEPA record as follows:

1. Appendix E Feasibility Analysis Report has been updated with the correct version dated May 22, 2023 (Final Report). This information does not change the outcome of the DEIS analysis. The updated Appendix E can be viewed at the project website at www.desmoineswa.gov/zenitheis, at City Hall and the Des Moines and Woodmont Public Libraries.

2. The City has extended the comment period deadline to **4:30 p.m. on March 8, 2024** to allow the public more time to review this information.

Sincerely,

Denise E. Lathrop

Denise E. Lathrop, AICP
Community Develop Director and SEPA Official

CITY OF DES MOINES

ZENITH PROPERTIES BUILDING DEMOLITION PERMIT APPLICATION

DRAFT ENVIRONMENTAL IMPACT STATEMENT APPENDICES (PART 2: APPENDICES E–K)

JANUARY 2024

CITY OF DES MOINES
Community Development Department
21630 11th Avenue S, Suite D
Des Moines, WA 98198

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APPENDIX E FEASIBILITY ANALYSIS REPORT

Zenith Properties LLC
Des Moines Masonic Lodge
Economic Feasibility Analysis

May 22, 2023

Prepared for: Zenith Properties L.L.C.

FINAL REPORT

ECONorthwest
ECONOMICS · FINANCE · PLANNING

Park Place
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Suite 615
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Summary of Findings

This report tests a previous conclusion by the Masons that there is a "clear indication that there was no market for this kind of property" by examining the economic feasibility of the Historic Preservation and Future Adaptive Reuse contemplated in the Environmental Impact Statement (EIS) for the primary structure located at the former Masonic lodge in Des Moines, WA. There is an evaluation on the financial performance of potential use concepts created by the Zenith Properties L.L.C. team.

The financial feasibility analysis analyzed the three general land uses: multifamily, multifamily senior housing, and hotel/hospitality. However, the hotel/hospitality use was differentiated to reflect two different hotel classifications based on industry standard definitions: a baseline Midscale hotel scenario and an optimistic Upscale+ scenario. This resulted in four potential use types for the analysis. The analysis employs appropriate analytic methods to assess the economic performance of the use concepts based on underlying physical site attributes and the best available information on the real estate market.

Summary Financial Feasibility Assessment

After thorough financial assessment, of multiple different use types, it is our professional determination that none of the development concepts are financially feasible. Without incentives, a redevelopment of the primary structure at the former Masonic lodge would likely need a subsidy of over $100 million in present value terms. However, even with potential financial incentives, a redevelopment of the former Masonic lodge would likely need a subsidy of around $50 million.

Financing tools like C-PACER and historic tax credits help close the gap with potentially better financing amounts and terms, however net operating income does not exceed the likely debt payments. The implication being that potential financing partners will not offer the funds for the project because they cannot be paid back by the project.

The following exhibit summarizes results of the feasibility analysis the underlying financial parameters of the various use types and an assessment on the amount of capital subsidy that would be needed to support the rehabilitation of the structure.

Exhibit 1. Summary Results and Feasibility Gap by Use

Source: ECONorthwest, 2022

	Multifamily rental	Senior housing	Midscale hotel	Upscale+ hotel
Total leasable area (square feet / hotel rooms)	72,000 square feet		208 hotel rooms*	
Total revenue	$1.61 million	$2.05 million	$5.81 million	$12.43 million
Total NOI	$1.28 million	$1.48 million	$1.51 million	$2.78 million
Total value (assuming a 5% cap rate*)	$25.62 million	$29.68 million	$30.21 million	$55.73 million
Total cost	$128.61 million	$128.61 million	$153.93 million	$156.44 million
Yield on cost	**1.00%**	**1.15%**	**0.98%**	**1.78%**
Yield Target Performance	**-500.0%**	**-421.7%**	**-512.2%**	**-321.3%**
Subsidy needed	**-$107.25 million**	**-$103.85 million**	**-$128.75 million**	**-$119.30 million**
Subsidy needed after incentives	**-$50.78 million**	**-$47.4 million**	**-$62.45 million**	**-$52.99 million**
Subsidy needed after incentives (assuming lower stabilization costs)**	**-$44.69 million**	**-$41.3 million**	**-$56.36 million**	**-$46.89 million**

*The hotel room count is approximately the same area, in terms of square feet, as the multifamily and senior housing.

**See Exhibit 16 for details on lower stabilization costs. Though costs are reduced, there is a commensurate reduction in the eligible basis for historic tax credits and special property assessments, and therefore the value of these incentives.

The following set of findings summarize the key factors in this determination of financial infeasibility.

Finding #1: Structural and Building Stabilization Costs Pose a Significant Obstacle to Revenue Needs

The fully burdened project cost for stabilization alone is estimated at $78.4 million and applies to the approximately 130,000 square feet of structure space. Including the fit out and other construction needs, the total development cost is approximately $990 to $1,180 per square foot. **The total development cost, for any use type, will be greater than top-of-market construction in downtown Seattle.**

Finding #2: Building Space Efficiency Limits Revenue Potential

The relative revenue-generating area (e.g., leasable area) is comparably less than a typical new construction building. The lodge structure, as the primary building, is narrow by today's building space efficiency standards. The lodge building has substantially less leasable area per floor as compared to typical new construction and **impacts the revenue potential of the core investments to rehabilitate the structure.** Where most modern buildings target their efficiency (i.e., the leasable square footage as a percent of the gross square footage) at 85-90% (according to CoStar data for comparable properties in the area), the lodge has relatively less leasable area per floor reducing the efficiency to the 60% range.

Finding #3: Current assumed market prices do not support preservation of the existing building under any of the four use types evaluated.

The total value generated by any of the four use types is not enough to cover the costs.

- Multifamily rental: $25.62 million in value vs $128.61 million in costs
- Senior housing: $29.68 million in value vs $128.61 million in costs
- Midscale hotel: $30.21 million in value vs $153.93 million in costs
- Upscale+ hotel: $55.73 million in value vs $156.44 million in costs

The yield on cost results for all use types are less than one quarter of their target yield. This means that using current residential rents and hotel Average Daily Rates (ADR), for the baseline midscale hotel and the more optimistic upscale+ hotel, **the project would need a significant subsidy to achieve real estate industry target yields.**

Average Daily Rate (ADR): where different rooms in a hotel rent for different prices, the average daily rate is the average price across all rooms

Finding #4: Available financial incentives do not solve the financial feasibility gap.

The historic preservation and C-PACER incentives are designed to lower the project costs of rehabilitating a historic structure. More specifically, these programs help reduce financing and operating costs. Given the nature of the scale of these costs identified in Finding #1, the incentives do indeed target a critical feature of the contemplated reuse construction. While these financial incentives do lower the cost of operating and financing the project, even after their application, the project would have to generate $4-5 million more a year to service the debt on the project. For this to take place, net operating income (i.e., gross income less operating costs) would have to double. The analysis shows that historic preservation incentives help these projects, **however, they**

fail to close the financial feasibility gap given that the baseline feasibility gap is so large.

Finding #5: Residential rents would need to increase substantially, beyond the pricing observed elsewhere in Washington, to make the use types financially feasible.

Of the four use types, multifamily apartments and senior housing would need to see the greatest increase in revenue over current rents – a 560% and 445% increase respectively. For example, a 1,000 square foot apartment unit (typical size for a one-bedroom unit) currently rents for $1,850 per month in the Des Moines marketplace. **For the project to reach financial viability, a 1,000 square foot unit would need to rent for $10,400 per month.** The necessary residential rents to make the project financially viable far exceed current or projected Des Moines residential market rents.

Finding #6: Hotel ADRs would need to increase substantially, beyond the pricing observed elsewhere in Washington, to make the use types financially feasible.

Like with the residential use types, both hotel concepts (the baseline midscale and the optimistic upscale+) would need to see an increase in ADRs - 290% to 230% increase respectively assuming the use of historic preservation incentives. The optimistic upscale+ hotel would need to see an ADR of $375 which far exceeds historic averages for even downtown Seattle upper upscale hotel ADRs (approximately $205 over the last 12 months), **much less those in the Des Moines submarket**. Like Finding #5, the ADR needed to make the project financially viable far exceeds the current or projected Des Moines market.

1. Introduction to the Analysis

1.1 Project Background

Des Moines Masonic Lodge

Zenith Properties L.L.C. purchased the former Masonic lodge in Des Moines, WA. Prior to this sale, the Masons, who owned the lodge, had investigated redeveloping the 100-year-old structure and surrounding property. Their initial investigations determined that their organization's interests were best served by offering the lodge property for sale on the condition that any redevelopment activities would need to stabilize and preserve the structures on the property. However, the Masons were not able to execute any proposals that met this condition due to the viability of the proposals with most of these proposals deemed financially infeasible due to cost of stabilize the existing structures.

The experience during this process later convinced the Masons that the condition of the structure would pose an “insurmountable” challenge to repurposing the property and they relisted the property without the previous condition to maintain the structures. The Masons applied for the demolition permit and transferred the demolition permit application to Zenith Properties L.L.C. after Zenith Properties L.L.C. purchased an option for the property from the Masons. In a letter dated May 16, 2022, the Masons provided their reasoning for relaxing this condition, and their support of the proposed demolition of all existing structures located on the property (the full letter is included as an attachment to this report).

> In the nearly 100 years since the construction of the former Masonic Retirement Center (the Center) the Masons have owned, operated, and maintained the Center. In the early 2000's the Masons began investigating potential redevelopment of the Property. Following those investigations, the Masons determined their organization's interests were best served by offering the Property for sale with the condition that any redevelopment activities would need to rehabilitate and preserve the Center.
>
> Following 15 years of studies, investigations, mothballed proposals, and the Masons' own intimate knowledge of the condition of the Center, it became clear that what many may see as an asset on the outside is in fact a substantial liability once the actual interior and structural conditions of the building were investigated and the costs were obtained. The condition of the Center proved to be an insurmountable barrier to the repurposing of the Property. Every potential buyer determined that the significant costs to bring the Center up to code and then convert it to another use were not economically feasible.
>
> As a result of the significant deterioration of the buildings and the clear indication that there was no market for this kind of property, the Masons relisted the Property for sale without conditions, which attracted many interested parties. In that process, the Masons wanted to identify an investor that would work with the community and demonstrate they

have the background, abilities, and vision to shepherd the Property for the next 100 years or more. In that regard, the Masons are very confident in the abilities of the Zenith Properties L.L.C. team to be a good partner for the Des Moines community. The Masons feel the transfer of property to Zenith Properties L.L.C. and the proposed demolition of the existing buildings represent the greatest potential for a positive and successful future for the Property and the community.

1.2 SEPA EIS and Proposed Alternatives

SEPA Alternatives

The Masons' application to demolish the structures on the property resulted in a determination of significance under the State Environmental Protection Act (SEPA). The City of Des Moines is subsequently conducting an environmental impact statement (EIS) analysis of the demolition proposal. While there are no development plans for the property, Zenith Properties L.L.C. is proposing to demolish the building because of the public safety risks and structural condition of the current structure.

Environmental impact statements are done to disclose any impacts of a proposed project on its surrounding environment to jurisdictional decision makers. While the EIS principally examines these impacts to both the built and natural environments, it can also entertain issues related to specific economic questions that are relevant to the proposed action. In this case, the economic analysis in this report examines an alternative action to potentially preserve the property for adaptive reuse as authorized by the Des Moines Municipal Code. The full description of the SEPA EIS alternative is listed below.

Historic Preservation and Future Adaptive Reuse Alternative

As there is no proposed use or future plans identified for the Masonic Home of Washington at this time, the Historic Preservation and Future Adaptive Reuse Alternative would consist of addressing structural deficiencies and stabilizing the structure and grounds, allowing for future reuse. This is often referred to as mothballing, as defined in National Park Service (NPS Preservation Brief 31). The purpose of mothballing is to control long-term deterioration of the building while it is unoccupied and protect it from loss by vandalism, fire, or other disasters.

NPS Preservation Brief 31 includes four basic components to mothballing. It involves preparing detailed documentation of the buildings and landscape; addressing deficiencies, stabilizing to prevent future deterioration while the building and property are not being used; securing the building and mothballing the buildings' systems; and creating and implementing an on-going maintenance and monitoring program to ensure continued protection while the building is not in service.

The Historic Preservation and Future Adaptive Reuse Alternative would stabilize, secure, and protect the Masonic Home of Washington to allow for a future reuse, should one be identified.

1.3 Economic Research Questions

This report tests the conclusion from Masons that there is a “clear indication that there was no market for this kind of property” by examining the alternative for Historic Preservation and Future Adaptive Reuse. Specifically, this economic analysis examines whether a potential future use (and the revenue it could generate) could be economically productive enough to support 1) the cost to stabilize the structure and 2) the cost to fit out the interior space to make it ready for occupation and commercially active; and achieve positive stabilization value.

To address this question, there are several underlying questions that must be addressed to provide the necessary information, they include:

- What are the costs of the structural, seismic, and envelope deficiencies that need to be addressed to bring the structure up to habitable standards ?
- What are the needed improvements and costs of making an interior space ready for occupation?
- What are the potential revenues that could reasonably be achieved within the Des Moines marketplace?
- How does the balance of these costs and revenues compare to the needed financial returns required to underwrite private real estate investments?
- What are potential revenues that would be needed to underwrite development feasibility and how do they compare to prices achieved elsewhere?
- How might the application of historic preservation incentives impact the financial performance of a rehabilitation?

2. Analytic Approach

2.1 Overview

This report prepares an evaluation on the financial performance of potential use concepts created by the Zenith Properties L.L.C. team. The analysis employs appropriate analytic methods to assess the economic performance of the use concepts based on underlying physical site attributes and the best available information on the real estate market. The scope of work assumes preservation of the existing structure as defined in Alternative 3 in the EIS.

This work has three main components:

- **Define Use Concepts.** There are three general land uses: rental multifamily, multifamily senior housing, and hotel/hospitality. These use types are customized for the local market conditions in Des Moines and analyzed with financial pro forma models to test development feasibility.
- **Determine Baseline Development Feasibility.** An assessment of how feasible it would be to rehabilitate and retrofit the building for each of the use types given the current market conditions is completed. The work proceeded under cost assumptions provided by Zenith Properties L.L.C. as well as an analysis of the market for each use:
  - *Revenue:* the analysis conducted a market study for each use to estimate the current market price and typical occupancy for all uses.
  - *Costs:* the analysis received cost estimates from other consultant teams of licensed engineers and professionals on the estimate stabilize the building and a cost per square foot of use for fit-out of the use scenarios to support an overall cost estimate for adaptive reuse under the different use types.
  - *Financial metrics:* the analysis uses minimum threshold requirements for financial returns as financing partners are unlikely to offer capital for a project that doesn't meet a minimum return expectation.
- **Conduct Alternatives and Sensitivity Analysis.** The financial pro forma models tested the impact of changes in prices and conditional incentives to understand how the feasibility of an adaptive reuse might change under these circumstances.

A **pro forma** is a set of financial calculations that relates the revenue a building can deliver (e.g., from rents) to the costs of constructing and operating the building. Our pro forma models employ the same financial considerations a real estate developer would use to determine if a proposed development is financially feasible.

2.2 Land Use Concepts

The analysis examines three general land uses that are likely to be accommodated in the structure. These uses are:

- Market-rate multi-family residential
- Market-rate senior housing
- Market-rate hotel/hospitality

These uses were selected because 1) the physical configuration of the structure is conducive to these residential uses (i.e., the former lodge was designed for personal residences); 2) there is a reasonable expectation for growing demand for these spaces in the immediate region, 3) the location and proximate amenities on the site make them more conducive for these types of uses, and 4) conformance with the underlying zoning.[1]

2.3 Pro Forma Analysis Approach

At its simplest level, new development happens when developers have the necessary resources and when project profitability is higher than alternative investments. This means that a hypothetical development project earns enough money (from rents) to cover the costs to operate and construct and can pay the interest on loans and returns to investors. Infeasibility of development occurs when there is an inability to achieve high enough rents to justify new construction (or higher costs of more intense development).

To compare the financial feasibility across different use types, the analysis uses a financial pro forma model tool and a yield on cost analysis metric to assess project feasibility.

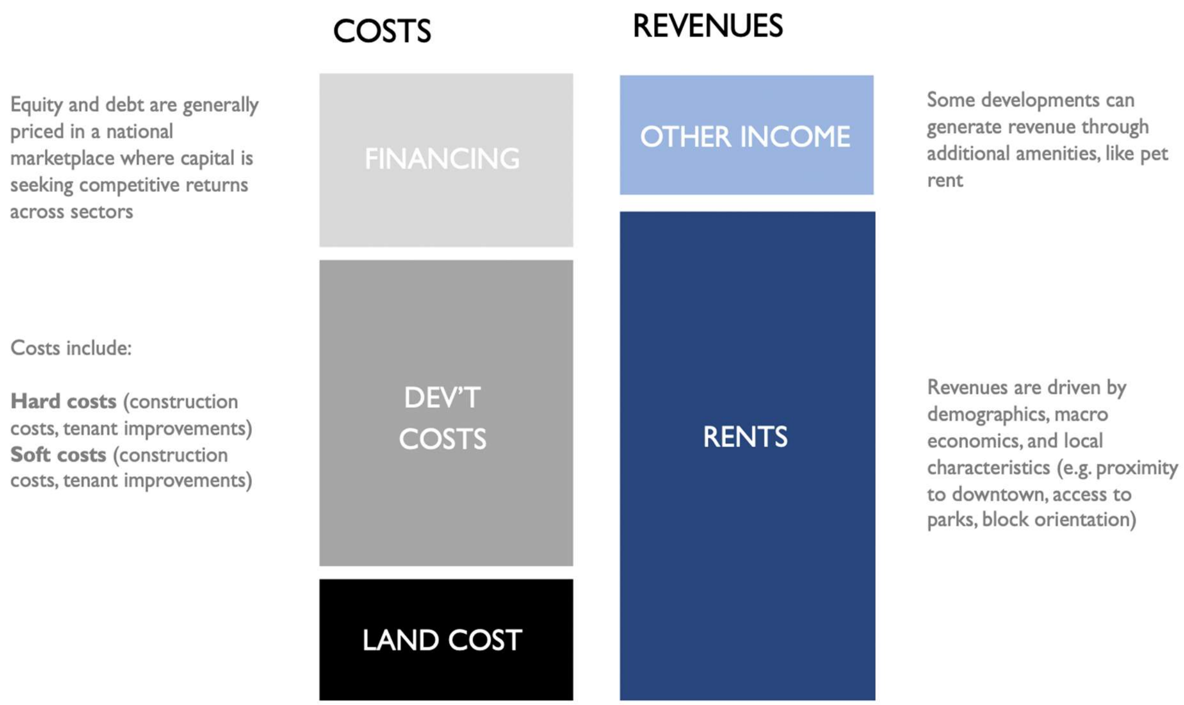
Proforma Model Tool

A pro forma is the standard financial analysis completed by the developer to assess the financial feasibility of a development proposal. A pro forma contains a set of market and cost assumptions (e.g., revenue, construction costs, etc.) which are then used to determine a projected rate of return for a project. Exhibit 2 illustrates how a proforma analysis incorporates different types of costs and revenues as part of the modelling process.

[1] Office space was not analyzed since there is no active office space market of significance in the immediate area and the building's residential floorplates are not conducive to modern office needs.

Exhibit 2. Illustration of Development Costs and Revenues

Source: ECONorthwest



Internal Financial Metrics

There are many possible financial metrics that can be used to calculate financial feasibility. In this case, a return on cost metric was used to calculate the residual land value. Investors need methods to evaluate their investments and judge how well a particular investment has performed compared to others. Two of the most important are the capitalization rate ("cap Rate") and return on cost (or yield on cost).

A return on cost (or yield on cost) is used in this analysis (opposed to cap rate) because it is basically a cap rate with an imbedded return. The metric also reflects the considerations of a lender: if a development can't meet a typical yield on cost hurdle rate, banks are unlikely to lend and provide most of the sources of funding. To determine the financial feasibility of a project with institutional investors, the analysis uses a similar underwriting approach as capital markets and developers.

Financial feasibility is typically determined using a return on cost model at stabilized operations. There are secondary considerations such as debt service coverage ratios, but those are typically non-binding if a sufficient return on cost can be achieved. To assure that evaluation of an occupied asset exceeds the debt (after selling costs and potential write downs), lenders typically require a spread (or margin) be applied in addition to the observed market cap rate. The cap rate and margin applied to determine the return on cost underwriting target are somewhat fungible.

Cap rates are not a precise value. Due to the variation in cap rates, lenders and developers think about the return on cost target as fixed number (which allows for slight fluctuations in the cap rate). To ground the underwriting target return on cost rate, the analysis uses a survey of developers and lenders done periodically by ECONorthwest (as well as collecting cap rates from closed transaction data in CoStar). Generally, like cap rates, the higher the yield on cost the higher the assumed risk.

The target yield on cost used in this analysis are:

- 6% for rental multifamily
- 6% for senior multifamily
- 6% for midscale hotel
- 7.5% for upscale+ hotel

The yield targets are based on data provided by the Zenith Properties L.L.C. team as well as the author's professional judgement of the marketplace at the time of this analysis.

The analysis analyzed each use type to measure project development feasibility. The analysis used the following steps to calculate the estimated yield on cost:

1. Determine current market assumptions (such as revenue, occupancy, operating costs, and construction costs) for each use type.
2. Define the available building areas for both relevant construction costs and revenue. The revenue generating areas, or leasable area, is typically less than the total building area as common area such as circulation is not leasable.
3. Calculate the revenue from the leasable square feet and then remove the vacancy and operating costs (e.g., taxes, insurance, maintenance, management, select utilities) to arrive at an annual net operating income (NOI).
4. Calculate the total development cost for each use type, including any relevant soft costs (e.g., design costs), contingency, and developer fee.
5. Determine the yield on cost rate for each use type by dividing the annual NOI by the total development cost.

2.4 Historic Preservation Incentives

The analysis contemplates the successful application of a federal historic preservation tax credit as well as historic preservation property tax exemption.

Historic Preservation 20% Credit

The Federal Historic Preservation Tax Incentives program encourages private sector investment in the rehabilitation and re-use of historic buildings. While there are different programs available, the most impactful is a 20% income tax credit is available for the rehabilitation of historic, income-producing buildings. These buildings must be determined to be “certified historic structures” by the Secretary of the Interior through the National Park Service.

The Federal Rehabilitation Tax Credit Program offers a tax credit that is equal to 20% of the qualified rehabilitation expenses (see below). The project must meet the adjusted basis of the building and it must meet the Standards for Rehabilitation. The tax credit is only available to properties that will be used for a business or other income–producing purpose, and a "substantial" amount must be spent rehabilitating the historic building.

Eligible costs associated with these rehabs include:

- Walls, partitions, floors, ceilings, permanent coverings, such as paneling or tiles; windows and doors; components of central air conditioning or heating systems; plumbing and plumbing fixtures; electrical wiring and lighting fixtures; chimneys; stairs; escalators, elevators, sprinkler systems, fire escapes; and other components related to the operation or maintenance of the building
- Any expenditure for a structural component of a building

In addition to the above named "hard costs", there are "soft costs" which also qualify. These include construction period interest and taxes, architect fees, engineering fees, construction management costs, reasonable developer fees, and any other fees paid that would normally be charged to a capital account.

Expenses that do not qualify for the rehabilitation tax credit:

- Acquisition costs; appliances; cabinets; decks (not part of original building); demolition costs (removal of a building on property site); fencing; feasibility studies; financing fees; furniture; landscaping; leasing expenses; moving (building) costs (if part of acquisitions); new construction costs or enlargement costs (increase in total volume); outdoor lighting remote from building; parking lot; paving; planters; porches and porticos (not part of original building); retaining walls; sidewalks; signage; and storm sewer construction costs.

Historic Preservation Property Tax Valuation

The Historic Preservation Property Tax Exemption allows for a “special valuation” (e.g., exemption) on building rehabilitation improvements for properties within designated historic preservation districts on their assessed value. During its 1985 session, the Washington State Legislature passed a law allowing "special valuation" for certain historic properties. The "special valuation" revises the assessed value of a historic property, subtracting, for up to 10 years, those rehabilitation costs that are approved by a local review board. The exemption reduces the taxable assessed value of the property and thereby reduces the property tax bill to the owner. The building must be listed on the local register and the project must meet the local adopted program standards. This program is administered at the local level. For the city to use this valuation method, the city must have the requisite local administration in place to consider and grant this special valuation.

Other Potential Incentives

Washington Historic Preservation Grants

Through the Washington State Department of Archaeology and Historic Preservation (DAHP), there are some potential grants that are available. These grants all have specific application and selection criteria. This analysis does not consider the use of these grant sources at this time since it is not clear which grants that the applicant would qualify for and what levels of funding would be granted.

Historic Preservation Easements

In some cases, historic properties may sell certain easements that help preserve the property's historic character. Generally, these easements can be monetized by allowing a historic site to transfer unused development capacity to another receiving property. This analysis does not assume that any unused capacity can be sold since the city does not have a transfer mechanism and valuation method available, and it's not clear if there is demand to purchase excess development capacity elsewhere in the city.

C-PACER Program

Commercial Property Assessed Clean Energy & Resiliency (C-PACER) is a novel loan program. Eligible improvements for this type of loan include:

- Energy efficiency – reduces energy use or GHG emissions
- Renewable energy – produces renewable kWh or thermal energy
- Water conservation – reduces water use or provides for safe water supplies
- Resiliency – includes seismic retrofits, flood mitigation, stormwater management, wildfire and wind resistance, energy storage, and microgrids

The loan is backed with a special benefit assessment that is levied on the property which allows for potentially lower interest rates (these are privately issued loans) over a longer repayment period. This type of tool still needs the property to generate revenue to pay for the assessment that backs the loans. This analysis models the use of a C-

PACER loan and estimates the benefit of a lower loan term and a longer special assessment repayment period would have over traditional forms of financing.

Incentive Assumptions for Use on the Project

The analysis takes an inclusive view of the use of these historic preservation tax incentives. The analysis assumes that the project would be eligible these historic preservation and other incentives at their full amounts including:

- A full 20% of the rehabilitation costs would qualify for the tax credit.
- The special valuation would result in no property tax payments for 10 years on the value of the rehabilitation. This no tax assumption is a liberal application over what might happen since its it likely that some property tax on the non-improved portions of the site that would not qualify for the special valuation.
- For C-PACER, it is assumed that the project would be able to lower its mezzanine debt by substituting it out with lower cost C-PACER financing.

3. Revenue Assumptions

This section summarizes the current and recent historical real estate conditions for multi-family and senior housing as well as hospitality uses in Des Moines.

- Multi-family residential housing refers to the product type that is developed to house multiple households to reside in.
- Senior housing refers to the product type developed to provide housing for individuals over the age of 65, especially those living on fixed incomes or physically cannot upkeep a property on their own.
- Hospitality uses refers to hotels, motels, and other accommodation.

The analysis uses CoStar—a real estate information database—to analyze existing and new construction, and summarize multi-family and senior housing rents, absorption, and occupancy in the area to better understand the depth and performance of the market, which will be utilized to conduct the proforma analysis. CoStar also owns STR, STR provides premium data benchmarking, analytics and marketplace insights for the global hospitality industry and is the primary source the industry uses for market data.

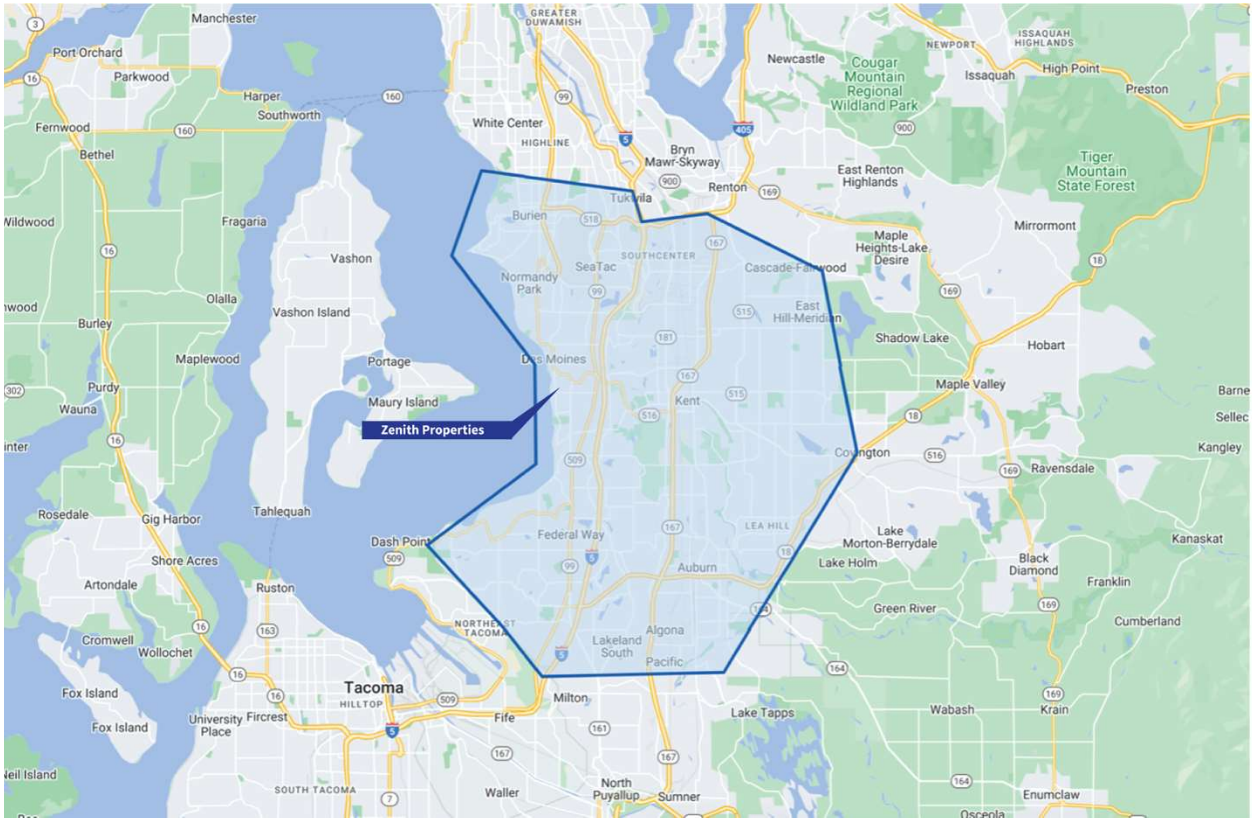
The following analysis summarizes market analysis used to derive revenue assumptions used in the financial feasibility analysis.

3.1 About the Des Moines Market Area

The Masonic Lodge is centrally located in Des Moines, Washington adjacent to the Puget Sound waterfront. Des Moines is a small suburban community south of Seattle with a population of about 32,000. The city of Des Moines is benchmarked as the Primary Market Area for this study for which the project is located. The Secondary Market Area is a larger geographic area which includes the neighboring cities of Burien, Normandy Park, Kent, Auburn, and Federal Way as reference comparisons for the multifamily and senior housing projects. The hotel analysis uses a different market area approach (described in that section).

Exhibit 3. Secondary Market Area

Source: CoStar, 2022



3.2 Multifamily Rental Overview

Summary

Des Moines has a sizable rental multifamily market of about 97 multifamily properties within the city limits. Much of the multifamily rental market is comprised of market-rate housing, with limited affordable and senior housing. At the time of this analysis there appears to be new permit and development activity including:

- Seven 227 (a mixed-use housing project), a 125-unit workforce housing project,
- Pointe by Vintage (a 162-unit apartment building)
- Highline Place Mixed-Use Project (a college housing and 239 housing unit apartment complex)

With a substantially low vacancy rate in Q1 of 2022, demand for multifamily rental housing has put pressures onto the existing rental housing stock in Des Moines. Strong demand coupled with very low vacancy rates have driven rent growth in Des Moines that have followed market trends like the Secondary Market Area.

Multifamily rents in Des Moines are about $0.21 per square foot lower (or 11 percent) than in the Secondary Market Area. The Secondary Market Area has experienced a strong demand in multifamily rental units where observed rent growth has been much larger when compared to Des Moines. Net absorption has been positive with several units being leased up in 2021. Both Des Moines and the Secondary Market Area have total vacancy below 5 percent which is indicative of a healthy market that will drive future rent growth—and demand for newer multifamily housing in the Des Moines market area.

Multi-family Housing Rental Rates

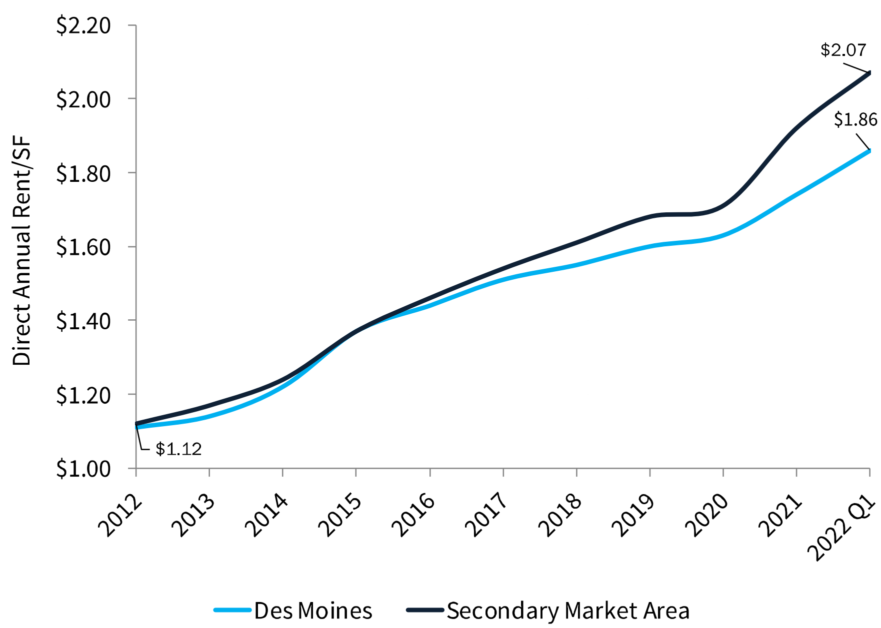
Des Moines rental rates for multifamily have mirrored that of the Secondary Market Area—however rental rates have risen faster in recent years in the Secondary Market Area.

Since 2012, rental rates in Des Moines have increased by $0.75 per square foot, or 68%. Comparatively, rents in the Secondary Market have increased by $0.95 per square foot, or 85% during the same period.

Des Moines' rental rates for multi-family housing is $0.23 cheaper per square foot than the surrounding the comparative area as of Q1 of 2022 and has consistently been slightly less expensive.

Exhibit A. Multi-family Rental Rates per Square Foot, Des Moines, and Secondary Market Area, 2012–2022

Source: CoStar



Multi-family Housing Vacancy Rates

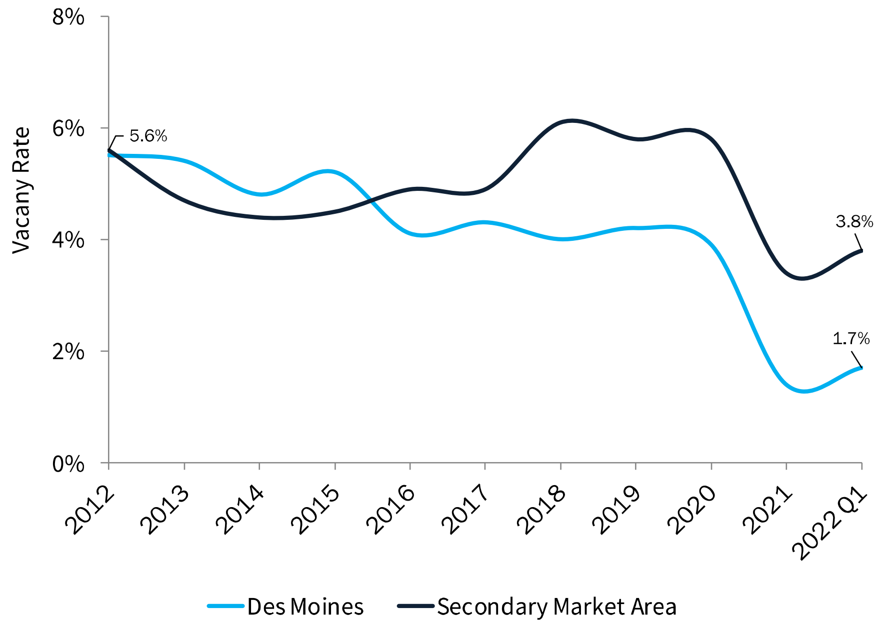
Multi-family vacancy rates in Des Moines have been declining over the past decade with a slight increase during the COVID-19 pandemic in 2020.

Vacancy rates in the Secondary Market Area have been steady with slight peaks in 2018 and 2020 as new units were delivered to the market and COVID-19 in 2020 made leasing up of the new units challenging.

Both market areas have recovered from COVID-19 effects and have very low vacancy rates in Q1 of 2022.

Exhibit B. Multi-family Housing Vacancy Rates, Des Moines, and Secondary Market Area, 2012–2022

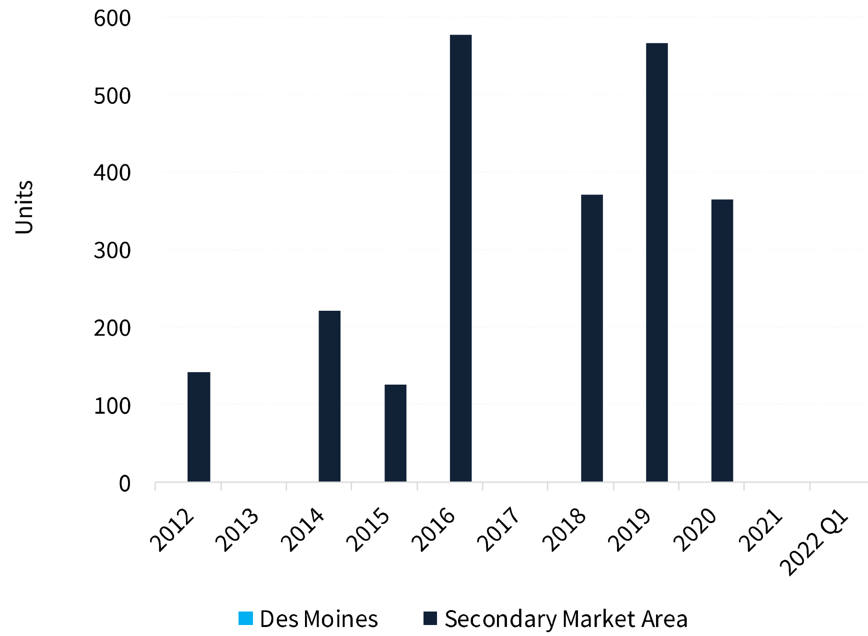
Source: CoStar



Des Moines has had no market rate rental housing built in the past decade, while the Secondary Market Area has had a great construction boom with about 2,400 rental units built in the past decade.

Exhibit C. Multi-family Housing Deliveries, Des Moines and Secondary Market Area, 2012–2022

Source: CoStar



Multi-family Housing Net Absorption Rates

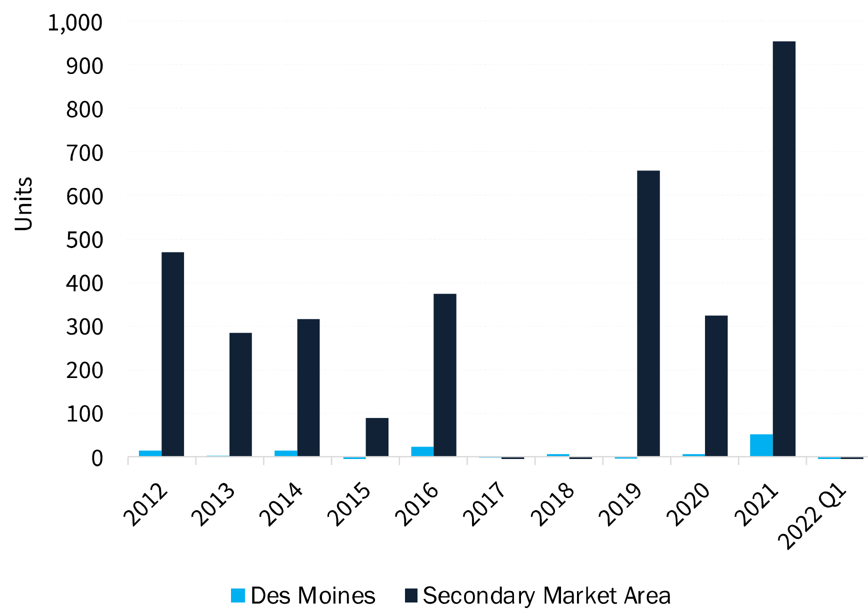
Absorption rates are a measure of the supply and demand present in areas.

The Secondary Market Area saw a much more robust growth in net absorption rates in the last 10 years.

Des Moines peaked in 2019 with 204 units leased that year, compared to the 1,209 from the secondary market area.

Exhibit D. Multi-family Housing Net Absorption Rates, Des Moines and Secondary Market Area, 2012–2022

Source: CoStar



3.3 Senior Housing Overview

Summary

Full occupancy rates and rising rents for senior housing in the Des Moines market area are indicative of a strong market and demand for senior housing. However, the pipeline for senior housing in the Des Moines market area is currently limited which will put upward rent pressures on existing senior housing in the area or drive senior residents to the Secondary Market Area to find available units at their price points (Wesley development is working on the last phase of the current project in Des Moines that does include a range of senior and assisted living units).

Approximately 560 market rate senior housing units were built between 2020 and Q1 of 2022. Occupancy rates in the Secondary Market Area have not yet recovered to pre-COVID-19 occupancy levels. This could indicate that the newly built senior housing units have been slower at getting leased up—keeping occupancy rates below pre-COVID-19 levels with steady absorption in the following years.

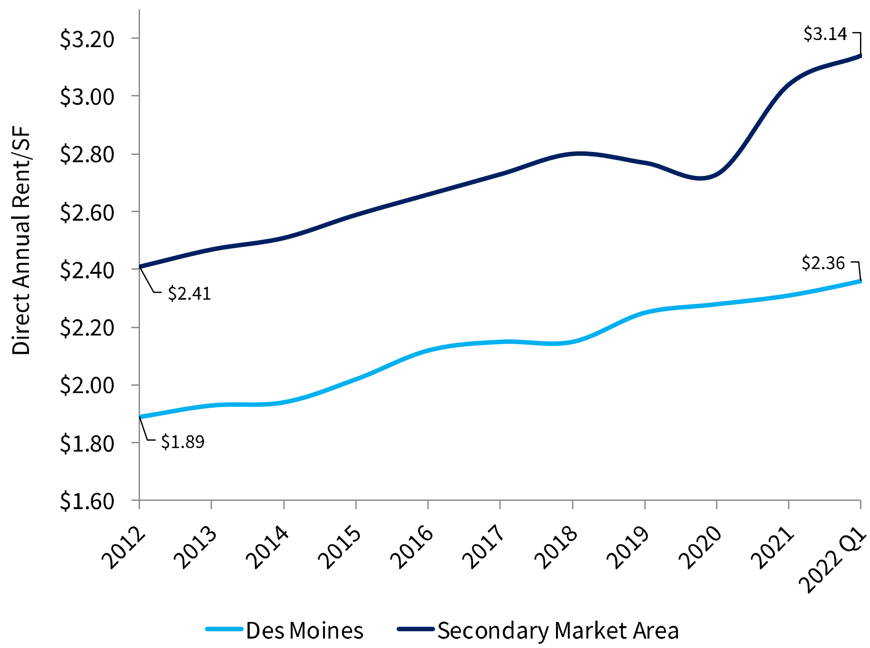
Recent New Senior Housing Development

Market rate senior housing rental rates are much higher in the Secondary Market Area compared to Des Moines. This is partly because Des Moines only has affordable senior housing which tends to have lower rental rates when compared to market rate senior housing.

Des Moines senior housing rents are approximately $0.78 per square foot less expensive than the Secondary Market Area.

Exhibit E. Senior Housing Rents per Square Foot, Des Moines and Secondary Market Area, 2012–2022

Source: CoStar



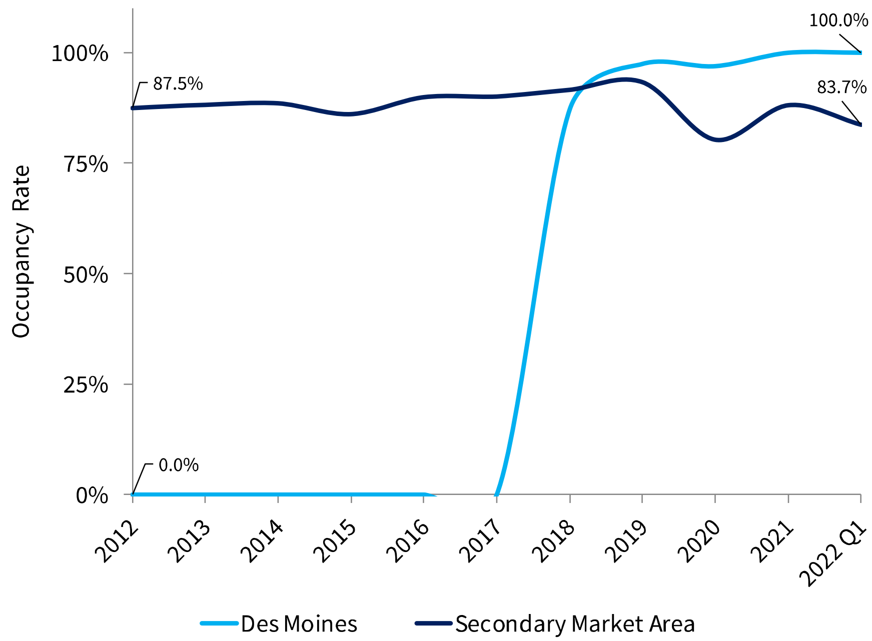
Occupancy rates for senior housing in Des Moines is at capacity with 100 percent of all units occupied in Q1 of 2022.

Occupancy rates in the Secondary Market Area have not recovered to pre COVID-19 levels partly due to an oversaturated market of new senior housing units—but rates are slightly higher than national averages (81% in Q4 of 2021).

Note: Between 2012-2017 occupancy rates were 0 percent in Des Moines because there was no existing senior housing prior to 2018.

Exhibit F. Senior Housing Occupancy Rates, Des Moines and Secondary Market Area, 2012–2022

Source: CoStar



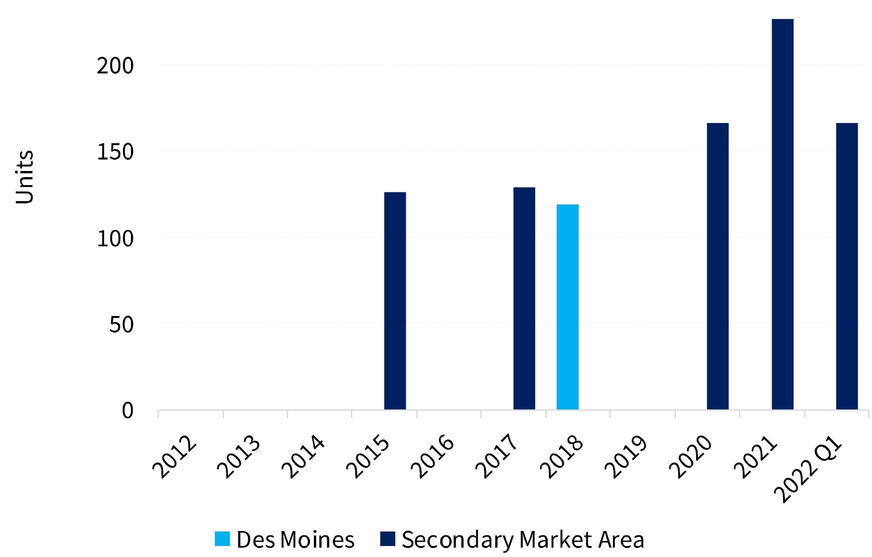
Senior Housing Deliveries

The Adriana Senior Apartments brought to the Des Moines market 119 affordable housing units. This has been the only senior housing built in Des Moines in the past decade.

A little over 800 senior housing units have been built in the Secondary Market Area in the past decade with most units built in the past 3 years.

Exhibit G. Senior Housing Deliveries, Des Moines and Secondary Market Area, 2012–2022

Source: CoStar



Senior Housing Net Absorption Rates

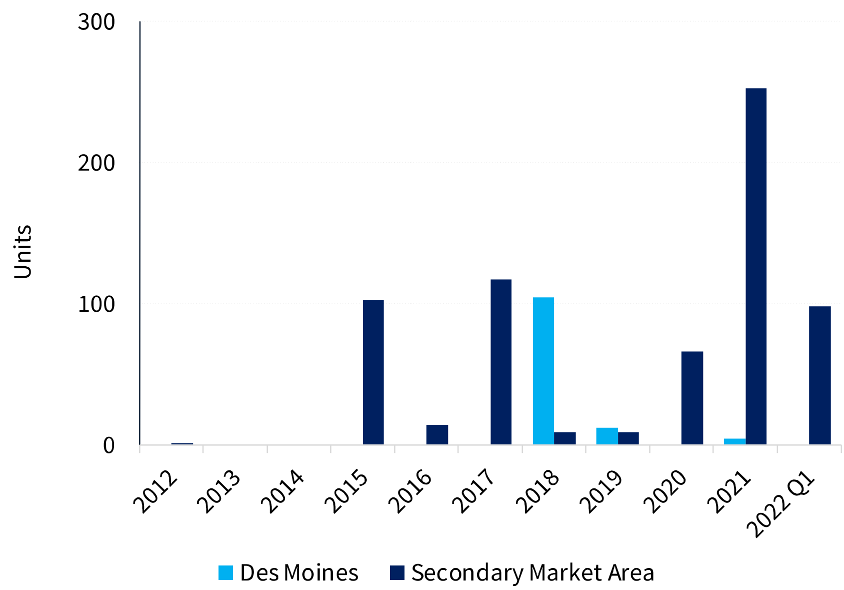
Generally, net absorption of senior housing units has been positive across both market areas—but most notably in the Secondary Market area.

The Adriana Senior apartment leased up most of its units the year it was built and was fully occupied by 2021.

The Secondary Market Area has had strong leasing activity—specially in 2021. Trends indicate that the new senior housing units recently built will slowly get leased up in the coming year or two.

Exhibit H. Senior Housing Net Absorption Rates, Des Moines and Secondary Market Area, 2012–2022

Source: CoStar



3.4 Hospitality and Accommodations Overview

Summary

There are five accommodations properties in Des Moines. The closest property to the Masonic Lodge is the Marina Inn. It has 42 rooms and was opened in 1985 according to data provided to STR (formally known as Smith Travel Research before being acquired by CoStar). This property characterizes the limited demand for hotel properties in the immediate vicinity of the Masonic Lodge. The most recent and largest property in the city is located along SR99 on the eastern edge of the city. There are no permits for hotel development in the city.

The city of Des Moines is pursuing a public-private partnership for a development located on city-owned property adjacent to the Des Moines marina. Contemplated land uses on the property include a yet unspecified hotel.

This market analysis documents key underlying revenue assumptions for a hotel. The market analysis uses state-of-the-practice methods for identifying these assumptions.

Hotel Classes

The hospitality industry is made up of multiple classifications of hotels, and their revenue structure varies depending on the nature of their business. STR groups hotel chains and independent operators along a Chain Scale. These Chain Scale segments are grouped primarily according to actual average daily room rates (explained below). An independent hotel is assigned a class based on its average daily rate relative to that of the chain hotels in their geographic proximity.

The Chain Scale segments are:

- Luxury
- Upper Upscale
- Upscale
- Upper Midscale
- Midscale
- Economy
- Independent

Local Hotel Properties

There are five hotel properties located in Des Moines. Together, they account for 370 hotel rooms. The most recently developed and largest property is the Four Points Sheraton (225 rooms) located along SR 99 and serving the southern portion of the airport market. Outside of this upscale property, the remining properties are all smaller, older and are at the economy scale. Only the 42 room Marina Inn built in 1985 is located away from the SR 99 area.

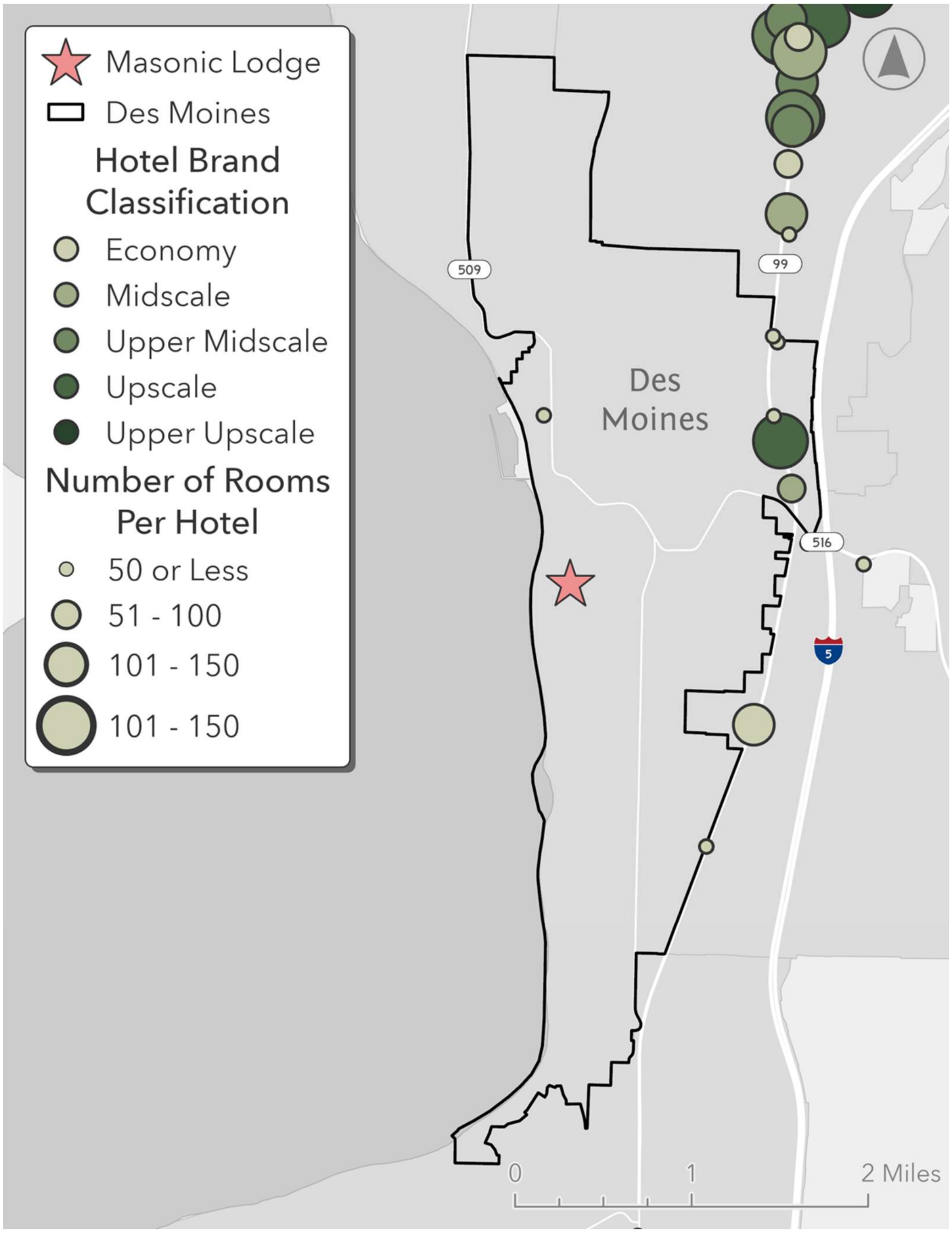
Exhibit 4. Summary of Des Moines Accommodation Properties

Source: ECONorthwest and STR Hotel data, 2022.

Lodging Name	Rooms	Year Built	Scale
Four Points by Sheraton Airport South	225	2016	Upscale
The Marina Inn	42	1984	Economy
West View Motel	22	1953	Economy
Value Inn Sea Tac	45	1979	Economy
Travel Inn	36	1994	Economy

Exhibit 5. Map of Des Moines Hotels

Source: Source: ECONorthwest and STR Hotel data, 2022.



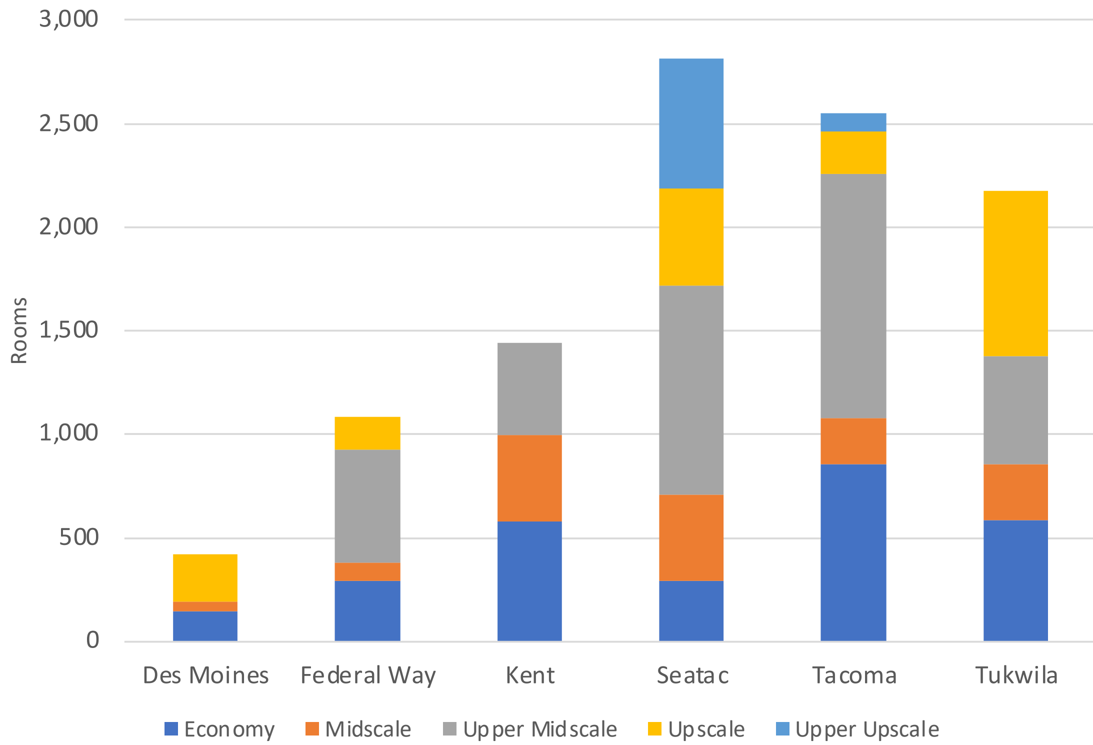
Des Moines Properties in Regional Context

Amongst is most proximate regional neighboring cities, Des Moines has only 4% of the hotel room inventory. This is not surprising given the city's location to the largest demand drivers for visitor stays including the airport, employment centers in downtown Seattle and Tacoma, and along the major highway corridors of I-5 and SR 99.

The city has demonstrated no market for upper upscale or luxury scale hotels. Further. within the broader region, only SeaTac and Tacoma have upper upscale properties. SeaTac, by virtue of their location to the international airport, have the largest number and share of hotel rooms in this selection of cities.

Exhibit 6. Location of Hotels in the Immediate Region

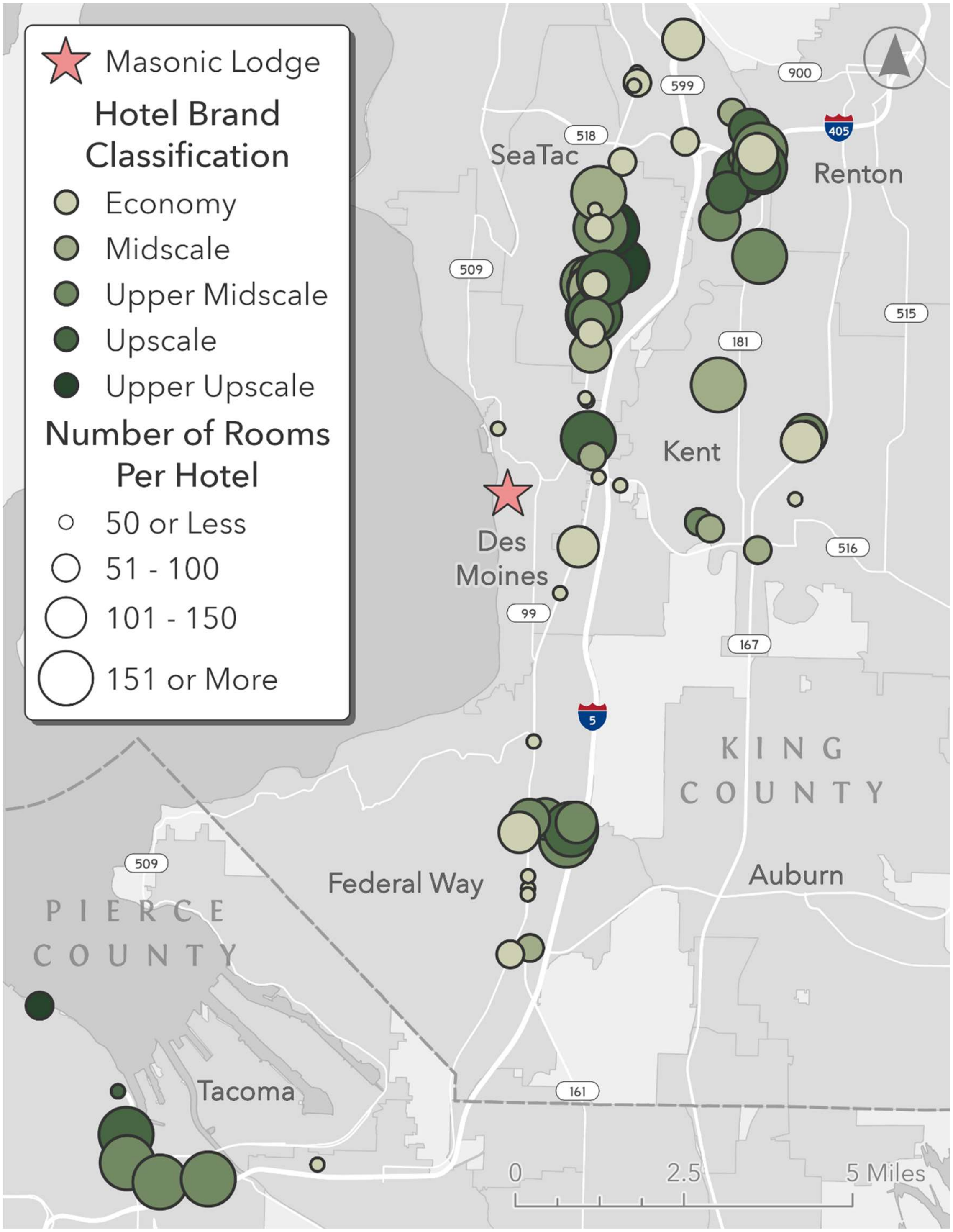
Source: ECONorthwest and STR Hotel data, 2022.



Hotel Scale	Des Moines	Federal Way	Kent	Seatac	Tacoma	Tukwila
Economy	145	294	580	292	859	587
Midscale	51	90	417	417	219	272
Upper Midscale		540	446	1,011	1,178	521
Upscale	225	160		466	207	798
Upper Upscale				629	90	
Luxury						
Total	421	1,084	1,443	2,815	2,553	2,178

Exhibit 7. Location of Hotels in and around Des Moines, WA

Source: ECONorthwest of STR Hotel Data, 2022.



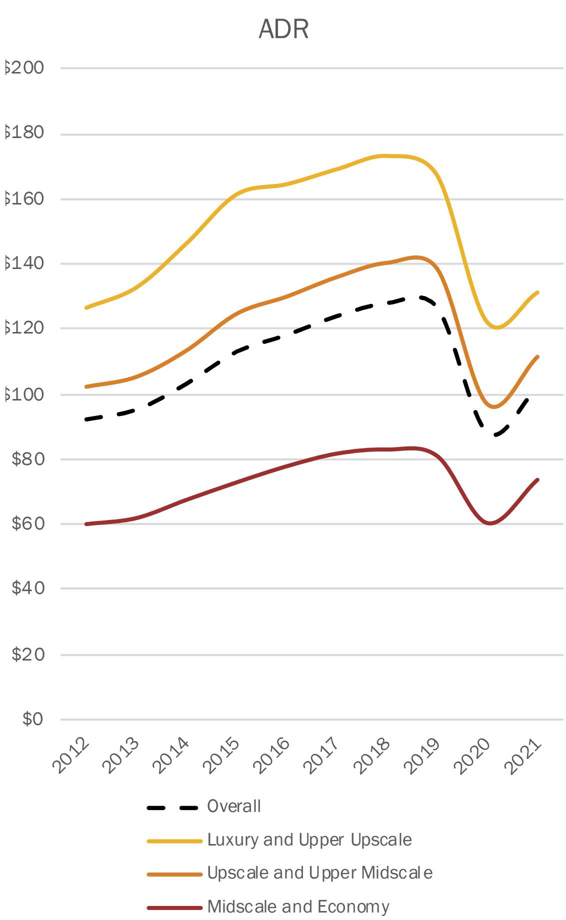
Hotel Performance

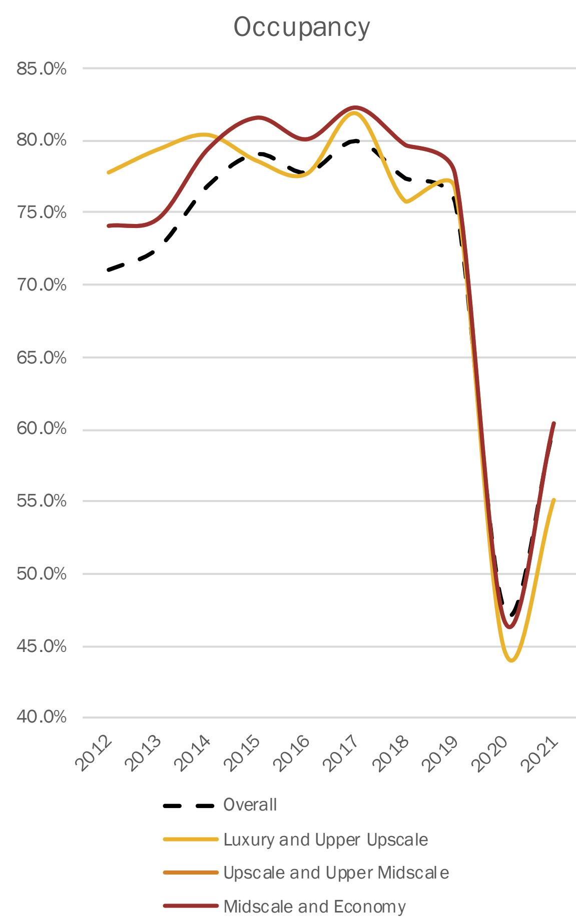
Two key metrics for hotel economic performance is average daily room rate (ADR) and occupancy. Both metrics are explained in greater detail in the following section. Briefly, ADR is average rate charged to visitors accounting for different types of rates during different times of the year. Occupancy is how occupied a set of rooms are over a year. STR Global, the leading hotel economic reporting source for the industry places Des Moines in the SeaTac airport market area. Within that market area, both ADRs and occupancy have increased over time but have not fully recovered since the impact of the pandemic (Exhibit 8).

Overall, the airport market area had an ADR of $103 in 2021. This was below the pre-pandemic high of $128 in 2018. In 2021, luxury scale properties had an ADR of $132 at an occupancy of 55%. This level was also off the high of $174 in 2018.

Exhibit 8. Airport Market Area Hotel Performance

Source: STR Global, 2022.





Approach for Market Analysis and Selected Accommodation Concepts

Identification of Key Market Assumptions for Midscale and Upscale+ Hotels

STR does not publish market data on a single property so specific data on the Marina Inn are not available to serve as a comparable reference point. Given this lack of a robust hotel market in Des Moines, the analysis takes an approach to approximate what a hotel might perform at given the location of the properties and the natural amenities that might be available both on site and within the region.

As a baseline, it is assumed that the project site might be able to support a midscale chain offering (e.g., La Quinta, Ramada (Wyndham), Hampton Inn (Hilton), Best Western (Best Western), etc.) as the best available comparable since most existing hotel offerings are located close to the Seattle-Tacoma airport in the midscale chain range.

Stretching the baseline midscale hotel assumption to a more optimistic upper-upscale offering allows the analysis to test a potential top-of-the-market offering on the site (e.g., Hilton (Hilton), Hyatt Regency (Hyatt), Kimpton (IHG), Westin (Starwood), etc.). It is important to note that no hotel market analysis for a specific type of hotel has been completed and these offerings of a midscale and upper upscale hotel are reasonable benchmarks (e.g., baseline and optimistic scenarios) for what is observed in the broader marketplace that could account for the unique high-quality amenities (such as views, access to downtown Seattle and the airport) that would be present at the site.

Average Daily Rate

The Average Daily Rate (ADR) refers to the average paid for rooms sold, calculated by dividing the room revenue by the rooms sold in a period. ADR is a direct factor in Revenue per Available Room (RevPAR) that is calculated by dividing the room revenue by the total number of rooms available. RevPAR is a function of both occupancy rate and ADR.

ADR is different from the listed rack rate that most consumers experience when shopping for rooms, whereas ADR is inclusive of what a room sold for. The rack rate for a hotel room is the published rate for one night's stay without any discounts or premiums included. Rack rates are typically highest price that a hotel will charge for a room, and a single hotel may offer a different rack rate for each room type on property. The rack rate is different from what most consumers will pay since hotel operators expect that guests will request and use discounts such as loyalty memberships (e.g., AAA, AARP, credit card, etc.) and rates purchased through discount sellers (e.g., Expedia, Hotels.com, etc.).

Occupancy

Percentage of available rooms sold during a specified period. Occupancy is calculated by dividing the number of rooms sold by rooms available (Occupancy = Rooms Sold / Rooms Available).

ADR and Occupancy Methods

The analysis calculates the natural occupancy rates and the real (*i.e.*, inflation adjusted) natural ADR for Midscale and Upper Midscale hotels, collectively referred to as Midscale. A similar analysis also combines Upscale and Upper Upscale hotels into a collective, "Upscale+" hotel classification as described above. In this analysis, the "local market" consists of all midscale and upper midscale hotels and motels with at least 15 guestrooms that are within a 20-kilometer radius (approximately 12½ mile as the crow flies that includes portion of downtown Seattle) of the center of Des Moines, Washington. The same selection criteria are used for the upscale+ hotels. For the research, ECONorthwest bought monthly hotel data from STR Global. The data cover January 2009 to August 2022 (the latest available data at the time of the analysis) and only include hotel stays (does not account for stays on vacation rentals by owner such as VRBO or Airbnb).

All hotel classifications and data come from STR Global. STR is the primary source of hotel industry data for benchmarking, market forecasting, and strategic planning. STR gets its data directly from hotels and serves as the basis for academic research on tourism and lodging (STR is a partner with the Cornell University School of Hotel Administration's Center for Hospitality Research[2]).

The natural occupancy rate is the rate where there is no undue pressure on real ADRs. This is when long-run supply and demand are balanced.[3] When market rates over a 12-month period exceed the natural occupancy rate, there is a need for more hotel rooms and real ADRs are attractive encouraging new hotel development. When the market runs below the natural occupancy, room rates are depressed, and development slows or ceases.

Natural occupancy rates vary by location and hotel scale. The analysis calculates these rates for each market and hotel scale. Upper scale hotels are more expensive to build and operate, so they require higher natural rates to be feasible. Places with high seasonal demand, on the other hand, usually have low natural occupancy rates. For

[2] Macera, J. "Smith Travel Research renews partnership with Cornell Center for Hospitality Research." Cornell University Press Release. March 19, 2009.

[3] deRoos, Jan A (1999) "Natural Occupancy Rates and Development Gaps: A Look at the U.S. Lodging Industry," *Cornell Hotel and Restaurant Administration Quarterly:* Volume 40. Number 14.

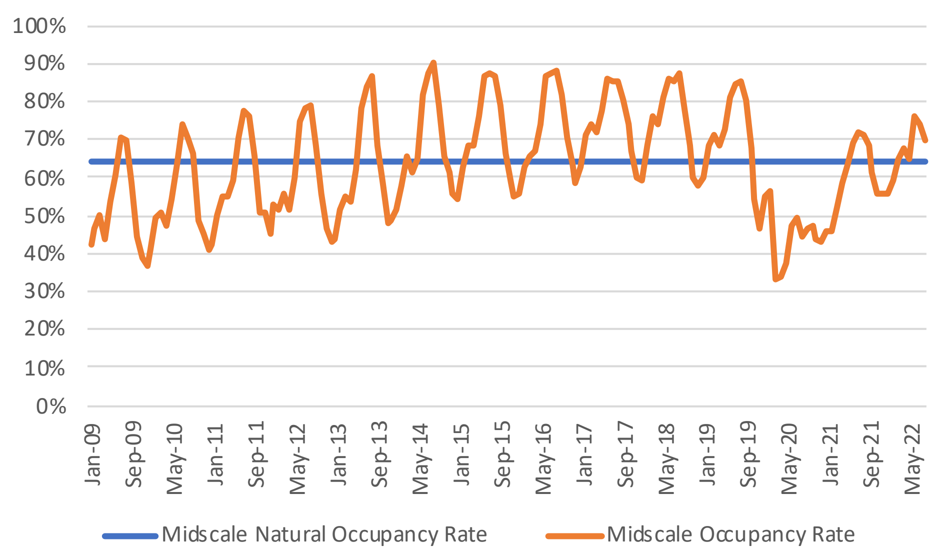
example, to have enough rooms for the peak season, hotel operators must tolerate having high number of unsold rooms in the off-season.

For planning purposes, a hotel developer would assume that rates over the life of their project will average around the natural occupancy and real natural ADR rates. ADRs fluctuate with occupancy. The real ADR that mathematically coincides with the natural occupancy rate is the natural real ADR.

Midscale Hotel Market Results

The natural occupancy rate for the midscale hotel market in Des Moines is 64 percent. In the last 12-months actual occupancies averaged slightly more—65 percent. Therefore, the supply and demand for midscale hotel rooms in the market is nearly in balance. There is no undue demand or excess supply of rooms evident. Occupancy rates are fluctuating around the natural rate, as shown in Exhibit 9.

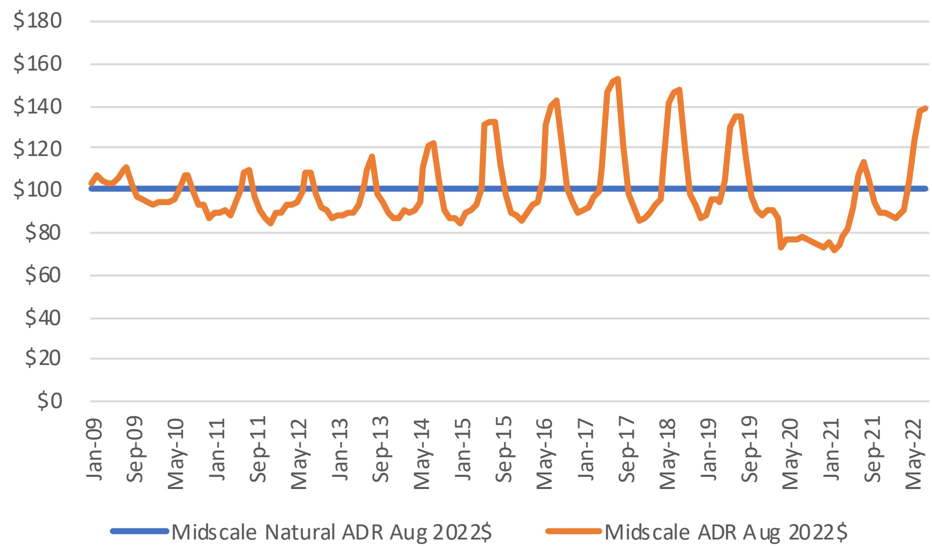
Exhibit 9. Midscale Hotels in the Des Moines, Washington Market, Monthly Occupancy and Natural Occupancy Rates, January 2009 – August 2022



Sources: ECONorthwest and STR. September 2022.

The real average rate for midscale hotel rooms over the past 12-months was $105 or slightly above the natural rate of $100. The real ADR, shown in Exhibit 10, reflects a nearly balanced market.

Exhibit 10. Midscale Hotels in the Des Moines, Washington Market, Real ADR, January 2009 – August 2022, August 2022 $ per Room Night

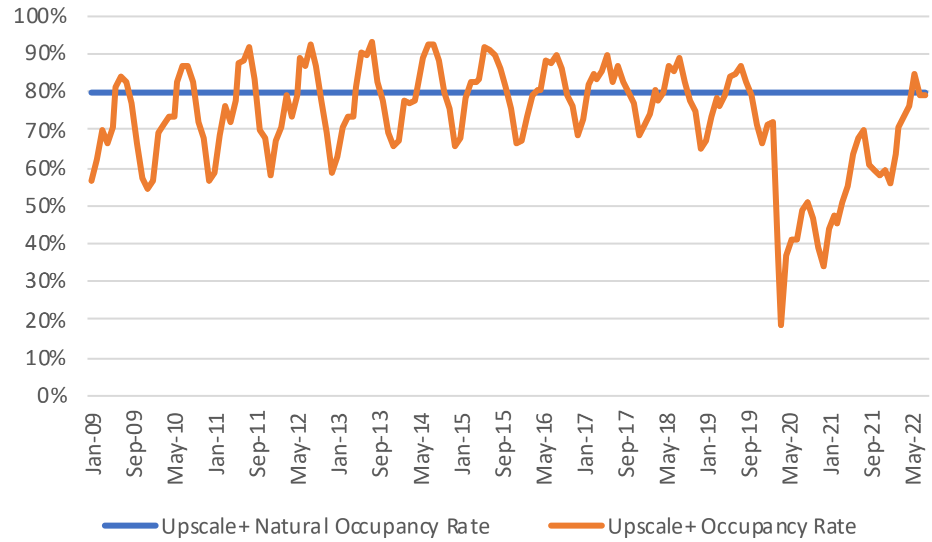


Sources: ECONorthwest and STR. September 2022.

Upscale+ Hotel Market Results

The natural occupancy rate for the upscale+ hotel market in Des Moines is 80 percent. In the last 12-months occupancy averaged 68 percent. Therefore, the supply of rooms exceeds demand, as shown in Exhibit 11. Upscale+ properties rely more heavily of business and group event travelers than do midscale properties, so the recovery from the COVID-19 pandemic period has been slower for these properties.

Exhibit 11. Upscale+ Hotels in the Des Moines, Washington Market, Monthly Occupancy and Natural Occupancy Rates, January 2009 – August 2022

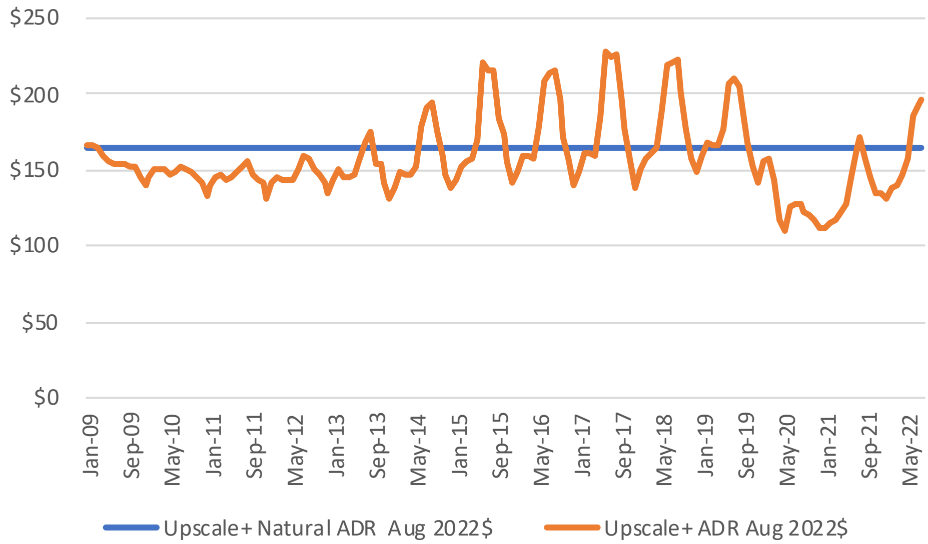


Sources: ECONorthwest and STR. September 2022.

The real ADR for upscale+ rooms over the past 12-months was $158 and below the natural real ADR of $165. The August peak, shown on Exhibit 12, is seasonal. Real

ADRs in August were the lowest since 2014 (excluding the COVID affected year of 2020). The Upscale+ market currently is over-supplied.

Exhibit 12. Upscale+ Hotels in the Des Moines, Washington Market, Real ADR, January 2009 – August 2022, August 2022 $ per Room Night



Sources: ECONorthwest and STR. September 2022.

3.5 Core Revenue Assumptions

Based on the market analysis, the analysis uses the following revenue assumptions to estimate the potential revenue that the leasable area could generate. The rents for multifamily rental and senior housing reflect current prices observed in the Des Moines market area.

ADRs for the hotel projects reflect the market analysis completed in the previous section. Using additional profit and loss data reported by STR for these classes of hotel properties, the analysis also includes assumptions for other department revenue potential for the hotel use types.

In addition to rent and prices, our market study evaluated the typical vacancy rates associated with the comparable properties for each use type. Residential uses typically refer to the vacancy observed in a building, whereas hotels consider the occupancy. Since vacancy is the inverse of occupancy, we standardized our assumptions for our analysis to be the vacancy rate. The analysis uses industry standard vacancy rates that would be used in financial underwriting of these products and are typically different than observed vacancy rates.

Exhibit 13. Market Assumptions for Use Types

Source: ECONorthwest, CoStar, STR Host Data

	Multifamily rental	Senior housing	Midscale hotel	Upscale hotel	Source
Current Rent	$1.85 per square foot	$2.35 per square foot	$100 ADR	$165 ADR	CoStar, STR, HOST Data
Vacancy Rate – Current Market	3%	1.5%	36%	20%	CoStar, STR, HOST Data
Vacancy Rate – Underwriting Requirement	5%	5%	27%	24%	STR, HOST Data, Zenith Properties L.L.C.
Other Department Revenue (as a percent of total revenue)					
Food and Beverage	$20 per square foot of kitchen and restaurant space		3.4%	20%	STR, HOST Data
Other Departments	N/A		2%	3%	STR, HOST Data
Misc. Income			1%	2.3%	STR, HOST Data

4. Cost Assumptions

4.1 Structural and Building Stabilization Costs

The high-level Building Integrity Assessment completed by OAC INC (Attachment B) includes a conceptual construction cost estimate of the needed investments to address structural, seismic, and envelope deficiencies up to habitable standards (this does not include costs to make it occupiable which are discussed in the next section). The estimate is based upon upgrades of structural and building enclosure systems in the main building and does not include costs for other systems, code compliance modifications, property acquisition, leasing, or soft costs such as consultant detailed design, permitting or fixed furnishings and equipment. This assessment of costs is the Historic Preservation and Future Adaptive Reuse Alternative in the EIS.

Based on OAC's assessment. the construction cost estimate total is $55.98 million based on a start date of September 2024 and a 24-month construction period. This figure does not include the cost of improvements to allow any functional occupancy of the property.

In addition to these structural and building stabilization costs, additional "soft costs" of the stabilization project were included and estimated at an additional $11.2 - $22.4 million. Soft costs were estimated as a percentage of the construction costs and include, but are not limited to, project engineers, design consultants, equipment rental, and construction permits, and fees paid to local governments. Development costs such as finance and legal are not reflected in these soft costs according to the OAC assessment.

The fully burdened project cost is estimated at $78.4 million based on the OAC assessment, but if soft costs are lower, the total cost could be as low as $67.2 million. In our professional experience, actual costs of projects tend to be realized at the higher end of cost estimate ranges – very infrequently are costs lower than anticipated or at the low end of an estimate. We therefore believe the fully burdened project costs of $78.4 million are more likely but have added additional tables when relevant to note the impact if costs are as low as $67.2 million.

4.2 Commercial Fit Out Costs

Commercial construction has a term – "fit out" – which describes the work of building an interior commercial space to meet the requirements of an occupant. Assuming the stabilization of the project is complete, the project is delivered as a "shell". To make the commercial space ready for the occupant's fit out, interior spaces need to be built out. Fit out typically includes: HVAC, plumbing and electrical, ceilings and floors, doors and windows, bathrooms, stairs and elevators, interior fixed finishes, window coverings, reception areas, furniture, and lighting fixtures.

The analysis completed by JMB Consulting Group LLC (included as Attachment C) defined the following ranges of fit-out costs for the four main use types (show in Exhibit 14). These costs are in addition to the stabilization costs summarized in the section above (detailed in Attachment B) and do not include any soft costs. While the ranges show "low", "medium", and "high" estimates, the financial analysis only uses the "low" assumption to provide an "optimistic" estimate of the fit-out costs.

Exhibit 14. Fit-out Cost Assumptions

Source: JMB Consulting Group

	Multifamily rental (per square foot)	Senior housing (per square foot)	Midscale hotel (per square foot)	Upscale hotel (per square foot)	Source
Low	\$220	\$220	\$360	\$360	OAC Services INC
Medium	\$245	\$245	\$400	\$400	
High	\$270	\$270	\$440	\$440	

Note: these per square foot estimates exclude costs such as impact fees, architecture and engineering design, construction management, sales tax, and insurance.

4.3 Summary of Rehabilitation and Reuse Costs

The table below, Exhibit 15, shows an estimate for the total cost to construct each use type which is agnostic of the potential sources of money (including any potential incentives) that might be accessed to fund a development (see subsequent sections for findings about financial incentives). The below exhibit summarizes the stabilization and reuse costs:

- Fit out costs estimated by JMB Consulting Group LLC (Attachment C)
- Soft costs (e.g., design fees, carrying cost of financing[4]) are based on the fit-out costs (derived from interviews with developer peers and our professional experience based on industry standards, confirmed by Zenith Properties L.L.C.)
- Project contingency for change orders and project overruns are included and based on the fit-out costs (derived from interviews with developer peers and our

[4] Soft costs are likely to increase as interest rates and the costs of financing development projects increase

professional experience based on industry standards, confirmed by Zenith Properties L.L.C.)

- Developer fees to compensate the development team for project management and oversight are included and based on the fit-out costs (derived from interviews with developer peers and our professional experience based on industry standards, confirmed by Zenith Properties L.L.C.)
- Structural and building stabilization costs estimated by OAC Services INC are in addition to the subtotal for the fit-out costs (Attachment B)
- Site work not included on the structure costs but needed to accommodate potential project uses (such as parking and access), estimated by JMB Consulting Group LLC, are in addition to the subtotal for the fit-out costs (Attachment C)
- Other interior work not included in the fit-out costs, such as windows, stair modifications and conveyance, estimated by JMB Consulting Group LLC, are in addition to the subtotal for the fit-out costs (Attachment C)

Exhibit 15. Summary Pro Forma Rehabilitation and Reuse Cost Assumptions

Source: ECONorthwest, CoStar, Stakeholder Interviews

	Multifamily rental	Senior housing	Midscale hotel	Upscale hotel	Source
Total fit out costs (based on per square foot estimates in Exhibit 14)	$28.8 million		$45.1 million		JMB Consulting Group LLC (Attachment C)
Soft Costs (30% of hard costs)	$8.6 million		$13.5 million		Interviews, industry standard, ECONorthwest, Zenith Properties L.L.C.
Contingency (5% - 10% of hard and soft costs*)	$1.9 million - $3.7 million		$2.9 million - $5.9 million		Interviews, industry standard, ECONorthwest, Zenith Properties L.L.C.
Developer Fee (4% of hard and soft costs and contingency)	$1.6 million		$2.4 million		Interviews, industry standard, ECONorthwest, Zenith Properties L.L.C.

Subtotal Costs	**$40.9 million**	**$64 million**	**$64 million**	ECONorthwest
Lease-up reserve	N/A	$2.2 million	$4.7 million	ECONorthwest
Structural and Building Stabilization Costs	$78 million			OAC Services INC (Attachment B)
Site Work	$3.9 million			JMB Consulting Group LLC (Attachment C)
Other Interior Work	$5.8 million			JMB Consulting Group LLC (Attachment C)
Total Development Costs	**$128.6 million**	**$153.9 million**	**$156.4 million**	ECONorthwest

**For analytic purposes, the analysis used the lower contingency rate of 5%, which created a more liberal estimate of total development costs that are carried throughout the rest of the report. However, along with general rising costs of construction that have been increasing the contingency rate needed for development projects, there are a lot of unknown costs that arise from a rehabilitation project that could require additional funds.*

Given that the high-level Building Integrity Assessment completed by OAC INC (Attachment B) included a range of soft costs for the stabilization work, this analysis estimated how the low end of this range of $11.2 million in soft costs could impact the overall costs. Given that there are multiple other costs needed to make the building occupiable, a reduction from $22.4 million in soft costs (for the rehabilitation costs) to $11.2 million in soft costs would equate to a 7.2% to 8.7% total reduction in costs depending on the use type (see Exhibit 16).

Exhibit 16. Summary Pro Forma Rehabilitation and Reuse Cost Assumptions (lower soft costs on stabilization costs)

Source: ECONorthwest, CoStar, Stakeholder Interviews

	Multifamily rental	Senior housing	Midscale hotel	Upscale hotel	Source
Total fit out costs (based on per square foot estimates in Exhibit 14)	$28.8 million		$45.1 million		JMB Consulting Group LLC (Attachment C)

Soft Costs (30% of hard costs)	$8.6 million	$13.5 million		Interviews, industry standard, ECONorthwest, Zenith Properties L.L.C.
Contingency (5% - 10% of hard and soft costs*)	$1.9 million - $3.7 million	$2.9 million - $5.9 million		Interviews, industry standard, ECONorthwest, Zenith Properties L.L.C.
Developer Fee (4% of hard and soft costs and contingency)	$1.6 million	$2.4 million		Interviews, industry standard, ECONorthwest, Zenith Properties L.L.C.
Subtotal Costs	**$40.9 million**	**$64 million**	**$64 million**	ECONorthwest
Lease-up reserve	N/A	$2.2 million	$4.7 million	ECONorthwest
Structural and Building Stabilization Costs	$67 million			OAC Services INC (Attachment B)
Site Work	$3.9 million			JMB Consulting Group LLC (Attachment C)
Other Interior Work	$5.8 million			JMB Consulting Group LLC (Attachment C)
Total Development Costs	**$117.4 million**	**$142.7 million**	**$145.2 million**	ECONorthwest
Difference in total development costs (from lower soft costs in Attachment B)	**-8.7%**	**-7.3%**	**-7.2%**	ECONorthwest

**For analytic purposes, the analysis used the more liberal contingency rate of 5%. However, along with general rising costs of construction that have been increasing the contingency rate needed for development projects, there are a lot of unknown costs that arise from a rehabilitation project that could require additional funds.*

4.4 Operating Costs

Ongoing operating costs reduce the revenue received for each use. The analysis uses industry standard common operating expense assumptions for the different use type. Since the hotel uses have more revenue-generating departments, the analysis identifies associated operating costs as well (these include costs for convention, rentals, spa, and other hospitality services). These operating costs are expressed as a percent of revenue.

Exhibit 17. Operating Assumptions (as a percent of revenue)

Source: ECONorthwest, CoStar, Stakeholder Interviews

	Multifamily rental	Senior housing	Midscale hotel	Upscale hotel	Source
Residential / Hospitality	25%	30%	24%	25%	Industry reports, Stakeholder Interviews, STR, HOST data
Food and Beverage	N/A (Assumes triple net rents for kitchen and restaurant space, and therefore no operating costs)		78%	72%	STR, HOST data
Other Departments	N/A		47%	65%	STR, HOST data
Undistributed Operating Expenses			29%	26%	STR, HOST data
Management Fees			2%	4%	STR, HOST data
Selected Fixed Charges			5%	4%	STR, HOST data
Other Development Costs			1%	1%	STR, HOST data
Reserve for Replacement			1%	2%	STR, HOST data

4.5 Financing Costs

In addition to the costs to develop a project, the money used to fund those costs have financing costs that can impact development feasibility – namely the interest rates and return requirements expected by the issuers of the funds. The analysis uses industry standard common financing assumptions for the different use types. These financing costs are expressed as a percent of total development costs.

Exhibit 18. Financing Assumptions (as a percent of total development costs)

Source: ECONorthwest, CoStar, Stakeholder Interviews

	Multifamily rental	Senior housing	Midscale hotel	Upscale hotel	Source
Senior debt	70% of costs (5% interest rate, 30-year term)				Zenith Properties L.L.C., Industry reports, Stakeholder Interviews
Mezzanine debt	20% of costs (12% interest rate, 30-year term)				
Equity	10% of costs				

5. Findings and Conclusions

5.1 Overview and Development Concepts

The financial feasibility analysis analyzed the three general land uses: multifamily, multifamily senior housing, and hotel/hospitality. The hotel/hospitality use are differentiated to reflect two different hotel classifications: a baseline Midscale hotel scenario and an optimistic Upscale+ scenario. In total, there are four potential use types evaluated:

- **Multifamily rental:** Assumes all relevant leasable area is retrofitted to be leased as market-rate apartments.
- **Senior housing:** Assumes all relevant leasable area is retrofitted to be leased as market-rate senior apartments.
- **Midscale hotel:** Assumes all relevant leasable area is retrofitted as hotel rooms.
- **Upscale+ hotel:** Assumes some of the leasable area is retrofitted as hotel rooms, and other existing common area is occupied by additional hotel departments such as a restaurant, kitchen, conference space, and spa.

The following building programs are used to understand both the revenue potential and cost implications for the four use types. The layout of the existing buildings informed the allocation of various building area spaces. The programs were developed coordination with Zenith Properties L.L.C.

Exhibit 19. Building Program Assumptions

Source: ECONorthwest, CoStar, Zenith Properties L.L.C

	Multifamily rental	Senior housing	Midscale hotel	Upscale hotel	Source
Residential / Hospitality Area	72,000 square feet (equivalent to 208 hotel rooms*); 55% of total building area				Zenith Properties L.L.C.
Circulation	24,400 square feet; 19% of total building area				
Lobby	900 square feet; 1% of total building area				
Back of House	10,605 square feet; 8% of total building area				
Common Area					
Food and Beverage	7,500 square feet; 6% of area				
Other Departments	N/A		12,500 square feet; 9% of area		
Misc. Common Area	22,800 square feet; 17% of area		2,800 square feet; 2% of area		

**Assumes 350 square feet per hotel room*

The analysis evaluated these four use types under two different market conditions. First, the projects are evaluated assuming the current market prices and occupancies identified in the market analysis. Second, the analysis then considers what the rents would need to be to meet financial return requirements, holding almost all other financial assumptions constant. For this second test, revised occupancy numbers are used to better reflect industry standards for underwriting – in most use cases the occupancy would likely decrease if rents increased above the current market.

For each of the two market conditions, the analysis also evaluated the impact on financial feasibility from common historic preservation incentives. **The purpose of testing the value of historic preservation incentives was to see if these financial incentives could bridge any gaps in financial feasibility and make the preservation of the existing buildings a viable option.** This analysis assumes a best-case scenario – that historic preservation incentives are applicable for this development[5] and that the maximum value of the incentive is available.

5.2 Findings and Discussion

Finding #1: Structural and Building Stabilization Costs Pose a Significant Obstacle to Revenue Needs

The fully burdened project cost for stabilization alone is estimated at $78.4 million and applies to the approximately 130,000 square feet of structure space [6]. Therefore, this total stabilization cost is approximately $600 per square foot. As a comparison, ground up new construction high-rise towers in downtown Seattle cost approximately the same value on per square foot basis (based on interviews with developers). Including the fit out and other project construction needs for the use concepts, the total development costs come in at range from $990 to $1,180 on a per square foot basis. **The total development cost, for any use type, will be greater than top-of-market construction in downtown Seattle.**

Finding #2: Building Space Efficiency Limits Revenue Potential

The relative revenue-generating area (e.g., leasable area) is comparably less than a typical new construction building. New construction buildings are typically built to optimize the leasable area relative to the total building area. This provides economies of scale on the direct investments to the building envelopment and mechanical systems.

The lodge structure, as the primary building, is narrow by today's building space efficiency standards. Circulation and corridor space have fixed parameters for accessibility and life safety, and they need to be a certain dimensional standard for occupants to safely move about the building. Given the design of the building, the existing hallways on each floor will generally be retained.

Exhibit 20 shows an example floor plan of the existing primary building. The hallway is identified in orange, which highlights the limited remaining area for leasable uses. The hallway on an average floor in the primary building takes up about 25% of the floor area. As a comparison, most new construction buildings typically only lose 10% to 15% of the floor area to hallways and circulation.[7] **The lodge building has substantially less**

---

[5] This is a hypothetical analysis as the property is not currently listed on the National Register and therefore not eligible for historic tax credits at this time.

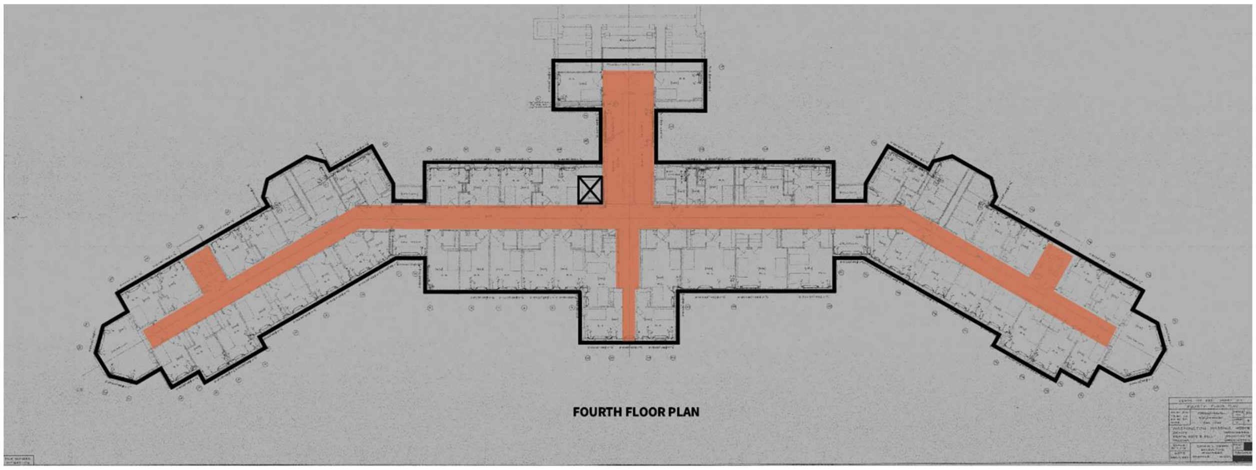
[6] There are additional cost considerations for the other structures on the site, but these are not included in this analysis.

[7] According to CoStar data for comparable, new construction, properties in the primary and secondary market area

leasable area per floor as compared to typical new construction and impacts the revenue potential of the core investments to rehabilitate the structure.

Exhibit 20. Example floor plan illustrating circulation

Source: Zenith Properties L.L.C., ECONorthwest



Finding #3: Current assumed market prices do not support preservation of the existing building under any of the four use types evaluated.

The total value generated by any of the four use types is not enough to cover the costs. The yield on cost results for all use types are less than 2 percent and would not be able to attract the capital and financing to make it a viable project. This means that using current residential rents and hotel ADRs (for the baseline midscale hotel and the more optimistic upscale+ hotel) the project would need a significant subsidy to reach the target yields.

For example, **the multifamily rental project type would need a subsidy of over $107 million for the project to be feasible**. All projects are greater than -300% off their target return yields (i.e., the level of financial performance they must meet to be consider financially viable). This feasibility gap is driven by the substantial structural and building stabilization costs and relatively lower leasable area even though current market revenue assumptions are used.

Exhibit 21. Results, and feasibility gap, by use

Source: ECONorthwest

	Multifamily rental	Senior housing	Midscale hotel	Upscale+ hotel
Total leasable area (square feet / hotel rooms)	72,000 square feet		208 hotel rooms	
Total revenue	$1.61 million	$2.05 million	$5.81 million	$12.43 million
Total NOI	$1.28 million	$1.48 million	$1.51 million	$2.78 million
Total value (assuming a 5% cap rate)	$25.62 million	$29.68 million	$30.21 million	$55.73 million
Total cost	$128.61 million	$128.61 million	$153.93 million	$156.44 million
Yield on cost	**1.00%**	**1.15%**	**0.98%**	**1.78%**
Yield Target Performance	**-500.0%**	**-421.7%**	**-512.2%**	**-321.3%**
Subsidy needed	**-$107.25 million**	**-$103.85 million**	**-$128.75 million**	**-$119.30 million**

For analytic purposes, the analysis used a capitalization rate (cap rate) to estimate the value of the NOI for each use. The cap rate is sourced from CoStar based on comparable markets and uses, but changes over time. The results shown in Exhibit 21 assumed a 5% cap rate, which is a current estimate for the market. A 5% cap rate is still lower than typically observed cap rate averages when comparing to the last couple real estate cycles. It is therefore a favorable estimate of potential value given both the recent averages and the trajectory of future real estate investment, which has seen cap rates increasing in recent years as development risk has increased.

Over the course of this latest real estate cycle, observed cap rates have dropped to an unprecedented low of around 4%. We therefore tested the analysis using this lower rate. Assuming a more liberal cap rate of 4% increases the project value (and therefore decreases the subsidy needed) for multifamily rental, senior housing, midscale hotel, and upscale+ hotel by $6.4 million, $7.4 million, and $7.5 million, and $13.9 million respectively. **However, even with a more favorable cap rate assumption, the subsidy needed would still be around $100 million for each use type.**

Exhibit 22 summarizes the feasibility gap if the analysis uses the low-end estimate of construction costs. If these lower costs can be achieved, the subsidy needed is reduced by approximately 10%.

Exhibit 22: Results, and feasibility gap, by use (low-end construction cost estimate)

Source: ECONorthwest

	Multifamily rental	Senior housing	Midscale hotel	Upscale+ hotel
Total value (assuming a 5% cap rate*)	\$25.62 million	\$29.68 million	\$30.21 million	\$55.73 million
Total cost	\$117.4 million	\$117.4 million	\$142.7 million	\$145.2 million
Yield on cost	**1.09%**	**1.26%**	**1.06%**	**1.92%**
Subsidy needed	**-\$96.25 million**	**-\$92.86 million**	**-\$117.74 million**	**-\$108.28 million**
Difference from high-end costsSubsidy needed	**10.3%**	**10.6%**	**8.5%**	**9.2%**

Finding #4: Available financial incentives do not solve the financial feasibility gap.

The historic preservation and C-PACER incentives are designed to lower the project costs of stabilizing a historic structure. More specifically, these programs help reduce financing and operating costs. Given the nature of the scale of these costs identified in Finding #1, the incentives do indeed target a critical feature of the contemplated reuse construction. The analysis shows that historic preservation incentives help these projects substantially, **however, they fail to appreciably close the financial feasibility gap given that the baseline feasibility gap is so large initially.**

Exhibit 23 summarizes the following feasibility parameters:

1. Total construction costs (without incentives): This is the total costs estimated in Exhibit 15
2. Total construction costs less historic tax credits: this is the total costs less the amount covered by historic tax credits
3. Annual NOI (without incentives): This is the amount of net operating incomes available to service debt.

4. Annual Debt (without incentives): This is an estimate of the amount of debt that would be serviced by NOI.
5. Annual NOI (with 10-year property tax incentive): This represents the addition to NOI resulting from the special assessment (NOI is calculated after taxes).
6. Annual Debt (with C-PACER and historic tax credit incentives): This represents the reduction in annual debt due to fewer financial-able costs from the tax credits and lest costly debt from C-PACER.
7. Annual operating difference (without incentives): This is difference between NOI and debt payments without incentives.
8. Annual operating difference (with incentives): This is difference between NOI and debt payments with incentives (e.g., special assessment, tax credit, and C-PACER).

For a development to receive financing, the net operating income (NOI) of a development needs to be enough to cover the debt service (i.e., the loan payment) for the project. This is like a home mortgage – a bank will not issue a mortgage if the borrower's annual income does not exceed the annual loan payment, as the borrower will not be able to make the full payment. Given that most of these tools impact the financing options available or the NOI, the analysis shows how these tools can reduce the annual debt payments and compare that to potential changes in the annual NOI.

Financing tools like C-PACER and historic tax credits will help close the gap, but even with potentially better financing amounts and terms, the NOI does not exceed the debt payments, meaning the funds issued by potential financing partners would not be paid back and therefore they will not offer the funds for the project. The NOI gap ranges from $3-4 million a year (see Exhibit 23) and these figures would require a doubling of NOI in almost all cases in order to close the gap.

Exhibit 23. Change in financial feasibility with historic preservation incentives

Source: ECONorthwest

	Multifamily rental	Senior housing	Midscale hotel	Upscale+ hotel	Notes / Explanation
1. Total construction costs (without incentives)	$128.6 million	$128.6 million	$153.9 million	$156.4 million	See Exhibit 15

2. Total construction costs less historic tax credit incentives[8]	$104.6 million	$104.6 million	$125.78 million	$128.29 million	Total costs less the amount covered by historic tax credits
3. Annual NOI (without incentives)	$1.28 million	$1.48 million	$1.51 million	$2.78 million	NOI without a tax abatement
4. Annual Debt (without incentives)[9]	$16.86 million	$16.86 million	$20.18 million	$20.51 million	Debt payment based on total construction costs using market rate sources of money
5. Annual NOI (with 10-year property tax incentive)[10]	$2.90 million	$3.11 million	$3.42 million	$4.69 million	NOI increases because of the property tax abatement
6. Annual Debt (with C-PACER and historic tax credit incentives)[11]	$6.28 million	$6.28 million	$7.55 million	$7.71 million	Debt payments decrease because of tax credits and

[8] This value represents the effectively lower cost of construction needing financing due to the amount of costs that could be funded by historic tax credit incentives (approximately 18% of total development costs).

[9] For market rate financing, we assumed senior debt covered 70% of costs (at 5% interest rate), mezzanine debt covered 20% (at 12% interest rate), and equity covered 10%.

[10] The property tax incentive reduces operating costs and increases NOI, however, this is only temporary for 10 years, whereas the debt payments are for 30 years, therefore this is a favorable estimate of the incentive benefit.

[11] For financing with incentives, we assumed mezzanine debt was exchanged for the C-PACER program to cover 20% of the costs (at 7.17% interest rate), equity covered 10% of costs historic tax credits covered 5.7% to 7.5% of funds depending on the use type, and senior debt covered the remainder (approximately 62.5% to 64.3% of costs).

					substituting C-PACER for some of the market rate sources of money
7. Annual operating difference (without incentives)	**-$15.58 million**	**-$15.38 million**	**-$18.67 million**	**-$17.72 million**	**Difference between row 3 and row 4**
8. Annual operating difference (with all incentives – tax abatement, C-PACER and historic tax credits)	**-$3.37 million**	**-$3.17 million**	**-$4.14 million**	**-$3.01 million**	**Difference between row 5 and row 6**

To understand how some of these incentives might reduce the total subsidy needed, we summed the value of the historic tax credits and property tax incentives. Given that the C-PACER program helps lower the additional costs created by borrowing funds, by offering lower interest rates and a longer repayment period, it was not included. The value of the incentives included in Exhibit 24 are both the 20% of rehabilitation costs that would qualify for the tax credit and the capitalized value of reduced tax payments due to a special valuation.[12]

Exhibit 24. Subsidy needed after incentives

Source: ECONorthwest

	Multifamily rental	Senior housing	Midscale hotel	Upscale+ hotel
Qualifying rehabilitation costs for tax credits	$23.99 million	$23.99 million	$28.14 million	$28.14 million
Value of 10-year property tax incentive	$32.46 million	$32.46 million	$38.14 million	$38.14 million

[12] To arrive at a value of the property tax, we capitalized the difference in NOI due to foregone property taxes. As with Exhibit 21, we assumed a 5% cap rate.

Total value of incentives	$56.46 million	$56.46 million	$66.29 million	$66.29 million
Subsidy needed after incentives	**-$50.78 million**	**-$47.4 million**	**-$62.45 million**	**-$52.99 million**

Finding #5: Residential rents would need to increase substantially, beyond the pricing observed elsewhere in Washington, to make the use types financially feasible.

This scenario tests what revenues would need to be in place with, and without, the use of historic preservation incentives for the project to be feasible. Of the four use types, multifamily apartments and senior housing would need to see the greatest increase in revenue over current rents – a 560% and 445% increase respectively. **To put this figure in perspective, this level of increased rents would equate to monthly rent payment of $10,400 a month for a 1,000 square foot rental apartment.**

This price represents a significant premium over the current average rent in the area which would equate to $1,850 per month if using the same 1,000 square foot example. This level of rent premium needed to underwrite the investment costs is only observed in high-rise luxury penthouse apartments in downtown Seattle and is highly unlikely to be achieved in this structure and in the Des Moines marketplace. Given that the historic preservation incentives aren't guaranteed, and there would be substantial effort to make the building eligible for the incentives tested, it is possible the rent needed would be even higher than the results presented in Exhibit 25.

Exhibit 25. Change in rent needed for feasibility, assuming use of historic preservation incentives

Source: ECONorthwest

	Multifamily rental	Senior housing
Current Rent	$1.85 per square foot per month *($1,850 per month for a 1,000 square foot unit)*	$2.35 per square foot per month *($2,350 per month for a 1,000 square foot unit)*
Rent needed with historic preservation incentives	$10.40 per square foot per month *($10,400 per month for a 1,000 square foot unit)*	$10.40 per square foot per month *($10,400 per month for a 1,000 square foot unit)*
Increase in rents needed	**560%**	**445%**

Finding #6: Hotel ADRs would need to increase substantially, beyond the pricing observed elsewhere in Washington, to make the use types financially feasible.

Like with the residential use types, both hotel concepts (the baseline midscale and the optimistic upscale+) would need to see an increase in ADRs - 290% to 230% increase respectively assuming the use of historic preservation incentives. **The optimistic upscale+ hotel would need to see ADRs of $375 which far exceeds historic averages for even downtown Seattle upper upscale hotel ADRs.** According to STR, upper upscale hotels in the downtown central business district reported a 12-month ADR of $205 in September 2022. The rates modeled in the analysis are above ADRs observed during the pre-pandemic high (2018) in the airport market place and are a considerable premium above what is in the marketplace.

Even in the case where incentives are available, an upscale+ hotel in Des Moines would have to achieve rates not observed in comparable properties in downtown Seattle which command top-of-the-market prices given their mix of high value amenities making the likelihood of this happening extremely improbable. For reference, luxury properties in the airport market area achieved a pre-pandemic ADR high of $174. Again, these preservation incentives are not guaranteed and therefore the ADR needed could be even higher than the results presented in Exhibit 26.

Exhibit 26. Change in ADRs needed for feasibility, assuming use of historic preservation incentives

Source: ECONorthwest

	Midscale hotel	Upscale+ hotel
Airport Market Rents	$83 ADR	$141 ADR
Current Rent	$100 ADR	$165 ADR
Rent needed with historic preservation incentives	$290 ADR	$375 ADR
Increase in rents needed	**290%**	**230%**

Meanwhile, without historic preservation incentives, the hotels would need to see a 265% to 340% increase in ADRs for upscale and midscale hotels respectively. The upscale+ hotel would need to see ADRs of $435.

5.3 Financial Feasibility Determination

After thorough financial assessment of multiple different use types, it is our professional determination that the none of the development concepts are financially feasible. Without incentives, a redevelopment of the primary structure at the former Masonic lodge would likely need a subsidy of over $100 million in present value terms. However, even with potential financial incentives, a redevelopment of the former Masonic lodge would likely need a subsidy of around $50 million. Financing tools like C-PACER and historic tax credits help close the gap with potentially better financing amounts and terms, however net operating income does not exceed the likely debt payments. The implication being that potential financing partners they will not offer the funds for the project because they cannot be paid back by the project.

Exhibit 27. Summary Results and Feasibility Gap by Use

Source: ECONorthwest, 2022

	Multifamily rental	Senior housing	Midscale hotel	Upscale+ hotel
Total leasable area (square feet / hotel rooms)	72,000 square feet		208 hotel rooms*	
Total revenue	$1.61 million	$2.05 million	$5.81 million	$12.43 million
Total NOI	$1.28 million	$1.48 million	$1.51 million	$2.78 million
Total value (assuming a 5% cap rate*)	$25.62 million	$29.68 million	$30.21 million	$55.73 million
Total cost	$128.61 million	$128.61 million	$153.93 million	$156.44 million
Yield on cost	**1.00%**	**1.15%**	**0.98%**	**1.78%**
Yield Target Performance	**-500.0%**	**-421.7%**	**-512.2%**	**-321.3%**
Subsidy needed	**-$107.25 million**	**-$103.85 million**	**-$128.75 million**	**-$119.30 million**
Subsidy needed after incentives	**-$50.78 million**	**-$47.4 million**	**-$62.45 million**	**-$52.99 million**
Subsidy needed after incentives (assuming lower	**-$44.69 million**	**-$41.3 million**	**-$56.36 million**	**-$46.89 million**

stabilization costs)**				

*The hotel room count is approximately the same area, in terms of square feet, as the multifamily and senior housing.

**See Exhibit 16 for details on lower stabilization costs. Though costs are reduced, there is a commensurate reduction in the eligible basis for historic tax credits and special property assessments, and therefore the value of these incentives.

6. Attachments

Attachment A: Support for the Demolition Application by Zenith Properties LLC (in re: 23660 Marine View Drive S) from Grand Lodge Free and Accepted Masons of Washington

Attachment B: Zenith Building - Building Integrity Assessment from OAC Services INC

Attachment C: Feasibility Study - Balance to Finish from JMB Consulting Group LLC

GRAND LODGE FREE AND ACCEPTED MASONS OF WASHINGTON

Cameron M. Bailey
Grand Master
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University Place, WA 98467
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May 16, 2022

RE: Support for the Demolition Application by Zenith Properties LLC (in re: 23660 Marine View Drive S)

To Whom It May Concern:

This letter is provided to document the Most Worshipful Grand Lodge of F&AM of Washington ("Masons") reasoning for and support of the proposed demolition of all existing structures located at 23660 Marine View Drive S (the Property).

In the nearly 100 years since the construction of the former Masonic Retirement Center (the Center) the Masons have owned, operated, and maintained the Center. In the early 2000's the Masons began investigating potential redevelopment of the Property. Following those investigations, the Masons determined their organization's interests were best served by offering the Property for sale with the condition that any redevelopment activities would need to rehabilitate and preserve the Center.

Following 15 years of studies, investigations, mothballed proposals, and the Masons' own intimate knowledge of the condition of the Center, it became clear that what many may see as an asset on the outside is in fact a substantial liability once the actual interior and structural conditions of the building were investigated and the costs were obtained. The condition of the Center proved to be an insurmountable barrier to the repurposing of the Property. Every potential buyer determined that the significant costs to bring the Center up to code and then convert it to another use were not economically feasible.

As a result of the significant deterioration of the buildings and the clear indication that there was no market for this kind of property, the Masons relisted the Property for sale without conditions, which attracted many interested parties. In that process, the Masons wanted to identify an investor that would work with the community and demonstrate they have the background, abilities, and vision to shepherd the Property for the next 100 years or more. In that regard, the Masons are very confident in the abilities of the Zenith Properties L.L.C. team to be a good partner for the Des Moines community. The Masons feel the transfer of property to Zenith Properties L.L.C. and the proposed demolition of the existing buildings represent the greatest potential for a positive and successful future for the Property and the community.

On July 9th, 2019, the Masons applied for demolition of all existing structures on the Property which was assigned the permit number LU2019-0032 and has since been transferred to the current property owner, Zenith Properties L.L.C. While the Masons hold no title, deed, or other interest in the Property, the Masons want to do what is best for the community and therefore, support the proposed action under LUA2019-0032 and support the demolition of the existing structures.

Sincerely,

Cameron M. Bailey
Grand Master
Most Worshipful Grand Lodge of F&AM of Washington

Zenith Building

Building Integrity Assessment

DRAFT REPORT

PREPARED FOR

Zenith Properties L.L.C

August 2022

PROJECT #R18-200366

PREPARED BY

OAC SERVICES, INC.

2200 1ST AVE S., SUITE 200, SEATTLE, WA 98134

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OAC
Project Management
Structural Engineering
Building Enclosure

DCG
civil structural
Civil Engineering

GLUMAC
A TETRA TECH COMPANY
Mechanical/Electrical/Plumbing/
Fire Protection

dean alan architects pllc
Fire & Life Safety

FULCRUM
environmental consulting
Environmental Studies

JMB CONSULTING GROUP
Construction Cost Consulting

The discipline-specific engineering material and data contained in this report were prepared under the supervision and direction of the undersigned, whose seal as a registered engineer is affixed below.

01/20/2023

John D. Rupp, P.E.
Civil Engineer – Structures
OAC Services, Inc.

Zenith Building Assessment Report Executive Summary

The former Masonic Home of Washington is a nearly 100-year-old building in Des Moines, owned by Zenith Properties LLC. The property, which includes five separate buildings, has had multiple uses over the decades, including a retirement home and event center. The remaining buildings are vacant but actively monitored and maintained. Due to the deteriorated structural condition of the former Masonic Retirement Center (the Center), the Center is not safe to occupy and can only be accessed for essential life safety maintenance and upkeep.

An application for a permit to demolish the buildings on the 27-acre property, located at 23660 S. Marine View Drive (Proposal), is currently under evaluation by the City of Des Moines (City). The City is undertaking an Environmental Impact Statement (EIS) as a component of the Proposal's permitting.

The Des Moines Municipal Code (DMMC) identifies cost-benefit analysis as an element of the environment for purposes of the EIS. Refer to DMMC 16.05.170. The Applicant has retained OAC Services, Inc. (OAC) to generate this report to identify existing deficiencies in the structural, seismic, and building envelope at the Center and estimate the associated costs to address the deficiencies (collectively, the Report).

Additionally, the Report finds that to achieve a minimum level of structural integrity would require more than $78 million of investment. This is solely the estimated amount to stabilize the Center without a use and does not provide estimated costs to potentially adaptively reuse the Center for occupancy. Such further analysis is beyond the scope of this Report as speculative; however, we anticipate that the total cost for potential adaptive reuse of the Center would be nearly twice the cost of stabilization.

It is important to note that some components of the cost estimates are based solely on our experience with similar projects and industry averages for construction costs. While contingency and allowance costs help cushion inaccuracies, there are still significant uncertainties because of the age of the Center, the limitations of external inspections, the shortage of geotechnical and other expert reports, variable labor and material pricing, inflationary impacts, and market conditions.

Cost to Address Structural, Seismic, and Envelope Deficiencies

To stabilize the Center and abate current degradation of its exterior, total costs are estimated at $67.2-$78.4 million (2024 dollars). This is based on two years of construction, beginning in September 2024, and includes only hard and soft costs. No costs for project financing or legal fees are included but could contribute an additional $5-10+ million to overall project costs depending on the party executing the project. Land acquisition costs are also not included.

Hard costs: "Hard costs" are only the construction costs estimated at just under $56 million. Top-level findings and assumptions include:

- Structural: There are four options for seismic strengthening of the building; two of them will best preserve the exterior architectural elements and from these, one, the braced frame and damper approach, was determined to be least invasive and risky. The braced frame and damper approach was used to estimate project costs.

- Building enclosure "envelope": The walls, windows, skylights, roofing, and gutters are all decaying, with some elements needing total replacement.

- Hazardous Materials: Asbestos and lead paint are present in the building, in potentially substantial amounts. A cost allowance has been identified for hazardous materials handling and disposal.

- The cost estimate does not include improvements to the civil systems, fire and life safety, mechanical, electrical, plumbing, Americans with Disabilities Act, or site-specific geotechnical requirements. In addition, the hard costs do not include any of the numerous improvements required to meet any level of occupancy.

Soft costs: The "soft costs" of the project are estimated at $11.2-22.4 million. Based on similar projects, soft costs are estimated as a percentage of the construction costs. Soft costs include, but are not limited to project engineers, design consultants, equipment rental, and construction permits and fees paid to local governments.

The 2-year, $78+ million cost estimate stabilizes the property but does not include the cost of improvements to allow any functional occupancy of the Center.

Remaining Barriers and Additional Costs for Occupancy

Opening the building to the public would require higher levels of fire and life safety than currently exist, depending on the use, along with reconstruction or rehabilitation of numerous building systems. The type of use would drive complexity and cost. Except for leaving the building unoccupied, all the options for using the building would require upgrades to Mechanical, Electrical, Plumbing, fire protection systems, access and egress (emergency exits), ADA, and civil infrastructure. These upgrades would vary by use. The details needed to provide a range of costs for these improvements are not currently available. However, it is not unreasonable to anticipate costs that could nearly equal the $78+ million to address the existing deficiencies in the structural, seismic, and building envelope systems.

Table of Contents

1. Introduction

Zenith Properties L.L.C. (Zenith) authorized OAC Services, Inc. (OAC) to complete a building integrity assessment of the Zenith Building property, located at 23660 S. Marine View Dr. in Des Moines, Washington. The project is to document the existing physical condition of the buildings on the property and to identify requirements for structural stabilization and repairs to the building envelope that would be necessary to preserve the exterior architectural elements.

The Project is on an approximate 27-acre site in Des Moines, WA. The original 5-story structure was built in 1926 as a retirement center, with additional assisted living and healthcare wings added in the mid-1960's. The main structure consists of a north, south, and east wing, all connected to the central core. A full basement covers the entire building plan area. The structure is cast-in-place concrete frame construction. Hollow masonry block comprises most interior walls throughout the building while hollow clay tiles are used in the exterior walls. The roof is terra-cotta with copper flashing and the exterior consists of stucco with brick detail work. The infirmary wing is mostly a single-story light- frame wood structure with one of four wings having a lower level constructed of cast-in-place concrete. Outbuildings exist to the east of the main building and include storage garages, a shed, a pumphouse, and a duplex built in 2004. A water tower is located towards the northeast corner of the property in a wooded area. OAC understands the tower is not in use for its original purpose, but currently supports other communication systems equipment. To the west of the main building, a circular paved access road leads from Marine View Drive South to the main building front entrance. The grounds surrounding the main building are landscaped, with an undeveloped area set back to the east of the property that occupies approximately half of the property.

This report includes assessments of structural, building enclosure, civil, mechanical, electrical, plumbing (MEP), code compliance, Americans with Disabilities Act (ADA), fire/life safety, and hazardous materials. Also included are required upgrades of structural and building envelope systems for compliance with current building codes and to address conditions leading to continued degradation of the interior and exterior of the structure. Zenith has no current plans for future use following these upgrades. Therefore, no recommendations are provided regarding further improvements to the facility. Fire/Life Safety is divided and addressed within the MEP and Code Analysis sections. Additionally, based on the system upgrades required, an estimated rough-order-of-magnitude (ROM) construction cost has been developed for this high-level conceptual building upgrade. This document is intended to be used by Zenith as a baseline for potential structural stabilization.

2. Background

2.1. Building Summary

Built in 1926, this building is comprised of north, central, south, and east wings. The north, central, and south wings of the building are five above-grade levels with a basement. The east wing is two above-grade levels with a basement.

This building is assumed to be Construction type I-B.

The building's floor levels were programmed to be accessed from several points including stairs, ramps, and elevators. In the central core, two 6-stop elevators connected the basement levels to levels one through five. A service elevator connected the basement level with level one of the east wing. All elevators are currently out of service, have been red-tagged, and are unsafe to operate per the Washington State Department of Labor and Industries. A series of ramps connect the basement with level one and level two on the northeast vertical space of the central wing. Separated by fire doors is another series of ramps that run the east central vertical space of the central wing from level two through level five. There is a stairway just north of the north elevator that connects the basement and level one with egress doors. Both the north and south wings include stairways that connect the basement levels and all levels above to egress doors. A stairway on the northeast corner of the east wing connects the basement floor with levels one and two above. An egress door is located on a landing between the basement and level one.

Levels one through five of the north and south wings were programmed as individual sleeping units with dormitory-style bathrooms on each floor of each wing. A small number of units have inoperable ensuite bathrooms. The basement level of the north and south wings was programmed as storage areas.

Level one of the central wing included spaces that served as a two-story social room, library, office spaces, and lobby area. Access to the social room's balcony areas is located on level two of the central wing along with other sleeping units. Levels three through five floor spaces of the central wing were programmed to serve as sleeping units. The basement level of the central wing included mechanical rooms, a vault, and storage areas.

In the east wing, level one previously served as a dining hall and commercial kitchen with several back-of-house offices, rooms, and restrooms. Level two of the east wing comprises a chapel space with upper-level balconies, stage, and storage rooms. Beyond the stage were a series of sleeping units. The basement of the east wing was programmed to include several storage rooms, a laundry service area, power-, fuel-, and boiler-rooms.

The building has connections on level one to a structure located to the southeast that was built in 1966. This one-story wood-framed infirmary wing addition does not fit the architecture of the original building.

2.2. Project Assumptions

This report outlines the upgrades necessary to rehabilitate the structural and building envelope systems to a code compliant level and allow owner access for maintenance activities. The recommendations for structural baseline and repair of the building enclosure would be necessary to preserve the exterior architectural elements. Currently, the owner accesses the building to conduct maintenance and upkeep activities. No occupancy or use change is a part of this project. To address both code related upgrades and to prevent further degradation to the building, a core-and-shell model is considered.

To establish a baseline suitable for continued owner access and maintenance, proposed modifications are addressed for the structural and building enclosure systems centered around code-based life safety and enclosure control layers such as thermal, air, water, and vapor. No additional system upgrades, such as mechanical, fire protection, site civil, etc., are included in this baseline as they are not required for owner access and maintenance purposes. No specific occupancy or use of the building is contemplated at this time.

Previously, the main building had a seismic evaluation report completed by Visser Engineering Company, Structural Evaluation Report – Landmark on the Sound, dated August 27, 2018 (Seismic Report). The Seismic Report can be found in Appendix A. The structural analysis and assessment addressed in the Seismic Report from 2018 are the basis of structural recommendations to bring the building to a current baseline. No additional structural analysis is completed as a part of this report. Field assessments within this report are to confirm and validate existing conditions compared to 2018 report.

3. Observations & Recommendations

The following sections include high-level narratives of the various systems previously noted and a summary ROM cost statement provided in Uniformat basis. Photo documentation is also provided as part of various system narratives. This report will provide a broad overview for the main building, two garage structures, pumphouse, and water tower and address broad upgrade requirements for select systems to meet the current building code. Additionally, data gathered from the walkthrough and site survey are included.

3.1 Structural

There are five structures associated with this property, the main building, infirmary building, garage structures, a pump house, and the water tower. The main building is addressed within this section. A Tier 1 assessment in accordance with ASCE 41-17, "Seismic Evaluation and Retrofit of Existing Buildings" (ASCE 41) was performed and noted in the previously completed 2018 Seismic Report. ASCE 41 is a nationally adopted standard applied to evaluation and analysis for seismic retrofits of existing buildings. The current assessment is a visual observation of the existing structure in accordance with Section 4.2.1 of ASCE 41.

3.1.1. Structural Observations

Main Building

With a previous assessment of the main building completed, our work in the main building consisted of validating the general sizes and geometry of structural members. During our site visit, no significant structural damage or decay was observed within the main building. Based on visual observations, the structure appeared to be in the same structural condition as it was for the previous assessment. Photos S1 through S6 provide representative photos of the existing conditions.

3.1.2. Structural Peer Review

The basis of the evaluation and potential retrofit scenarios presented within the Seismic Report is the criteria established in ASCE 41. As noted in the Seismic Report, screening, compliance, and acceptance criteria of ASCE 41 was the agreed upon approach by the Des Moines Building Official.

A peer review was conducted on the Seismic Report. The Seismic Report addressed general building data, provided an overview of the structural systems, non-structural systems, and site data. The peer review is based on the information provided in the Seismic Report. Information that may have been used in support of development of the Seismic Report but was not provided within the Seismic Report is excluded from the peer review.

3.1.2.1. Peer Review Comments

In general, the information provided in the Seismic Report was in general conformance with the applied standard, ASCE 41. Additionally, the structural and non-structural deficiencies noted are consistent with a structure of this size, construction type, and age. The four seismic retrofit scenarios for the Lateral Force Resisting System (LRFS) discussed in the Seismic Report are all reasonable options to have considered with each option having advantages and disadvantages when compared to each other.

Some items noted in the Seismic Report require further clarification or modification to be in alignment with the referenced ASCE 41. A summary of these items is noted below:

1) ASCE 41 provides a list of standards referenced throughout the document. The 2018 International Building Code along with ASCE 41 reference ASCE 7-16, "Minimum Design Loads and Associated Criteria for Buildings and Other Structures" (ASCE 7-16). In multiple places throughout the Seismic Report, ASCE 7-16 is not referenced, but instead, the previously adopted version is referenced, ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures" (ASCE 7-10).

2) Verification was completed with Visser Engineering Company confirming the use of ASCE 7-16 as the baseline standard for determining seismic forces applied to the building in the Seismic Report.

3.1.3. General Recommendations

Based on the information presented and reviewed in the Seismic Report, one of the 4 LRFS strengthening options was identified for cost estimating as part of this project. Of the four options, two stood out above the others to address preservation of the exterior architectural elements, the concrete shear walls and the braced frames with seismic dampers. Both of these options limit the lateral deflection, or drift, of the building. This is essential in the preservation of brittle elements such as plaster and brick installed on the Zenith Building. When considering various elements associated with the cost of each option, particularly the logistics of physically installing each, the benefits of a steel braced frame option outweighed the concrete shear wall scenario. Below are a few of the key reasons:

- Minimized number of pieces to be installed resulting in reduced field labor
- Reduced quantity of embedded anchors resulting in reduced field labor
- Elimination of form work resulting in reduced schedule time
- Elimination of construction waste by avoiding typical 'blowback' of shot-crete material
- Reduced quantity of cored holes in the slab between floor levels at each wall/frame location resulting in reduced field labor.
- Reduction in seismic demand on the building resulting in less strengthening material needed for the LRFS and other non-structural elements

Our review of the advantages of the braced frame and damper scenario indicated an overall reduction of risk to the project by executing this retrofit scenario. Therefore, the braced frame and damper scenario has been identified for cost estimating as part of this project.

Interior demising walls between existing residential units, corridors, and other areas are made of hollow concrete blocks. These walls are not planned for removal and will likely require strengthening to prevent out-of-plane wall failure based on a design seismic event. Typical strengthening of these wall types includes strong-back members, or a new adjacent wall designed to support the existing wall against seismic forces. Based on location and quantity of demising walls, the weight is not insignificant to the overall building strengthening measures.

Steel reinforced cast-in-place (CIP) concrete drag and collector elements are required to transfer seismic and other lateral loads from the floor to the braced frames. These elements will be installed at the underside of the floor slabs to minimize impacts to the finished floor.

The use of seismic dampers offers similar benefits to removing building weight. Seismic dampers reduce seismic forces on the building and corresponding lateral building deflections. Minimizing lateral building deflections aligns the goal of preservation of the exterior architectural elements. With reduced seismic loading, the required footing sizes for the lateral force resisting system will also be minimized. Limiting the size and amount of concrete required in the footing systems allows for reduced complexity in construction of the stabilization and greater flexibility in use of the basement area in the future. With detailed engineering analysis through the course of the baseline design, final impacts and benefits of the dampers will be determined.

3.1.4. Retrofit Summary

Below is an itemized summary of proposed retrofit actions as referenced from the Seismic Report and modified with the recommended LRFS scenario:

- Remove existing masonry and clay-tile walls in strategic locations and replace with steel braced frames and seismic force reducing dampers.
- Provide drag and collector elements, in the form of reinforced concrete beams at the bottom of the existing floor slabs and joists to distribute seismic forces to the new braced frames.
- Provide anchorage of roof framing members and diaphragms to the existing concrete frames.
- Provide anchorage of all interior and exterior masonry and clay-tile walls to the existing concrete frame.
- Provide bracing for all interior and exterior walls, in the form of metal stud walls with helical or similar anchors from the masonry, clay-tile, or brick to the wall studs.
- Anchor all exterior terra cotta ornamentation to the building, using helical or similar anchors.
- Brace and anchor all parapet walls with light gage stud walls and braces.
- Provide lateral support for all suspended ceilings.

These recommendations are based on high-level engineering analysis completed in the Seismic Report and project specific requirements. Specific requirements, details, quantities, sizing, etc., will be determined during a future detailed design of the structural stabilization effort.

3.2 Building Enclosure

The building envelope narrative section is based on a high-level investigation of the existing roof, walls, windows, doors, and other building envelope elements. The assessment will consider existing systems and ability to meet current building and energy code requirements, which at the time of analysis is the 2015 ICC suite of documents. No testing of window or door systems for performance were performed under this assessment.

3.2.1 Building Enclosure Observations

Exterior Walls – General

The exterior walls are mass masonry with an exterior cement plaster veneer. The exterior finish alternates between exposed brick and plaster. Exterior walls are accented with terra cotta transitions, e.g., coping, sills, and chimney caps. From exterior-to-interior the wall assembly consists of:

- Single-wythe brick with grouted clay tile back-up with a bituminous, water resistant coating applied to the interior face of clay tile.
- Airspace, created by steel girts, followed by metal lath, cement plaster and tile at interior face.

There are no provisions for water within the wall assembly to weep to the exterior with the exterior walls being relatively thin mass masonry walls.

Walls – Masonry

Masonry above exterior openings such as doors and windows are supported by steel lintels. Depending on elevation and exposure, the lintels generally have moderate corrosion, varying from light rust bleeding through paint to deep pitting and instances on the west elevation of oxide jacking or expansive corrosion of the steel. Sealant between lintels and the masonry above has failed. Mortar adjacent to the lintels has failed as well.

Walls – Cement Plaster

Cement plaster is in generally fair condition with localized areas of failed coating, cracking, spalling of the plaster from the masonry substrate and isolated areas where hidden corrosion has started to bleed through. The plaster is painted with an unknown coating which contains “wine sacks” or blisters with water between coating and plaster at numerous locations.

The west elevation plaster is in poor condition with severe cracking, spalling and indications of trapped water.

Walls – Terra Cotta

Terra cotta accent features have been coated, possibly multiple times, and the coating is generally failing. A small percentage of terra cotta units (5%) are cracked or fractured with some dislodged but otherwise the terra cotta is in generally fair condition.

Terra cotta chimney trim is capped with concrete that is completely deteriorated.

Wall Mounted Accessories

Painted wrought iron attached to the exterior of the masonry walls e.g., deck guardrails, ladders, and fire escapes are corroded, no longer serviceable, and would likely not meet current code for structural capacity even if they were in good condition.

Windows and Skylights

The windows are past the end of their service life. Glazing seals and sealant between windows and cladding have failed.

Roofing – Clay Tile Roofs

Most of the steep slope roofing is made up of flat unglazed clay tile units attached with copper nails over what appears to be a No. 30 asphalt coated roofing felt. A small percentage of the tiles are missing or partially displaced, but the steep slope roofing appears to be otherwise serviceable.

There are also sections of copper sheet metal standing seam roofs at dormers as well as copper sheet metal copings, gutters, and downspouts. Sheet metal roofing appears to be in good condition, but the asphalt gutter lining is deteriorated, and several sections of downspouts need to be repaired and/or replaced. Some existing downspouts were replaced with steel which have rusted through and many downspouts lack elbows or splash blocks to control run-off and prevent damage to roofing and masonry materials.

A few transitions between sheet metal roofing and tiles have been treated with asphalt mastic. It is not clear if this was done as preventative maintenance or to address leaks.

The south wing had some small areas of significant decay in the surface of the wood car-decking substrate under the roof underlayment and clay tiles near the west edge of the roof.

Membrane Roofing

Low slope roofing is predominately modified bitumen membrane with a granulated cap sheet. Modified bitumen roofing is in fair condition with varying degrees of granule loss and little to no indication of deeper membrane failure such as cracking, crazing, blisters, open laps etc.

There are smaller areas of relatively new thermoplastic membrane roofing at the bottom of steep slope roofing – behind parapets and these appear to be in good condition.

Photos BE1 through BE10 are representative photos of the building enclosure.


Photo BE1 Typical Roof


Photo BE2 Typical Wall & Fire Escape


Photo BE3 Typical Wall Plaster Damage


Photo BE4 Typical Wall Brick


Photo BE5 Typical Lintel Supporting Brick


Photo BE6 Typical Window Seal

Photo BE7 Typical Ornamental Terra Cotta

Photo BE8 Typical Low Roof

Photo BE9 Typical Terra Cotta Façade Damage

Photo BE10 Typical Terra Cotta Roof Damage

3.2.2 Building Enclosure Recommendations

Walls – Masonry

Remove and replace bricks with fractured edges. Assume 10% of the bricks will need to be replaced. This percentage includes bricks replaced due to lintel replacement as determined below.

Repoint all elevations including joints at/between:

- Masonry
- Masonry-to-cement plaster
- Masonry-to-terra cotta
- Terra cotta

Remove rust and scaling at lintels where they are exposed to weather and repaint. Assume that 25% of the lintels will also require additional reinforcement accomplished by welding a new section of 1/4-inchx 2 inches plate steel along the underside the existing lintel prior to painting.

Assume 25% of the lintels on the west elevation need to be replaced and that approximately 25 SF of brick masonry above each replaced lintel will need to be removed and replaced.

Apply a siloxane penetrating sealer to exposed masonry after repointing is complete coordinating work with cement plaster work.

Walls – Cement Plaster

Remove and replace cracked and damaged cement plaster over masonry. Assume that it will be necessary to prep masonry surface including repointing as necessary and install new proprietary, one-coat cement plaster texturing and elastomeric coating to match existing. Assume that 25% on the west elevation and 10% everywhere else of the existing cement plaster will need to be replaced.

100% of the cement plaster on the west elevation low-rise structure south ofthe building entry should be removed and replaced.

If desired, coat 100% existing coating with an elastomeric such as MasterProtect EL 750, 100% high build acrylic. Test existing coating for suitability to receive new elastomeric coating including type, thickness, number of coatings, adhesion, and cohesion.

Walls – Terra Cotta

Use non-toxic paint stripper such as Citristrip gel to remove existing coating on terra cotta. Collect and legally dispose of paint and stripper.

Coordinate paint removal with repointing work.

Reattach terra cotta pieces that have become dislodged with helical anchors and repair grout ensuring that anchors are adequately embedded into mass masonry wall.

Fill cracks in the terra cotta with Edison Coatings Flexi-Fill 530 and coat previously painted terra cotta with two coats Edison Coatings AQRYL-X 200.

Wall Mounted Accessories

We recommend removing steel structures such as ladders and fire escapes. If they are desired for aesthetic reasons or to maintain the character of the building they will need to be cleaned of corrosion and scale, primed and painted.

A percentage (assume 25%) of stair and ladder components have severe enough corrosion that repair will require substantial field welding and reinforcement to compensate for section loss. Loose ladder bars on east wing chimney should be removed and epoxy grouted in place.

A thorough review of deck railings was not possible and for estimating purposes it would be safe to assume that these will need to be replaced.

Windows and Skylights

Large format window assemblies in public areas and on north and south elevations of east wing shall remain in place with existing sealant removed and replaced.

Any future use and function will require rehabilitation or removal and replacement of existing window units fronting dwelling units to meet the requirements of the Washington State Energy Code.

Although not required by code, consider replacing windows with enhanced sound attenuation (SCT 48) IGUs (insulated glazing units).

Replace 100% exterior sealant joints at window openings. Rake out existing sealant and replace with new DowSil 795 silicone sealant using closed cell backer rod and/or bond breaker tape where appropriate to allow for two-sided sealant bonds to substrate.

Install Sika's Skylight Waterproofing System over existing skylights. Prepare substrate and apply in strict accordance with the Manufacturer's published recommendations.

Roofing – Clay Tile Roofs

Remove broken and dislocated terra cotta roof tiles. Dislocated and complete tiles are to be re-used – assume 10% of total.

Install new stainless steel or copper straps with self-adhered bituminous patch over strap fastener at previously replaced tiles – assume 25%
Replace 25% of copper downspouts.

Assume that it will be necessary to restore 100% of the existing gutter linings with 3- course asphaltic mastic and reinforcing fabric.

Assume 25% of roofing at south wing will need to be removed and replaced to address water damaged car decking, typically along the east and west edges.

Assume that the attics will need to be insulated with R-49 batt or blown-in insulation to meet the requirements of the Washington State Energy code.

Membrane Roofing

Provide enhanced maintenance of modified bitumen membrane roofing including but not limited to:

- At all low slope roof membranes enclosed by parapets and exterior walls, recommend adding one additional through wall overflow scupper to each roof area to prevent water build-up from clogged roof drains.
- 3-course mastic and fabric at edge flashings and other membrane laps and transitions that appear vulnerable.
- 100% sealant replacement at perimeter counterflashing where membrane turns up exterior walls and inside face of parapets and recommend sealing all laps in counterflashing.
- 100% sealant replacement at penetration flashings i.e. vent pipes, conduits etc.
- 100% replacement clamping bands.

Apply an elastomeric acrylic topcoat such as GAF's Roofshield to the existing membrane roof to achieve an additional 5-10 years of service life.

Clean, wire-brush, prime and otherwise prepare metal roof hatches and mechanical equipment for new coating. Provide new weather seals at hatches.

3.3 Site Civil

The site civil narrative section is based on an analysis of the overall site and existing utilities. Existing infrastructure will be compared against current code requirements for similar sized facilities, buildings, sites, and identified as adequate or requiring upgrades to meet jurisdictional requirements.

3.3.1 Water System

The site is currently served by the Highline Water District. There is an existing 8-inch Main traversing the site, north to south. Current water services include a 4-inch meter and two smaller meters. Although no GIS data is available, it is also likely there is a water main in Marine View Drive S. There are hydrants on Marine View Drive S across from the southern end of the property and at the intersection of S 236th Street, as well as on the south side of S 240th Street. Future fire flow improvements and the installation of an automatic sprinkler system should be considered with MEP for the existing building to comply with Des Moines Municipal Code (DMMC) and the International Fire Code (IFC).

3.3.2 Sanitary Sewer

The city of Des Moines does not have available sanitary sewer GIS/maps. However, from Google Maps, existing data and a site visit, we were able to locate sanitary sewer manholes in the eastern side of Marine View Drive S (along the sidewalk and east of the existing storm main). The existing main is likely shallow due to the site's position atop a hill. The structure, as it stands, likely meets sanitary sewer requirements presented in Title 13 Water and Sewer Systems of the King County Code. Future modifications to fixture counts may require modifications and the existing pipe capacity has not been evaluated.

3.3.3 Stormwater

Based on observations from a site visit and the Des Moines Stormwater Infrastructure mapper, it appears that stormwater onsite is generally uncollected, sheet flowing generally east to west and entering a 10-inch PVC- SMTH along Marine View Drive S. According to the city of Des Moines GIS map, there is a 12-inch stormwater main in the eastern side of Marine View Drive S with a low point approximately 100 feet south of Crystal Lake Road. The main is likely shallow due to the site's position atop a hill.

3.3.4 Onsite Parking

With no change of occupancy or use from the existing, the current site parking is adequate.

3.3.5 Past Development

Research indicates several phases of past development.

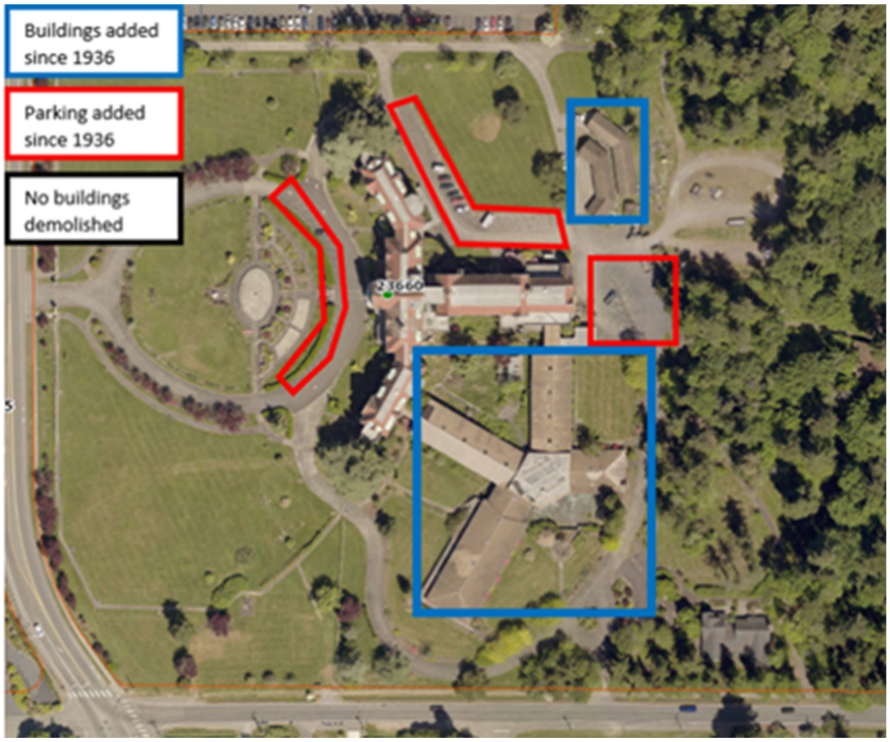

Figure 3.3-1. Previous site development

3.3.6 ROW Conditions

Marine View Drive S:
The existing 6-inch curb, landscape strip, sidewalk, and driveways appear to be in good condition, see Photo C1. The existing driveways are too narrow to meet current codes and the main entrance may be too steep. The city may require one or both driveways to be replaced and upgraded to their most recent standards.


Photo C1 Marine View Drive Typical Frontage Section

S 240th Street:

There is no curb, sidewalk, or planter strip along the north side of S 240th Street, see Photo C2. There is an existing roadside swale/ditch along this frontage that conveys stormwater west and an existing worn gravel path just north of the swale for pedestrian travel.

Photo C2 S 240th Street Typical Frontage Section

3.3.7 Pavement and Surfacing

The pavement onsite is nearing the end of its design life but is still usable. It displays differential settlement at the rear of the building but remains adequate. Existing cross slopes on some walkways are not compliant particularly in the entry area. See Photo C3 below.

Photo C3 Example pavement

``

Photo C4 Example pavement

3.4 MEP

The mechanical, electrical, plumbing, and fire protection (MEP & FP) survey concentrates on the general observed conditions. The following is a report of the findings. Please note that detailed calculations, operational testing and assessment and inspection of hidden conditions were not included in the scope of our review.

3.4.1. Mechanical Observations

- The original three (3) boilers, associated pumps, distribution piping with control valves and appurtenances have been abandoned in place. All equipment is assumed not operational (Photos M1, M2, M8 and M9) and associated piping not available for re-use.
- Controls are mostly pneumatic and not operational (Photo M3 and M11).
- The entire building was served by hydronic wall-mounted radiators (similar to Photos M4 and M6) with exposed heating water piping. Operability is unknown.
- The infirmary building was served with split system heat pumps (Photo M5). Operability is unknown.
- The congregation hall was served with wall radiators and under seat ventilation via an air handling unit (Photo M10). Operability is unknown.
- The woodburning fireplace appears to be operational. Chimney integrity was not verified. (Photo M12).
- The commercial kitchen includes Type 1, Type 2 and required make-up air (Photo M13).

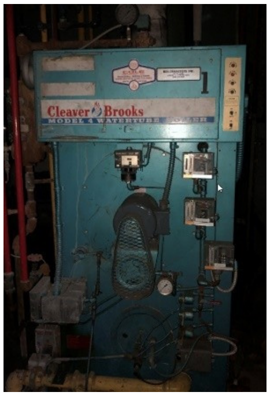

Photo M1 Abandoned Boiler #1

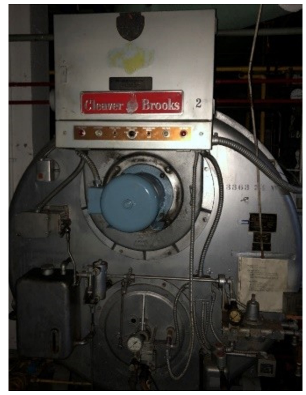

Photo M2 Abandoned Boiler #2 (3 is Similar)


Photo M3 Pneumatic Controls

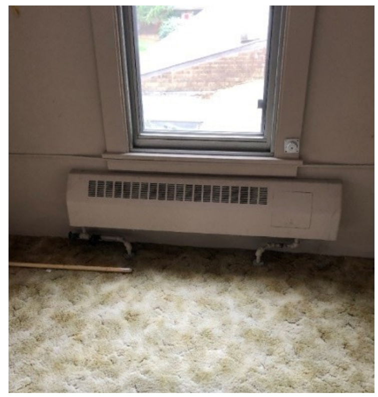
Photo M4 In-Room Radiator


Photo M5 Split System Heat Pumps


Photo M6 Hall Radiator


Photo M7 EMR

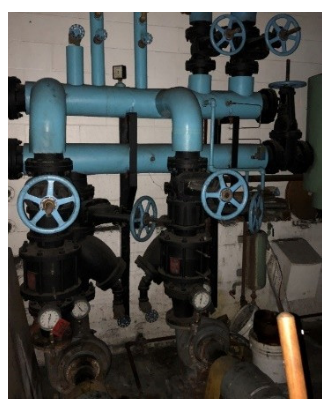
Photo M8 Heating Water Pumps and Distribution


Photo M9 Heating Water Distribution Manifold


Photo M10 Under seat Ventilation within Hall

Photo M11 Pneumatic Thermostat


Photo M12 Woodburning Fireplace


Photo M13 Decommissioned Commercial Kitchen

3.4.2. Electrical Observations

- An existing electrical utility (PSE) in-ground vault was noted at north side of building next to an existing Generator enclosure (Photo E1). PSE vault was not accessible (Photo E2) during field visit to confirm existing transformer capacity.
- PSE service meter for whole building is located with exterior wall mount (Photo E3) and wired back to main switchboard pull section. The main building service switchboard also feeds a separate 2-story infirmary building addition on site (Photo E4).
- Main switchboard has two sections rated at 1600A, 240/120V 3-phase Delta high- leg system, located inside electrical room under the meter at basement level (Photos E5, E6).

- Generator feeds a service rated 1600A auto transfer switch (ATS) at standby power line side, ATS is located in room next to the electrical room at backside of main switchboard, utility service main switchboard pull section feeds a 1600A service disconnect cabinet stand next to ATS and then feeds normal line side of ATS cabinet (Photos E7, E8, E9). We believe the generator was added in 1994 based on equipment tag. If the building has been vacant for 10 years, the generator has been used for about 17 years, which is less than half of its expected life cycle. The engine genset's inside condition may not be suitable to reuse and requires a manufacturer technician's evaluation.
- Various aged panelboards are observed throughout building (Photos E10, E11, E12), in working but poor condition.
- 2-story infirmary building addition is fed from main switchboard, panelboards in this building is in good condition (Photos E13, E14).
- Lighting fixtures are most compact fluorescent, or incandescent type (Photos E15, E16), will not comply to current energy code.
- Dwelling units and corridor receptacles are in fair or poor condition and mix with surface and recess mounted type (Photo E17)
- Telecom and cable service distribution are in fair condition (Photos E18, E19).
- Fire alarm system panels are in fair condition, but the FA devices are outdated and may be discontinued on the market (Photos E20, E21).
- Fire alarm devices and annunciator panel in 2-story infirmary building addition are in good condition and was recently upgraded (Photos E22, E23).

Photo E1 Aerial view utility/generator location

Photo E2 In-ground PSE vault

Photo E3 PSE meter exterior wall mounted

Photo E4 Health center – from main building switchboard

Photo E5 (2) Sections main switchboard

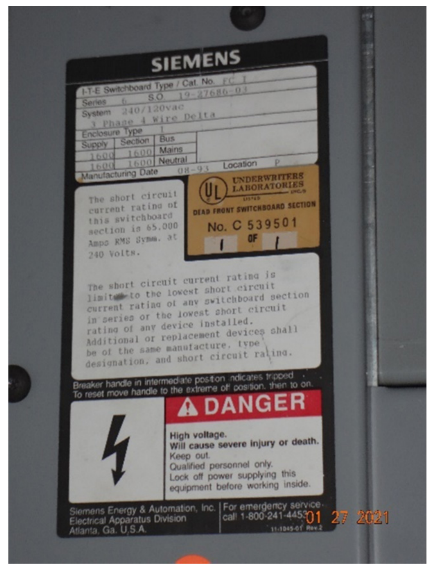

Photo E6 Main switchboard rating tag

Photo E7 Left-Service Disc. Right – ATS

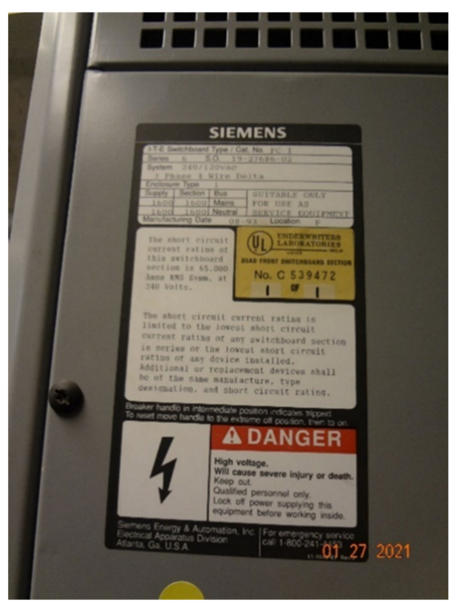

Photo E8 1600A service rated Disconnect switch

Photo E9 Generator sit outside building

Photo E10 A panelboard may be built in late 1920’s

Photo E11 Panelboards may be upgraded with main switchboard in mid-1990’s

Photo E12 Panelboard in working but poor condition

Photo E13 Panelboards in infirmary building in good condition

Photo E14 Panelboards in infirmary building in good condition

Photo E15 Surface mounted lighting fixture in corridor

Photo E16 Incandescent type lights at entrance

Photo E17 Corridor receptacles in fair condition

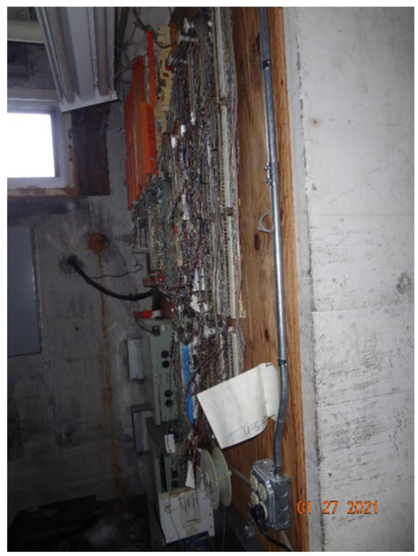
Photo E18 Telecom backboard in main electrical room


Photo E19 Cable terminal box in each floor janitor


Photo E20 Fire alarm equipment in fair condition

Photo E21 FA devices are outdated

Photo E22 FA annunciator in infirmary building is in good condition

Photo E23 FA devices in infirmary building are in good condition.

3.4.3. Plumbing Observations

- The water heater serving the public restrooms and back-of house spaces is fairly new and could be re-used (Photo P1).
- The original sump pump was full of water during the site visit and appeared to be non-operational (Photo P2).
- The domestic backflow preventer is located in a hot box near the walking trail heading to the water tower (Photo P3).
- Many dwelling units include a lavatory (Photo P4). The public men’s and women’s restroom and shower facilities are located within each corridor near the main core.

Photo P1 Existing Water Heater

Photo P2 Existing Sump Pump

Photo P3 Hot Box for Domestic Backflow Preventer

Photo P4 Dwelling Unit Plumbing

3.4.4. Fire Protection Observations

- The main building is served by multiple fire hose connections (Photo FP1) on various floors.
- The existing fire water controls valve are located in the basement (Photo FP2).

Photo FP1 Fire Hose

Photo FP2 Existing Fire Water Control Valves

3.4.5. MEP Summary

Mechanical Systems:

- The original mechanical infrastructure (boilers, pumps, water treatment, general air handling equipment and piping) is not operational.
- The original dwelling units, public spaces and back-of-house areas were conditioned with hot water radiators and controlled by wall mounted thermostats. Their operational condition is unknown.
- The original dwelling units are not mechanically exhausted. Ventilation is provided via operable windows.
- The basement spaces are freeze protected with minimal to no exhaust.
- The commercial kitchen's exhaust and make-up air equipment remain but assumed not operational.
- The elevator hoist ways are not protected.
- The stairwells are not pressurized as the building is not over 75' in height.

Electrical Systems:

- The existing electrical service utility is PSE 1600A, 120/240V 3phase 4 wires high-leg, DELTA config, PSE transformer is located at north side of building in- ground vault which was not accessible.
- There is an exterior installed diesel generator (350kW/438kVA), according to site observation of feeder route, we believe the generator provided full building service on backup power with service entrance auto transfer switch. Generator is in fair condition; fuel pipes are rusted.
- The service equipment is working, however it is in fair condition and is reaching to the end of its useful life.
- The electrical distribution equipment are still working, however most of the panelboards are beyond their useful life.
- Branch circuits and wiring devices are in poor condition and most of them are in non-current code-compliant conditions.

Low Voltage Systems:

- Telecom service provider demark point is located in main electrical room; no fiber optic service is observed.
- Fire alarm system is Silent Knight, smoke detectors are observed throughout building in common area and corridor. FA devices are discontinued in the market.
- CCTV camera CCD type are observed at corridor, we cannot identify if it is still working, and where to connect.

Plumbing Systems:

- The original plumbing infrastructure (gas-fired water heater) appears to be in working order.
- The existing sump pump is operational but appears close to the end of its useful life.

Fire Protection System:

- The infirmary is the only structure with a fire sprinkler system.
- The main 5-story structure is fitted with fire hoses and spaces for extinguishers.

3.5 Code Compliance

3.5.1 Code Compliance Observations

This section outlines general upgrades necessary to this building to provide the fire and life safety requirements that are necessary to operate it for different perspective uses. These recommendations, based on a future selected use, are presented in order of the extent of the modifications required to modify the existing core-and-shell.

The Zenith Building is currently unoccupied, being accessed solely by the owner for maintenance activities.

1. No modification of existing core and shell. There are no occupancies other than “U” occupancies listed below that will allow use with no modifications:

   - Per City of Des Moines Municipal Code Section 14.10.050, “All new buildings and structures exceeding 3,000 square feet gross floor area shall be required to provide an approved automatic fire alarm system”. The only exception would be for “U” occupancy which is classified as: Agricultural buildings, aircraft hangers, barns, carports, fences more than 6’ in height, grain silos, greenhouses, livestock shelters, private garages, retaining walls, sheds, stables, tanks, towers. The “U” occupancy is for utility and miscellaneous uses which aligns with the Zenith building’s current function. Any other uses would require various modifications as outlined below. The potential costs of these modifications are not captured in this report, but would be very substantial even for minimal modifications.

All changes below will require a sprinkler system and verified means of egress.

2. Minimal modifications to core and shell.

   - R-1 -Transient Boarding Houses, transient congregate living facilities, Transient Hotels, Transient Motels. With is modification more minimal restroom facility changes and wall, partition changes will be required.
   - Group I – Alcohol and drug centers, Assisted living facilities, Congregate care Facilities, Group homes, Halfway houses, Residential board and care facilities, Social rehabilitation facilities. These uses allow for few wall changes and the use of grouped restroom facilities.

3. Alterations requiring extensive wall changes to core and shell but grouped restroom facilities.

   - ‘B’ occupancy - Office: Blocks of the current dorm style rooms could be opened up in various configurations to create a variety of office suites. This application will enable grouped restroom facilities but require wall changes.
   - School – Classrooms and school offices could be created with selected wall removal and reconfiguration.

4. Alterations to core and shell requiring extensive modifications.

   - Hotel - This use would require extensive wall removal and creation of restrooms

for each room.
- An apartment building inclusive of R-2, assembly, office, and storage occupancy space. Working within the existing structure of the building and expressed intent of a 15% 2-bedroom 85% 1-bedroom mix (studios utilized in areas of space constraints) within the north, central, and south wings only, this report assumes the building will house a total of 90 units per previous proposal.

The Zenith Building is currently unoccupied, being accessed solely by the owner for maintenance activities, aligned with the “U” occupancy. This function will remain the same following the structural and building envelope stabilization activities.

3.6 ADA

A visual survey of the building was performed to document the existing conditions and compare them to the current ADA requirements. At the time of conducting the analysis, the City of Des Moines, WA references the 2015 versions of the International Code Councils (ICC) suite of code documents and all referenced standards therein as adopted and amended by the State of Washington. Our reported observations are reflective of these published accessibility requirements and may be subject to updated requirements as new code versions are adopted and amended.

3.6.1 ADA Observations

Our observations include the following building and site components:

- Site Access
- Accessible Parking
- Building Entry
- Restrooms
- Elevators
- Building Area Access
- Accessible Units

The required accessibility compliance dictated by building code varies greatly with existing building projects and is highly dependent on the building’s occupancy, scope of work, and the construction budget. As outlined in the 2015 International Existing Building Code (IEBC) Chapter 7, Section 705 Accessibility, “705.1 General. A facility that is altered shall comply with the applicable provisions in Sections 705.1.1 through 705.1.14, and Chapter 11 of the International Building Code unless it is technically infeasible.

Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent that is technically feasible.” as added to or modified by the IEBC Chapters 8 & 9. In general, determining which of these “feasible alterations” are required on a given project requires interfacing with the Authority Having Jurisdiction over the property and may not exceed 20% of the construction cost as it relates to the alterations of the buildings primary function unless the property owner decides to spend additional funds on accessibility upgrades.

The observations summarized below outline specific accessibility elements. The accessibility upgrades that will be required by the City of Des Moines, under the adopted building code at the time of design, shall be determined by the designer of record in collaboration with the city. All sections reference ICC A117.1, Standard for Accessible and Usable Buildings and Facilities.

3.6.1.1 Site Access

Sidewalk Curb Ramps, Section 406

- Minimum required curb ramp width is 36 inches. Currently, the curb ramps at the North and South side of the entry drive have ramps 36 inches wide.

Photo ADA1 Existing Sidewalk Curb Ramp

Accessible Pathway from Property Line (Street) to Building Entry, Section 402

- Walking surface must have a running slope of no steeper than 1:20 and cross slope shall be no steeper than 1:48. Currently, the slope of the accessible path (where measured) is 1:20 with cross slope of less than 1:48.
- Walking surface clear width shall be 36 inches minimum. Currently, the clear width is greater than 36 inches.
- Walking surface, unless 60 inches shall have passing spaces. Currently, the width of the walking surface is greater than 60 inches.

Photo ADA2 Slope of Walking Surface (Street to Parking)

3.6.1.2 Accessible Parking

Accessible Parking Spaces, Section 502

- Currently, this facility has only one standard and one van accessible spaces located at the main building entry (See Photo ADA3).
- Minimum width for a standard parking stall is 96 inches. Currently, both accessible stalls are at least 96 inches wide.
- Minimum width for a van parking stall is 132 inches unless access isles measure 96 inches, in which case the stall width can be 96 inches. Currently, one of the two accessible stalls are 132 inches wide or greater.
- Minimum width for a parking stall access isle is 60 inches. Currently, the access isle is greater than 60 inches.

Photo ADA3 Existing Accessible Parking Spaces

Accessible Pathway from Parking to Building Entry, Section 402

The survey reviewed the walkway in front of the building, to include sidewalk, transition, landing, ramp for the following ADA requirements:

- Walkway clear width shall be 36 inches minimum. Currently, the front walkway, leading to the accessible ramp, is overgrown by adjacent shrubbery.
- Walking surfaces slope shall be no steeper than 1:20. Currently, the slope leading to the access ramp is greater than 1:20
- Minimum clear width of ramp shall be 36 inches. Currently, the width of the access ramp is greater than 36 inches.
- Maximum rise for any single run/ramp is 30 inches. Currently, the rise of this single run/ramp is greater than 30 inches.
- Ramps with a rise of more than 6 inches shall have a handrail. Currently, this ramp does have a handrail.
- Ramp slope shall be no steeper than 1:12 with a cross slope no steeper than 1:48. Currently, the slope of this ramp is greater than 1:12.
- Level landings are required at the top and bottom of all run/ramps. Currently, the landing at the bottom of this run/ramp is less than 60 inches x 60 inches.

Photo ADA4 Accessibility Route as Viewed from Accessible Parking

Photo ADA5 Overgrown Shrubbery in Access Walkway

Photo ADA6 Access Route Walkway Surface with Slope Greater than 1:20

Photo ADA7 Access Route with No Landing at Bottom of Ramp

Photo ADA8 Access Ramp with Slope Greater than 1:12 and Rise Greater than 30 inches

Passenger Loading Zone, Section 503

The survey reviewed the passenger loading zone for the following ADA requirements:

- Passenger loading area shall be a minimum 20 feet long and 96 inches wide with a vertical clearance of 114 inches. Currently, the passenger loading zone at the main entrance meets these requirements.

Photo ADA9 Passenger Loading Zone at the Main Entrance

3.6.1.3 Building Entry

Main Entry (Front), Section 404

The survey reviewed the Main entrance area for the following ADA requirements:

- Minimum clear width through any single door openings is 32 inches with no projections into the opening less than 34 inches above the floor. Currently, this door clear width is greater than 32 inches.
- Door closers should be adjusted so that closing time from 90 degrees to 12 degrees is 12 seconds minimum. Currently, the door closer speed is properly adjusted.
- Minimum maneuvering clearance in vestibule, between two doors is 48 inches plus the width of any door(s) swinging into that space. In addition to the 48 inches clearance there must also be a minimum maneuvering space of 60-inch diameter. Currently, this facility's main entrance vestibule maneuvering clearance meets the ADA requirements.
- Maximum door threshold height is ½-inch. Currently, this facility's main entrance original threshold is less than ½-inch.


Photo ADA10 Main Entry


Photo ADA11 Main Entry Door Widths, >32 inches


Photo ADA12 Main Entry Vestibule


Photo ADA13 Main Entry Threshold


Photo ADA14 Main Entry Threshold Width


Photo ADA15 Main Entry Threshold Height, ≤1/2 inches

Secondary Entry (Rear), Section 404

ADA only requires one assessable entry into the building. Therefore, only the front, or main entrance, was evaluated for accessibility requirements.

3.6.1.4 Restrooms

Public Facilities, Section 603

The survey reviewed the men's public bathroom for the following ADA requirements:

- Minimum clear width through any single door openings is 32 inches with no projections into the opening less than 34 inches above the floor. Currently, the single door clear width is greater than 32 inches.
- Minimum maneuvering space of 60-inch diameter, no door may swing into the maneuvering space. Currently, the maneuvering space is greater than 60-inch diameter.
- Clear floor space for the forward approach to the sink shall be a minimum of 30 inches. Currently, the clear space is greater than 30 inches.
- Currently, the water closet and toilet do not meet any of the ADA access requirements.

Photo ADA16 Men's Restroom

Photo ADA17 Clear Width | Men's Restroom Entrance

Photo ADA18 Maneuvering Space | Front Approach

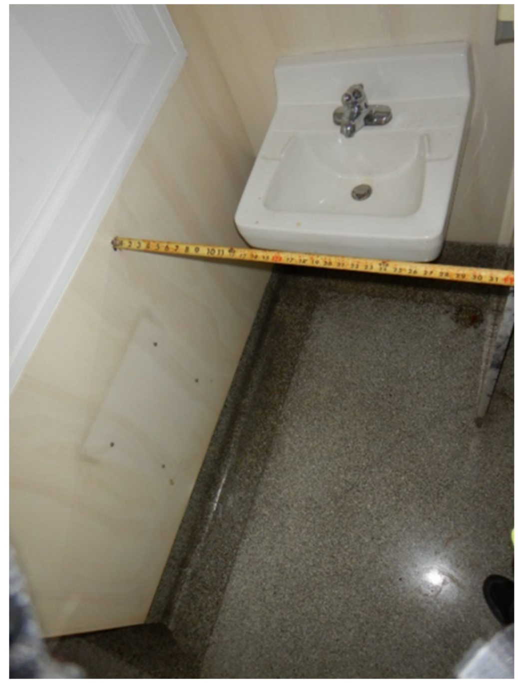

Photo ADA19 Front Approach

Photo ADA20 Front Approach

Photo ADA21 Water Closet/Toilet Access

3.6.1.5 Elevators

<u>Existing North & South Wing Elevators, Section 407</u>

The survey reviewed the two elevators located the main lobby for the following ADA requirements:

- Clear width for existing elevator doors is 32 inches. Currently, the clear width of the existing door is greater than 32 inches.
- Minimum clearance from interior face of door to back wall is 54 inches, access to elevator car was not available.
- Minimum clearance from front to back wall is 51 inches, access to elevator car was not available.
- Minimum clearance side to side is 80 inches, access to elevator car was not available.


Photo ADA22 Elevator


Photo ADA23 Elevator Clear Width

3.6.1.6 Building Area Access

Lobby to North & South Wings, Sections 402, 405, 407

The survey reviewed the Accessibility route between the main lobby and north/south wing for the following ADA requirements:

- Minimum clear width through any single door openings is 32 inches with no projections into the opening less than 34 inches above the floor. Currently, this door clear width is greater than 32 inches.

Lobby to Back of House, Sections 402, 405

The survey reviewed the Accessibility route between the main lobby and back of house for the following ADA requirements:

- Minimum clear width of ramp shall be 36 inches. Currently, the width of the back of house north/south wing ramp is greater than 36 inches.
- Maximum rise for any single run/ramp is 30 inches. Currently, the rise of this single run/ramp is greater than 30 inches.
- Ramps with a rise of more than 6 inches shall have a handrail. Currently, this ramp does not have a handrail.
- Ramp slope shall be no steeper than 1:12 with a cross slope no steeper than 1:48. Currently, the slope of this ramp is greater than 1:12 with a cross slope less than 1:48.
- Level landings are required at the top and bottom of all run/ramps. Currently, the landing at the top of this run/ramp is less than 60 inches x 60 inches and the door swings into the landing area.

Photo ADA24 Ramp to Back of House

Floor-to-Floor, Sections 402

The survey reviewed the floor-to-floor access. Currently the elevator allows for floor-to-floor access.

3.7 Hazardous Materials

Three (3) owner-provided asbestos and lead paint inspection reports for the Zenith property were reviewed. The objective of the review was to determine whether the information contained in the reports meets a level of sufficiency such that the results reported therein can be relied upon for planning purposes and/or current regulatory compliance. Specific services were as follows:

- Review of three (3) historical hazardous building materials reports issued as followed: Asbestos and Lead Survey Report Masonic Retirement Center of Washington Des Moines, Washington dated March 13, 2003; Asbestos Northwest, LLC- Survey Report dated July 1, 2019, with revised report dated October 21, 2019; Lead (Pb) Paint inspection @ 23660 Marine View Drive S, Des Moines, WA 98198 dated November 12, 2019.
- Verification of inspection and report validity for each report against Puget Sound Clean Air Agency (PSCAA) Reporting Requirements established in Regulation III, Article 4.
- Verification of inspection and report validity with PSCAA Asbestos Survey Guidance document.
- Verification of inspection validity with Environmental Protection Agency (EPA) Asbestos inspection regulations 40 CFR 763.86.
- Verification of relevant portions of the 1995 HUD guidance and Washington lead-based paint regulations (WAC 296-155-176).
- Verification of Paint Chip sample collection validity in accordance to ASTM E1729-05
- Preparation of this letter report summarizing findings.

3.7.1 Hazard Materials Report Review Findings

The reports were reviewed against established regulatory criteria including the following; PSCAA Regulation III, Article 4, and the PSCAA Asbestos Survey Guidance document regulate asbestos inspection and reporting requirements for King County; EPA 40CFR 763.86 Asbestos Inspection regulations; the 1995 HUD guidance, Washington lead-based paint regulations (WAC 296-155-176); and ASTM E1729-05 standard practice for collection of paint chips for lead testing.

Asbestos and Lead Survey Report Masonic Retirement Center of Washington

This report was issued by Prezant Associates, Inc. on March 5, 2003. Prezant completed the inspection on January 16, 17, and 20, 2003, with additional sampling on February 24, 2003. The inspection consisted of an Asbestos Containing Materials (ACM) and Lead-Containing Material (LCM) inspection of the Masonic Retirement Center main facility located at 23660 Marine View Drive South in Des Moines, Washington. It was found to be in substantial conformance with regulatory requirements.

The report met regulatory requirements for licensed inspectors and accredited laboratories. According to the PSCAA requirements this report met criteria for identifying the building name, address, type of facility, and approximate age of facility. Inspector firm information was identified along with inspector name, address, phone number, laboratory name, accreditation, and laboratory analysis used. Survey methodology was identified describing procedure, scope of survey and listed 40 CFR 763.86 sample protocol with description of sampling methods employed. The report contained sample and suspect asbestos material location information, listing sampled materials, test results, and sample date; and quantities of confirmed asbestos containing material was identified.

Samples were collected in accordance with 40 CFR 763.86. The inspector collected the correct number of samples for surfacing and thermal system insulation materials.

The lead inspection was conducted by XRF and was completed in accordance to WAC 296-155-176. Samples were collected in a manner sufficient to satisfy regulatory requirements, describing the sample plan and methodology. Sample locations and results were described in the appendices not within the body of the report.

Missing required PSCAA Asbestos Survey document information and 40 CFR 763.86 requirements are as follows:

- Does not have a description of building status after survey (renovation or demo).
- Does not list approximate age of the facility or descriptions of the building system.
- Does not include both inspectors' signatures with report.
- Does not identify inventory of homogenous areas where samples are to be collected.
- Does not identify sample designation, if the collected homogenous materials are surfacing materials, thermal system insulation, or miscellaneous materials.
- Samples collected for all miscellaneous non-friable materials were not sufficient according to 40 CFR 763.86. Regulations indicate a minimum of two bulk samples for each homogenous area of miscellaneous materials should be collected.

Asbestos Northwest, LLC- Survey Report

This report was issued by Asbestos Northwest, LLC on July 1, 2019, with a revised report issued October 21, 2019. Asbestos Northwest completed the inspection on July 1, 2019. Their inspection consisted of a limited ACM inspection of three (3) outbuildings, two (2) single-family residential homes, and the boiler room associated with the Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

The report met regulatory requirements for licensed inspectors and laboratories used. According to the PSCAA requirements this report met criteria for identifying the building address, and type of facility. Inspector firm information was identified along with inspector name, address, phone number, laboratory name, accreditation, and laboratory analysis used. Survey methodology was identified describing procedure, scope of survey, and listed 40 CFR 763.86 sample protocol with description of sampling methods employed. The report contained sample and suspect asbestos material location information, listing sampled materials, material type, description, and sample results.

Samples were collected in accordance to 40 CFR 763.86. The inspector collected the correct number of samples for surfacing materials.

Missing required PSCAA Asbestos Survey document information and 40 CFR 763.86 requirements are as follows:

- Does not identify building owner or client contact information.
- Does not identify building name or if the building has special features.
- Vague description of building age and does not identify if any renovations have taken place. Does not identify a specific age of outbuildings or single-family residential homes. Suspect materials within homogenous areas not clearly identified within the report.
- Quantification of suspect materials not identified.
- Sample collection location is vague in the report and the sample location map is nondescript; the PSCAA Asbestos Survey document requires exact sample locations to be identified.
- Samples collected for thermal system insulation materials within the boiler room were not sufficient according to 40 CFR 763.86. Regulations state at least three bulk samples shall be collected for each homogeneous area of thermal system insulation.
- Samples collected for miscellaneous non-friable materials identified as roofing shingles and sheet vinyl flooring were not sufficient according to 40 CFR 763.86. Regulations indicate a minimum of two bulk samples for each homogenous area of miscellaneous materials should be collected.
- Carpeting was observed on photos within one of the single- family residences. Carpet adhesive was not identified as a suspect material and was not sampled within Asbestos Northwest's report. Confirmation of carpet adhesive should be completed prior to any impact on flooring materials.
- No sink coating, tile with associated adhesive, laminate countertop with associated adhesive, or sealants were identified within the report for the single-family residences. These are all considered to be suspect materials. Confirmation that these materials are not within the residential houses needs to be completed prior to any impact.
- The laboratory analysis only includes one layer from all shingle samples that were collected. Confirmation that all outbuilding and single-family residential roof samples were collected to the roof decking would need to be completed prior to any impact to roofing materials.

<u>Lead (Pb) Paint Inspection Report</u>

This report was issued by NVL on November 12, 2019. NVL completed the inspection on November 11, 2019. Their inspection consisted of a lead paint inspection within the main facility, associated wings, outbuildings, and single-family residential homes associated with the Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

The inspection was completed by a certified lead risk assessor and paint chip analysis was completed by a licensed laboratory. Paint chip samples were collected in accordance with WAC 296-155-176 and ASTM Standard E1729-05. The report included all analytical results, sample description, and sample location maps. This report meets industry standards of care and regulatory sufficiency for its intended purpose.

The reference reports can be found in Appendix B.

3.7.2 Hazard Materials Conclusions

Fulcrum's review of the three (3) hazardous building materials inspection reports associated with the Zenith property found them to be in substantial conformance with regulatory and industry standards with minor noted deficiencies. It is Fulcrum's professional opinion that the provided information provided is sufficiently supported, that with limited supplemental investigation and testing, it could be relied upon to support demolition activities.

The extent to which the inspections fully address all suspect materials present within the facility cannot be assessed until Phase II onsite inspection services are complete.

A full asbestos and lead inspection of the facility at current costs would likely be within a general range. It is Fulcrum's opinion that a supplemental inspection be completed to validate the reviewed report findings. The hazardous materials cost estimates consider costs associated with abatement throughout the building.

4 Cost Estimate

The high-level Building Integrity Assessment conceptual construction cost estimate is based on the information provided in this report. The estimate is based upon upgrades of structural and building enclosure systems in the main building and does not include costs for other systems, code compliance modifications, property acquisition, leasing, or soft costs such as consultant detailed design, permitting or fixed furnishings and equipment.

Additional details of this cost estimate can be found in Appendix C

The construction cost estimate total is $55.98 million based on a start date of September 2024 and a 24-month construction period.

5 Project Costs

In addition to the construction hard costs, overall project costs were also considered. The unique nature of the Zenith Building with the construction type, location, size, geometry, etc. warranted analysis of project costs from similar types of projects to support the overall project cost. Data from over 100 projects was reviewed to understand soft cost trends. Multiple metrics were considered as part of the analysis to compare soft costs, including number of stories, square footage, geographic location, delivery method, and construction duration. Several data sets contained outliers, data points that were far beyond the typical range, and were removed from consideration. For example, a building of thirty-eight stories was removed as this was a single data point far beyond the parameters of the Zenith Building. To narrow down the analytics, outliers were removed to maintain statistical significance of the data. While the data sets contained projects in multiple states, filters were also applied to see soft cost trends in Washington State and whether the trend changes per state. The data was then used to perform analytics based on the aforementioned factors.

Pulling the data from past completed projects and using the different variables to understand soft cost trends, 20% - 40% of total project cost are assigned as the soft cost for a building project. With the data based on project records considering the variables and filters utilized, no single record in the data set is an exact match for the adaptive reuse project at the Zenith Building. Each project record is a snapshot in time of the costs at that point where material costs, labor costs, labor availability, and permitting durations, among others all add to or decrease the total project cost. Providing a range of soft cost as a percentage of total costs best captures the variability across project types, markets, and size.

From the data analysis, it was evident the different variables are telling the same story. Soft cost as a percentage of total cost tends to decrease as the number of levels increase, the square footage increases, or the schedule duration increases.

The fully burdened stabilization project cost estimates, ranging from $67.2 – $78.4 million, are within range of recently completed projects utilized in the data analysis. Development costs such as finance and legal, etc. are not reflected in the fully burdened project cost.

Following the stabilization, the owner may select from a range of final occupancy functions including, but not limited to residential, hospitality, or commercial/office. The costs for different occupancy types and functions varies and the total cost for potential adaptive reuse could be nearly twice the cost of stabilization.

Appendix A

Reference Visser Engineering Company (VEC) Memo & Seismic Report

VISSER
ENGINEERING

May 24, 2022

Grahm Satterwhite
Development Manager
Tarragon
601 Union Street
Suite 3500
Seattle, WA 98101

Re: Landmark on the Sound
Basis for Structural Evaluation Report
Visser Engineering Project #18031

Dear Mr. Satterwhite:

In August of 2018, Visser Engineering produced a Structural Evaluation Report for the former Masonic Home building. The purpose of that report was to provide an analysis that met the City of Des Moines' requirements and provided enough information so that our client's contractor could provide construction pricing that could be used in closing the building purchase. The basis of the review is ASCE 41-17 and ASCE 7-16.

Our directive was that the review be based on our client's intentions for the building, specifically that building would be used as leasable small spaces to used by artisans as light manufacturing. More specifically, the directive was that the building should be modified as little as possible. (Our client originally assumed that no significant structural work would be required for this building.)

Notwithstanding the directive, during the review we made the client aware of the following:

- The partition walls had a significant negative affect on the building (by virtue of their weight, their need for lateral bracing, and by being in the way). We suggested the walls be removed.

- The rear of the building is extremely complicated and not well connected to the front, main portion of the building. We suggested the rear of the building be removed.

While these suggestions were not accepted for the report, the client did accept that the assembly space would be partitioned so that the building could be considered as Risk Category III.

We were further directed that to the extent possible, the terrazzo flooring was to be retained - which is consistent with keeping the existing partition walls.

The recommendations contained in out report are the result of the client's directives and assumptions needed to the develop the design only to the degree necessary for the client's pricing exercise. We are not in a position to say what our recommendations would be under different client directives or assumptions.

Sincerely,
Visser Engineering Company, Inc.

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Structural Evaluation Report
Landmark on the Sound – Des Moines, WA

Executive Summary:

This report offers a description and structural evaluation of the existing 'Landmark on the Sound' building located at 23660 Marine View Drive South in Des Moines, WA with regard to the lateral seismic force resisting capacity of the primary structural frame and secondary structural members, and the connection of non-structural elements to the structural frame. The basis of the evaluation and potential retrofit scenarios is the criteria established in ASCE 41-17, "Seismic Evaluation and Retrofit of Existing Buildings".

The primary and secondary structural elements of the building, as well as non-structural elements, are screened to determine compliance with acceptance criteria defined in ASCE 41 and agreed upon by the City of Des Moines Building Official. Elements not conforming to the acceptance criteria are then further evaluated to determine appropriate retrofit actions.

For this building, retro-fit of the existing primary frame was determined to be not feasible, so an alternate lateral force resisting scheme is proposed. Retrofit of secondary structural and non-structural elements of the building consists of mostly stiffening, bracing, and anchoring of the existing element to maintain its position and/or prevent damage or injury during or immediately after the design seismic event.

Scope and Intent:

The Scope of this report is two-fold;

1. Identify and describe the primary and secondary structural elements of the building, along with the major non-structural elements which will affect the seismic performance of the structure or could pose a threat to occupants of or those near the building during or immediately after a significant seismic event.

2. Provide preliminary design considerations for retrofit actions and procedures required to bring the structure up to Acceptance Criteria established by ASCE 41-17 to the extent that rough order of magnitude construction costs can be established. The ultimate purpose of the exercise is to provide due-diligence information for the structural element of a cost-benefit analysis for the purchase, renovation, and ultimate re-use of the structure.

Building Data:

The major portion of the building is a 5-story structure, previously used as a residence building, composed of a Central core with two wings (North and South) over a basement level, constructed in 1925 – 1926.

The rear (East) wing of the building comprises a large 2-story tall auditorium space with a proper stage, and two levels of resident rooms behind the stage over a basement level.

For purposes of evaluation, the plan is to divide the Auditorium space into multiple spaces such that the building will fall into **Seismic Risk Category II** classification.

The footprint of the building is approximately 25,000 square feet, and the total building area is approximately 100,000 square feet.

Structural Systems:

The major gravity and lateral force resisting elements and systems for the building are as follows:

- Conventional isolated pad footings with poured-in-place reinforced concrete basement walls.
- Floors at all levels are concrete slab and joist construction.
- The floors are supported on concrete beams and girders, which are in turn supported on concrete columns.
- The roof is of heavy timber construction with heavy car decking and a clay-tile roof.
- The lateral force resisting system (LFRS) for the building is considered to be a Concrete Moment Frame (C1) system in each orthogonal direction, with a significant number of frames in the longitudinal direction but few (if any) frames in the transverse direction, in any of the protruding wings.

Non-structural Systems:

Non-structural building elements considered relevant to this evaluation and report are:

- Exterior walls – clay-tile block with brick masonry veneer. Interior face of wall is furred and plastered. These walls are in-fill for concrete moment frames around the perimeter of the building.
- Interior walls are a mixture of plastered unreinforced concrete masonry units, plastered clay-tile block, poured-in-place concrete, and wood stud walls with lath and plaster.
- Suspended ceilings of wood framing and lathe and plaster finish in the Main Entry and in the Auditorium space and lobby.
- Exterior terra-cotta cladding elements and building ornamentation.
- Short, unreinforced parapet walls.
- All brick veneer.

Site Data:

- The building is located in an area of High Seismicity as defined in Section 2.5 of ASCE 41-17.
- Site soils are not confirmed – Site Class D is assumed per ASCE 7-10 Section 11.4.2.

Performance Objectives:

The building in its current configuration is categorized as a Risk Category III structure due to the occupancy load in the Auditorium space (per ASCE 7-10). If left as is, the minimum Performance Level for evaluation and retrofit for the building would be at the Damage Control Structural Performance Level (S-2) and Position Retention Non-structural Performance Level (2-B). The Architect has agreed to utilize fixed seating and other remedial measures to keep the occupancy of the Auditorium below the 300 level to mitigate the effects of meeting the Risk Category III acceptance criteria. Therefore;

The Basic Safety Earthquake-1 (BSE-1E) will be utilized in conjunction with the Basic Performance Objective for Existing Buildings (BPOE), based on Risk Category II.

- BSE-1E is defined as the seismic hazard with a 20% probability of exceedance in 50 years.

The BPOE, or the Target Building Performance Level for evaluation and retrofit of the building will be Life Safety Building Performance Level (3-C), per ASCE 41-17.

- Structural elements and systems are being evaluated at a Life Safety (S-3) structural performance level per Section 2.3.1.3.

- Non-structural elements are being evaluated at a Life Safety (C-N) non-structural performance level per Section 2.3.2.3.

Assumptions:

Due to the age of the structure and lack of knowledge of actual as-built conditions and verification of materials and details, default values for Compressive Strengths of Concrete and Yield Strength of Reinforcing Steel were used in the Tier 1 preliminary checks of the structure per ASCE 41-17 Section 4.2.3:

- $f_c' = 2000\ psi$ for walls, beams, slabs and columns – per Table 4-2.

- $f_y = 33\ ksi$ for all reinforcing steel – per Table 4-3.

For analysis of the Structure for Tier 2 and 3 Evaluations and Retrofit, Default Lower Bound values were used per Tables 10-2 and 10-3, then multiplied by the appropriate factors from Table 10-1 to determine expected strengths as follows:

ELEMENT	Lower Bound Strength	TABLE 10-1 FACTOR	EXPECTED STRENGTH
Walls	$f_c' = 2000\ psi$	1.5	$f_c' = 3000\ psi$
Beams	$f_c' = 2000\ psi$	1.5	$f_c' = 3000\ psi$
Slabs	$f_c' = 2000\ psi$	1.5	$f_c' = 3000\ psi$
Columns	$f_c' = 2000\ psi$	1.5	$f_c' = 3000\ psi$
Reinforcing Steel	$f_y = 33\ ksi$	1.25	$f_y = 36\ ksi$ (max.)

Findings:

Structural Deficiencies

Tier 1 screening of structural and relevant non-structural elements of the building define a significant list of elements which do not be compliance criteria for acceptance by ASCE 41-17 (see **Exhibit A**).

Tier 2 evaluation of the defined deficiencies and preliminary seismic analysis indicates the columns in the existing structure are not adequate to support the shear loads induced by the Seismic Forces indicated for the BSE-1E event. The column shear capacity for each column would need to more than quadruple in order to be nearly adequate for the demand forces. This magnitude of improvement is not possible without a significant increase in the size of the columns and beam/column joints.

Existing conditions are also suspected to contain several locations where strong-beam/ weak-column conditions are present. As is the case for columns, these deficiencies would require substantial increase in member size and additional reinforcing.

The roof is not adequately anchored to the concrete building frames to transfer seismic forces.

Though impossible to properly evaluate without a current geotechnical report for the site, the analysis suggests that the existing foundations are not adequate to support the overturning effects of a seismic event on the existing concrete moment frames or either of the two optional systems considered.

Non-structural element deficiencies

Non-structural exterior and interior walls are not adequately braced to the structure to meet seismic demands. Retrofit anchoring will be required to provide adequate anchorage of all interior walls at both the top and bottom of the walls.

Suspended ceiling elements will require bracing for seismic forces.

The existing exterior walls are not adequately supported laterally or anchored to the perimeter concrete frames.

The exterior brick and stucco veneer is not adequately anchored to the supporting structure.

Parapets are constructed using unreinforced clay tile and will need to be braced for out-of-plane seismic forces.

Recommendations:

In order to achieve compliance of the main LFRS with ASCE 41-17 acceptance criteria, four options were considered for this analysis. The first option would maintain the existing LFRS, while the others would involve a change to the system type:

1. Retrofit the existing concrete frame elements with carbon-fiber-reinforced-polymer (CFRP) wraps, sheets, and strips. The concept being that the fiber elements would provide enhanced capacity to the columns, beams, and connections to the extent required for the calculated seismic demand. ICC ESR-3403, which is the test report associated with the materials for this type of retrofit can be found

in **Exhibit B**.

Though potentially useful for use as drag elements, the amount of strength increase we would be able to attain is well below what would be required for use in strengthening columns, beams, and connections.

2. Provide steel braced frames which would include Fluid Viscous Dampers. We estimate a pair of dampers would be required at 16 strategic locations throughout the building on each level (32 total per level). These dampers would increase the seismic damping capacity from 5% up to 30%, effectively reducing the forces the structure would be see by slightly more than half (56%). This reduction would affect all elements of the building – both structural and non-structural.

   Though the advantages of utilizing this system are worth noting, the cost of the Dampers is significant. Representative details for this system, and a preliminary cost estimate for the Dampers can be found in **Exhibit C.**

3. Provide special steel moment frames in a large number of locations to attempt to reduce the magnitude of forces in and extent of drag elements. For our estimate, we considered a total of 20 frames in each direction, at each level (40 total per level). The high cost of field erection of these frames was also estimated to be prohibitive, though possibly offset by the reduction in drag demands. A typical frame and connection details are shown in **Exhibit D**.

4. Remove existing non-structural partition walls and replace with concrete shear walls in strategic locations throughout the building. We are estimating a total of 28 walls will be required at each level. A detail representative of a typical shear wall can be found in **Exhibit E**. The walls would likely be fairly heavily reinforced and would be placed using shot-crete techniques.

   Of the four, this option appears to be the most cost effective with regard to the main elements of the LFRS. The detailing associated with drags could, however, make the reduced force aspect of Option 2 more attractive, depending upon the magnitude of the drag forces, available strength of the drag reinforcing used (steel vs. FRP), and comparative cost of the concrete shear walls.

For both option 2 and 3, retrofit required for the foundations is assumed to occur above the existing basement floor to help mitigate costs.

In addition to the change in LFRS, seismic loads would need to be distributed to the new shear walls or braced frames. The existing concrete slabs are not properly detailed to distribute these forces. Options for installing the new drags include;

- Conventionally reinforce the existing slab/joist configuration. This would include some cumbersome detailing in the direction perpendicular to the floor joists.

- To the extent possible with the large loads anticipated, provide Fiber-reinforced plastic sheets and strips epoxied to the top of the existing floor slab.

- For the conventionally reinforced option, the slab will have to be anchored to the walls or braces using steel reinforcing in shear friction, and a combination of directly and indirectly attached epoxy anchors. For the FRP option, the sheets can be folded up the wall and epoxied to the wall for a direct connection without drilling anchors. See **Exhibit F** for representative details of the drag and collector options described, and a preliminary design and estimated budget from Simpson Strong-Tie for FRP drags.

Regardless of the direction changes to the structural elements, **non-structural elements** will need to be properly anchored to the structure as well. A brief description of the retrofit required at these elements follows:

- Dropped ceilings will have to supported for lateral forces at a minimum of 12'oc in each direction. These supports can be as simple as a light gage metal strut screwed to the existing ceiling framing and anchored to the floor joist above with an epoxy anchor or concrete screw anchor (Titen HD).

- All interior masonry walls will need to be anchored at the top and bottom of the wall to resist seismic forces perpendicular to the wall. In most cases we propose to provide steel angles on each side of the wall to hold it in place. The angles will need to be anchored to the slab and floor joists with epoxy or screw anchors.

- The existing exterior walls are mostly unreinforced clay tile masonry with exterior brick and stucco veneer and interior furring and plaster. In order to provide adequate support for seismic forces from the heavy walls, interior wood or metal stud walls will be required. The exterior veneer will need to be anchored through the clay-tile wall to the new stud wall at distances not exceeding 24"oc. Helical anchors drilled through the veneer and clay tile, then attached to the new interior stud wall is the recommended method for anchorage. See **Exhibit G** for a typical detail of the wall anchorage.

- Exterior ornamentation, finials, column capitals, etc. will also require anchorage to the column or wall. Anchors similar to those used for veneer anchorage will be used.

- Parapets at exterior walls must be braced to prevent falling. We propose a braced steel stud wall with wall anchors as described above.

Retrofit Summary:

An itemized summary of proposed retrofit actions:

- Remove existing masonry and clay-tile walls in strategic locations and replace with shot-crete placed concrete shear walls.

- Provide drag reinforcing, in the form of FRP sheets to the top of the floor or reinforced concrete beams to the bottom of the existing floor slabs and joists to distribute seismic forces to the new shear walls.

- Provide anchorage of roof framing members and diaphragms to the existing concrete frames.

- Provide anchorage of all interior and exterior masonry and clay tile walls to the existing concrete frame.

- Provide bracing for all exterior walls, in the form of metal stud walls with helical or similar anchors from the clay-tile or brick to the wall studs.
- Anchor all exterior terra cotta ornamentation to the building, using helical or similar anchors.
- Brace and anchor all parapet walls with light gage stud walls and braces.
- Provide lateral support for all suspended ceilings.

EXHIBIT A

Tier 1 Screening Checklists

Table 17-22. Collapse Prevention Structural Checklist for Building Type C1

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Low Seismicity			
Seismic-Force-Resisting System			
C NC N/A U	REDUNDANCY: The number of lines of moment frames in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.1.1.1
C NC N/A U	COLUMN AXIAL STRESS CHECK: The axial stress caused by unfactored gravity loads in columns subjected to overturning forces because of seismic demands is less than $0.20f'_c$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.4.3.6, is less than $0.30f'_c$.	5.5.2.1.3	A.3.1.4.2
Connections			
C NC N/A U	CONCRETE COLUMNS: All concrete columns are doweled into the foundation with a minimum of four bars.	5.7.3.1	A.5.3.2
Moderate Seismicity (Complete the Following Items in Addition to the Items for Low Seismicity)			
Seismic-Force-Resisting System			
C NC N/A U	REDUNDANCY: The number of bays of moment frames in each line is greater than or equal to 2.	5.5.1.1	A.3.1.1.1
C NC N/A U	INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames are isolated from structural elements.	5.5.2.1.1	A.3.1.2.1
C NC N/A U	COLUMN SHEAR STRESS CHECK: The shear stress in the concrete columns, calculated using the Quick Check procedure of Section 4.4.3.2, is less than the greater of 100 lb/in.^{2} (0.69 MPa) or $2\sqrt{f'_c}$.	5.5.2.1.4	A.3.1.4.1
C NC N/A U	FLAT SLAB FRAMES: The seismic-force-resisting system is not a frame ~~consisting of columns and a flat slab or plate without beams.~~	5.5.2.3.1	A.3.1.4.3
High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)			
Seismic-Force-Resisting System			
C NC N/A U	PRESTRESSED FRAME ELEMENTS: The seismic-force-resisting frames do not include any prestressed or post-tensioned elements where the average prestress exceeds the lesser of 700 lb/in.^{2} (4.83 MPa) or $f'_c/6$ at potential hinge locations. The average prestress is calculated in accordance with the Quick Check procedure of Section 4.4.3.8.	5.5.2.3.2	A.3.1.4.4
C NC N/A U	CAPTIVE COLUMNS: There are no columns at a level with height/depth ratios less than 50% of the nominal height/depth ratio of the typical columns at that level.	5.5.2.3.3	A.3.1.4.5
C NC N/A U	NO SHEAR FAILURES: The shear capacity of frame members is able to develop the moment capacity at the ends of the members.	5.5.2.3.4	A.3.1.4.6
C NC N/A U	STRONG COLUMN—WEAK BEAM: The sum of the moment capacity of the columns is 20% greater than that of the beams at frame joints.	5.5.2.1.5	A.3.1.4.7
C NC N/A U	BEAM BARS: At least two longitudinal top and two longitudinal bottom bars extend continuously throughout the length of each frame beam. At least 25% of the longitudinal bars provided at the joints for either positive or negative moment are continuous throughout the length of the members.	5.5.2.3.5	A.3.1.4.8
C NC N/A U	COLUMN-BAR SPLICES: All column-bar lap splice lengths are greater than $35d_b$ and are enclosed by ties spaced at or less than $8d_b$. Alternatively, column bars are spliced with mechanical couplers with a capacity of at least 1.25 times the nominal yield strength of the spliced bar.	5.5.2.3.6	A.3.1.4.9
C NC N/A U	BEAM-BAR SPLICES: The lap splices or mechanical couplers for longitudinal beam reinforcing are not located within $l_b/4$ of the joints and are not located in the vicinity of potential plastic hinge locations.	5.5.2.3.6	A.3.1.4.10
C NC N/A U	COLUMN-TIE SPACING: Frame columns have ties spaced at or less than $d/4$ throughout their length and at or less than $8d_b$ at all potential plastic hinge locations.	5.5.2.3.7	A.3.1.4.11
C NC N/A U	STIRRUP SPACING: All beams have stirrups spaced at or less than $d/2$ throughout their length. At potential plastic hinge locations, stirrups are spaced at or less than the minimum of $8d_b$ or $d/4$.	5.5.2.3.7	A.3.1.4.12

continues

Table 17-22 *(Continued)*. Collapse Prevention Structural Checklist for Building Type C1

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
C NC N/A U	JOINT TRANSVERSE REINFORCING: Beam–column joints have ties spaced at or less than $8d_b$.	5.5.2.3.8	A.3.1.4.13
C NC N/A U	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components.	5.5.2.5.2	A.3.1.6.2
C NC N/A U	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints.	5.5.2.5.3	A.3.1.6.3
Diaphragms			
C NC N/A U	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints.	5.6.1.1	A.4.1.1
Connections			
C NC N/A U	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps.	5.7.3.5	A.5.3.8

Note: C = Compliant, NC = Noncompliant, N/A = Not Applicable, and U = Unknown.

~~**Table 17-23. Immediate Occupancy Structural Checklist for Building Type C1**~~

Status	Evaluation Statement	Tier 2 Reference	Commentary Reference
Very Low Seismicity			
Seismic-Force-Resisting System			
C NC N/A U	REDUNDANCY: The number of lines of moment frames in each principal direction is greater than or equal to 2. The number of bays of moment frames in each line is greater than or equal to 3.	5.5.1.1	A.3.1.1.1
C NC N/A U	INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames are isolated from structural elements.	5.5.2.1.1	A.3.1.2.1
C NC N/A U	COLUMN SHEAR STRESS CHECK: The shear stress in the concrete columns, calculated using the Quick Check procedure of Section 4.4.3.2, is less than the greater of 100 lb/in.^{2} (0.69 MPa) or $2\sqrt{f'_c}$.	5.5.2.1.4	A.3.1.4.1
C NC N/A U	COLUMN AXIAL STRESS CHECK: The axial stress caused by unfactored gravity loads in columns subjected to overturning demands is less than $0.13f'_c$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.4.3.6, is less than $0.30f'_c$.	5.5.2.1.3	A.3.1.4.2
Connections			
C NC N/A U	CONCRETE COLUMNS: All concrete columns are doweled into the foundation, and the dowels are able to develop the tensile capacity of reinforcement in columns of the seismic-force-resisting system.	5.7.3.1	A.5.3.2
Low and Moderate Seismicity (Complete the Following Items in Addition to the Items for Very Low Seismicity)			
Seismic-Force-Resisting System			
C NC N/A U	FLAT SLAB FRAMES: The seismic-force-resisting system is not a frame consisting of columns and a flat slab or plate without beams.	5.5.2.3.1	A.3.1.4.3
C NC N/A U	PRESTRESSED FRAME ELEMENTS: The seismic-force-resisting frames do not include any prestressed or posttensioned elements where the average prestress exceeds the lesser of 700 lb/in.^{2} (4.83 MPa) or $f'_c/6$ at potential hinge locations. The average prestress is calculated in accordance with the Quick Check procedure of Section 4.4.3.8.	5.5.2.3.2	A.3.1.4.4
C NC N/A U	CAPTIVE COLUMNS: There are no columns at a level with height/depth ratios less than 75% of the nominal height/depth ratio of the typical columns at that level.	5.5.2.3.3	A.3.1.4.5
C NC N/A U	NO SHEAR FAILURES: The shear capacity of frame members is able to develop the moment capacity at the ends of the members.	5.5.2.3.4	A.3.1.4.6

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Table 17-38. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
Life Safety Systems			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13.	13.7.4	A.7.13.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13.	13.7.4	A.7.13.2
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced.	13.7.7	A.7.12.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints.	13.7.6	A.7.14.1
C NC N/A U	**HR—not required; LS—MH; PR—MH.** SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13.	13.7.4	A.7.13.3
C NC N/A U	**HR—not required; LS—not required; PR—LMH.** EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced.	13.7.9	A.7.3.1
Hazardous Materials			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers.	13.7.1	A.7.12.2
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods.	13.8.3	A.7.15.1
C NC N/A U	**HR—MH; LS—MH; PR—MH.** HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release.	13.7.3 13.7.5	A.7.13.4
C NC N/A U	**HR—MH; LS—MH; PR—MH.** SHUTOFF VALVES: Piping containing hazardous material, including natural gas, has shutoff valves or other devices to limit spills or leaks.	13.7.3 13.7.5	A.7.13.3
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings.	13.7.3 13.7.5	A.7.15.4
C NC N/A U	**HR—MH; LS—MH; PR—MH.** PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5 13.7.6	A.7.13.6
Partitions			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft (3.0 m) in Low or Moderate Seismicity, or at most 6 ft (1.8 m) in High Seismicity.	13.6.2	A.7.1.1
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC N/A U	**HR—not required; LS—MH; PR—MH.** DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005.	13.6.2	A.7.1.2
C NC N/A U	**HR—not required; LS—not required; PR—MH.** LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C NC N/A U	**HR—not required; LS—not required; PR—MH.** STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—not required; PR—MH.** TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft (1.8 m).	13.6.2	A.7.1.4
Ceilings			
C NC N/A U	**HR—H; LS—MH; PR—LMH.** SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
C NC N/A U	**HR—not required; LS—MH; PR—LMH.** SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
C NC N/A U	**HR—not required; LS—not required; PR—MH.** INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft (3.6 m) with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression.	13.6.4	A.7.2.2
C NC N/A U	**HR—not required; LS—not required; PR—MH.** EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4
C NC N/A U	**HR—not required; LS—not required; PR—MH.** CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5
C NC N/A U	**HR—not required; LS—not required; PR—H.** EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6
C NC N/A U	**HR—not required; LS—not required; PR—H.** SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft^2 (232.3 m^2) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7
Light Fixtures			
C NC N/A U	**HR—not required; LS—MH; PR—MH.** INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture.	13.6.4 13.7.9	A.7.3.2
C NC N/A U	**HR—not required; LS—not required; PR—H.** PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3
C NC N/A U	**HR—not required; LS—not required; PR—H.** LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4
Cladding and Glazing			
C NC N/A U	**HR—MH; LS—MH; PR—MH.** CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft^2 (0.48 kN/m^2) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft (1.2 m)	13.6.1	A.7.4.1

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—MH; PR—MH.** CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.3
C NC N/A U	**HR—MH; LS—MH; PR—MH.** MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4
C NC N/A U	**HR—not required; LS—MH; PR—MH.** THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9
C NC N/A U	**HR—MH; LS—MH; PR—MH.** PANEL CONNECTIONS: Cladding panels are anchored out of plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5
C NC N/A U	**HR—MH; LS—MH; PR—MH.** BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6
C NC N/A U	**HR—MH; LS—MH; PR—MH.** INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.	13.6.1.4	A.7.4.7
C NC N/A U	**HR—not required; LS—MH; PR—MH.** OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft^2 (1.5 m^2) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5	A.7.4.8
Masonry Veneer			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft^2 (0.25 m^2), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2
C NC N/A U	**HR—not required; LS—MH; PR—MH.** STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1

continues

Table 17-38 *(Continued)*. Nonstructural Checklist

Status	Evaluation Statement[a,b]	Tier 2 Reference	Commentary Reference
C NC N/A U	**HR—not required; LS—MH; PR—MH.** ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1
C NC N/A U	**HR—not required; LS—not required; PR—MH.** WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6
C NC N/A U	**HR—not required; LS—not required; PR—MH.** OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2
Parapets, Cornices, Ornamentation, and Appendages			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thickness ratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft (1.8 m).	13.6.6	A.7.8.2
C NC N/A U	**HR—H; LS—MH; PR—LMH.** CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3
C NC N/A U	**HR—MH; LS—MH; PR—LMH.** APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4
Masonry Chimneys			
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1
C NC N/A U	**HR—LMH; LS—LMH; PR—LMH.** ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2
Stairs			
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out of plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1
C NC N/A U	**HR—not required; LS—LMH; PR—LMH.** STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8	A.7.10.2
Contents and Furnishings			
C NC N/A U	**HR—LMH; LS—MH; PR—MH.** INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1	A.7.11.1

continues

EXHIBIT B

ICC ESR-3408 – CFRP Test Report

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DIVISION: 03 00 00—CONCRETE
SECTION: 03 01 00—MAINTENANCE OF CONCRETE
DIVISION: 04 00 00—MASONRY
SECTION: 04 01 20—MAINTENANCE OF UNIT MASONRY

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY, INC.

5956 WEST LAS POSITAS BOULEVARD
PLEASANTON, CALIFORNIA 94588

EVALUATION SUBJECT:

SIMPSON STRONG-TIE COMPOSITE STRENGTHENING SYSTEMS (CSSs)

ICC-ES Evaluation Report

ESR-3403

Reissued November 2017
Revised January 2018
This report is subject to renewal November 2018.

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DIVISION: 03 00 00—CONCRETE
Section: 03 01 00—Maintenance of Concrete

DIVISION: 04 00 00—MASONRY
Section 04 01 20—Maintenance of Unit Masonry

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY, INC.
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(800) 925-5099
www.strongtie.com

EVALUATION SUBJECT:

SIMPSON STRONG-TIE COMPOSITE STRENGTHENING SYSTEMS (CSSs)

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2018, 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- 1997 *Uniform Building Code™* (UBC)
- For evaluation for compliance with codes adopted by the Los Angeles Department of Building and Safety (LADBS), see ESR-3403 LABC and LARC Supplement.

Properties evaluated:

- Structural
- Durability
- Interior finish
- Toxicity
- Fire resistance

2.0 USES

The Simpson Strong-Tie Composite Strengthening Systems (CSSs) are used to strengthen normalweight reinforced concrete and masonry structural elements as alternatives to those systems described in the IBC and UBC. For structures regulated under the IRC, the Simpson Strong-Tie Composite Strengthening Systems (CSSs) may be used where an engineering design is submitted in accordance with Section R301.1.3 and where approved by the building official in accordance with Section R104.11.

The CSS-CUCF and CSS-CUGF systems are also used as an interior finish.

3.0 DESCRIPTION

3.1 General:

The Composite Strengthening Systems (CSSs) are externally bonded fiber-reinforced polymer (FRP) systems applied to concrete and masonry structural elements. CSSs consist of carbon fabrics or glass fabrics combined with epoxy resin to create the FRP composite systems, or a carbon fiber precured laminate applied with an epoxy paste.

3.2 Materials:

3.2.1 General: All material must conform to the approved specifications outlined in the Simpson Strong-Tie CSS Quality Control Manual, dated June 18, 2015, Revision 0.

3.2.2 CSS Fabrics: The CSS fabrics are composed of carbon or glass fibers. CSS-CUCF11 and CSS-CUCF22 unidirectional carbon fabrics come in either 12-inch x 300-foot (305 mm x 91.4 m) or 24-inch x 150-foot (610 mm x 45.7 m) rolls. CSS-CUCF44 unidirectional carbon fabric comes in either 12-inch x 150-foot (305 mm x 45.7 m) or 24-inch x 75-foot (610 mm x 22.9 m) rolls. CSS-CUGF27 unidirectional glass fabric comes in 25-inch or 50-inch x 150-foot (635 mm or 1,270 mm x 100 m) rolls. CSS-CBGF424 bidirectional glass fabric comes in 25-inch or 50-inch x 302-foot (635 mm or 1,270 mm x 92 m) rolls. Material properties vary with fiber type designation.

3.2.3 CSS-ES Epoxy Saturant: The CSS-ES epoxy saturant and primer is a two-component, ambient cure, epoxy resin system used to prime substrates and saturate CSS fabrics. It is available in 3 gallon (11.4 L) kits. Component A is packaged with 2 gallons (7.6 L) in a 5-gallon (18.9 L) bucket to allow enough room for mixing full kits of epoxy. Component B is packaged in 1 gallon (3.8 L) containers. Mixing ratio is two-to-one for components A and B, respectively.

3.2.4 CSS-CUCL Precured Laminates: The CSS-CUCL unidirectional carbon laminates are comprised of carbon fibers, precured in an epoxy resin. CSS precured laminates come in 0.047 inch (1.2 mm), 0.055 inch (1.4 mm) and 0.110 inch (2.8mm) thicknesses and various widths ranging from 0.39 inch to 5.90 inches (10 mm to 150 mm), and a standard length of 492 feet (150 m).

3.2.5 CSS-EP Epoxy Paste: The CSS-EP epoxy paste is a two-component, epoxy paste system used to fill and transition irregular substrates and adhere CSS-CUCL precured laminates. CSS-EP is available in 3-gallon (11.4 L) kits. Components A and B are packaged in 1-gallon (3.8 L) containers and entire kits are packaged in one carton. Mixing ratio is two-to-one for components A and B, respectively.

3.2.6 CSS Composites:

3.2.6.1 CSS-CUCF Composites: In the primary direction (0°), the carbon fiber composites have a minimum ultimate tensile strength of 128,000 psi (880 MPa), a minimum tensile modulus of 14,200 ksi (97 MPa) and a corresponding elongation of 0.9 percent. Cured composites have a thickness of 0.02 inch (0.5 mm), 0.04 inch (1 mm) and 0.08 inch (2 mm) for CSS-CUCF11, CSS-CUCF22 and CSS-CUCF44, respectively.

3.2.6.2 CSS-CUGF Composite: In the primary direction (0°), the glass-fiber composite has a minimum ultimate tensile strength of 56,000 psi (386 MPa), a minimum tensile modulus of 3,300 ksi (22 MPa) and a corresponding elongation of 1.7 percent. Cured composite has the minimum thickness of 0.05-inch (1.3 mm.)

3.2.6.3 CSS-CBGF Composite: In both directions (±45° from the roll length), the glass fiber composite has a minimum ultimate tensile strength of 40,000 psi (275 MPa), a minimum tensile modulus of 2,900 ksi (20 MPa) and a corresponding elongation of 1.4 percent. Cured composite has the minimum thickness of 0.034 inch (0.86 mm.).

3.2.6.4 CSS-CUCL Laminate Composite: In the primary direction, the precured laminate has a minimum ultimate tensile strength of 181,000 psi (1,250 MPa), a minimum tensile modulus of 23,600 ksi (163 MPa) and a corresponding elongation of 0.77 percent. The thickness of the precured laminate is 0.047 inch (1.2 mm), 0.055 inch (1.4 mm) and 0.110 inch (2.8mm).

3.2.7 FX-207 Finish Coating: The Simpson Strong-Tie proprietary FX-207 finish coating is a two-component, polymer-modified cementitious coating. Component A comes in a 1-gallon (3.8 L) container and Component B comes in a 40-pound (18 kg) bag. Pot life is 30 minutes.

3.2.8 GCP Z-106 HY Finish Coating: The GCP Applied Technologies Monokote Z-106 HY finish coating is a Portland cement based cementitious fireproofing coating. This product is available in 49 lb (22.2 kg) bags.

3.2.9 Firebond Concentrate Primer: The Firebond Concentrate Primer is a bonding agent used to bond GCP Applied Technologies Monokote Z-106 HY to the substrate or installed composite. This primer is available in either 5 gal (19 L) or 55 gal (208.2 L) containers.

3.2.10 Storage Recommendations: Epoxies, coating, fabrics and precured laminates should be stored in temperatures between 45°F and 95°F (7°C and 35°C) with no exposure to moisture. Shelf life is one year for coating, two years for epoxies and ten years for fabrics and precured laminates.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 General: Design of the Composite Strengthening Systems must be based on required tensile loads at designated concrete strain values. The strength design requirements for concrete and masonry must be in accordance with Chapters 19 and 21 of the IBC or UBC, respectfully, and all applicable requirements in Section 4.1 of this evaluation report. The registered design professional must be responsible for determining, through analysis, the strengths and demands of the structural elements to be strengthened with CSS composites, subject to the approval of the building official.

4.1.2 Composite Design Properties: Composite structural design properties are found in the CSS Design Manual, dated July 24, 2017.

4.1.3 Design Details: Structural design provisions for the composite system are based on test results and principles of structural analysis as set forth in Section 1604.4 of the IBC and Section 1605 of the UBC. Bases of design include strain compatibility, load equilibrium and limit states. All designs must follow procedures as detailed in the IBC or UBC; in the ICC-ES Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber-reinforced Polymer (FRP) Composite Systems (AC125), dated August 2014 (editorially revised November 2017); and applicable procedures detailed in the CSS Design Manual.

4.1.4 Design Strength: Design strengths must be taken as the nominal strength, computed in accordance with Section 4.1.3 of this report, multiplied by strength reduction factors provided in Section 21.2 of ACI 318-14 (2018 and 2015 IBC), Section 9.3 of ACI 318-11 (2012 IBC) or ACI 318-08 (2009 IBC) or ACI 318-05 (2006 IBC), or Chapter 19 of the UBC, and modified by AC125, as applicable (for concrete), and Chapter 21 of the IBC (TMS 402) or Chapter 19 or Section 2108 of the UBC (for unreinforced masonry), as applicable.

4.1.5 Load Combinations: The load combinations used in design must comply with Section 1605.2 of the IBC or Section 1612.2 of the UBC, as applicable. Strength reduction factors must comply with Chapter 19 (ACI 318) or Chapter 21 (TMS 402 of the IBC or Chapter 19 or Section 2108 of the UBC), as applicable.

4.1.6 Columns:

4.1.6.1 Potential Applications: CSS-CUCF, CSS-CUGF and CSS-CBGF Composite Strengthening Systems are applied to circular or rectangular columns to enhance their axial strengths for gravity loads only.

4.1.6.2 Structural Design Requirements: Concrete column design must comply with the CSS Design Manual and with Chapter 19 of the IBC or UBC.

4.1.7 Beams and Slabs:

4.1.7.1 Potential Applications: CSS-CUCF and CSS-CUCL Composite Strengthening Systems are applied to beams and slabs to enhance their flexural strength for gravity and wind-load resistance only. The CSS-CUCF Composite System applied to beams is also used to enhance their shear strengths for gravity load or wind load resistance only.

4.1.7.2 Structural Design Requirements: Concrete beam design must comply with the CSS Design Manual and with Chapter 19 of the IBC or UBC.

4.1.8 Walls:

4.1.8.1 Potential Applications: CSS-CUCF and CSS-CUCL Composite Strengthening Systems are applied to reinforced concrete walls to enhance their out-of-plane flexural strengths. CSS-CUGF Composite Strengthening Systems are applied to reinforced masonry walls to enhance their out-of-plane flexural strengths; and unreinforced masonry walls to enhance their in-plane shear strengths. Out-of-plane strengthening of concrete walls with CSS-CUCF and CUCL is limited to single layer application with a maximum concrete compressive strength of 3,000 psi (21 MPa), all other conditions are outside the scope of this report. Out-of-plane masonry wall strengthening with CSS-GUGF is limited to single layer application and maximum 1,500 psi (10 MPa) masonry compressive strength, all other conditions are outside the scope of this report.

4.1.8.2 Structural Design Requirements: Concrete design must comply with the CSS Design Manual and Chapter 19 of the IBC or UBC, as applicable. Masonry design must comply with the CSS Design Manual and Chapter 21 of the IBC or UBC, as applicable.

4.1.9 Wall-to-Floor joints:

4.1.9.1 Potential Applications: CBGF Composite Strengthening Systems are applied to concrete wall-to-floor joints to enhance their shear strength.

4.1.9.2 Structural Design Requirements: Concrete design must comply with the CSS Design Manual and Chapter 19 of the IBC or UBC, as applicable.

4.1.10 Bond Strength: Where the performance of the CSS composite systems defined in this report depends on bond, the bond strength of CSS Composite material to concrete must not be less than 200 psi (1378 kPa). Bond testing must exhibit failure in the concrete substrate. Testing in accordance with ASTM D7234 or D7522 may be used to estimate the bond strength of bond-critical installations.

4.2 Installation:

Simpson Strong-Tie CSS Composite Strengthening Systems installations must be performed by approved applicators specific to this composite system. Installation recommendations are detailed in the approved applicator training program and Section 2.0 of the Quality Control Manual dated June 18, 2015, Revision 0.

4.2.1 Saturation: CSS fabrics and saturating epoxy of the CSS Composites are combined in accordance with published literature and applicator training program using a calibrated mechanical saturator or manual saturation methods. CSS precured laminates come to the site in precured form ready to apply to substrate once cut to required length and cleaned.

4.2.2 Application: Manual methods must be used to apply saturated CSS Composite fabrics to the substrate prior to epoxy cure. Surface preparation, fiber orientation and removal of bubbles/voids must be done in accordance with published literature and approved applicator training program. For precured laminates, CSS-EP paste must be applied to the laminate with paste thickness of approximately 3 mm ($^1/_8$ in.).

4.2.3 Finishing: Composite Strengthening Systems are typically painted or coated for aesthetic, fire-resistance or environmental durability considerations.

4.2.3.1 Health Effects Coating: The CSS-ES epoxy saturant and CSS-EP are formulated for potable water contact and comply with ANSI/NSF 61 requirements, as referenced by Section 605 of the *International Plumbing Code* (IPC). CSS-ES epoxy saturant must be applied over the CSS composites to a maximum thickness of 10 wet mills (0.025 mm). CSS-EP epoxy paste must be applied over the installed CSS precured laminates to a maximum thickness of 40 wet mils (0.1 mm). All surfaces must be clean, dry and free of contaminants. Final cure is 72 hours at 70°F (21°C).

4.2.3.2 Flame Spread / Smoke Developed:

CSS-CUCF and CSS-CUGF composite systems coated with FX-207 finish coating yields a Class 1 and Class A flame-spread classification and smoke-developed classification in compliance with the UBC and IBC. The CSS-CUCF composite is limited to a maximum thickness of 0.8-inch (20 mm) of carbon fabric (maximum 10 layers of CSS-CUCF44, 20 layers of CSS-CUCF22 and 30 layers of CSS-CUCF11). The CSS-CUGF composite is limited to a maximum thickness of 0.3-inch (7.8 mm) of glass fabric (maximum 6 layers of CSS-CUGF27). Coating must be applied minimum 40 mils at a rate of 0.4 lbs/ft^2 (2 kg/m^2).

4.3 Fire-resistance rating:

4.3.1 Roller or Spray-applied Fire-resistant Material: The use of FX-207 finish coating provides up to a four-hour fire-resistance rating in accordance with ASTM E119 when loaded up to 72 percent of ultimate design load for the following structural systems. The two-component coating is applied over the composite system and concrete in accordance with Simpson Strong-Tie installation instructions. The FX-207 coating must be applied to concrete T-beams with the following properties: 12-inch (305 mm) wide web thickness, 10-inch (254 mm) deep web depth, 6-inch (152 mm) flange thickness, 48-inch (1219 mm) flange width, a 28-day concrete compressive strength between 3,500 psi (24 MPa) and 5,000 psi (34 MPa), reinforced with 2 No. 5 bottom longitudinal reinforcing steel in the web, flange short direction transverse reinforcement is No.3 at 6-inch o/c top and bottom, top longitudinal reinforcement is No. 3 at 6-inch o/c, and stirrup reinforcement No. 3 at 6-inch o/c with minimum 1.75 inch (44 mm) cover depth between reinforcement and concrete surface. The concrete surface to receive fabric must be primed with CSS-ES. CSS-CUCF and CSS-CUGF fabrics must be saturated with CSS-ES. The saturated CSS-CUCF fabric must be applied to the bottom of the web and the saturated CSS-CUGF fabric must be applied to the web at the ends of the T-beam in a U-wrap configuration. FX-207 coating is applied over the lightly sanded installed fabrics and CSS-ES coated concrete at an application rate of 0.4 lbs/ft^2 (2 kg/m^2). Other assembly configurations are beyond the scope of this report.

4.3.2 Spray-applied Fire-resistant Material: The use of GCP Applied Technologies system provides up to a four-hour fire-resistance rating in accordance with ASTM E119 when loaded up to 72 percent of ultimate design load for the following structural systems. The coating system is applied over the composite system and concrete in accordance with Simpson Strong-Tie installation instructions. The coating system must be applied to concrete T-beams with the following properties: 12-inch (305 mm) wide web thickness, 10-inch (254 mm) deep web depth, 6-inch (152 mm) flange thickness, 48-inch (1219 mm) flange width, a 28-day concrete compressive strength between 3,500 psi (24 MPa) and 5,000 psi (34 MPa), reinforced with 2 No. 5 bottom longitudinal reinforcing steel in the web, flange short direction transverse reinforcement No. 3 at 6-inch o/c top and bottom, top longitudinal reinforcement No. 3 at 6-inch o/c, and stirrup reinforcement No. 3 at 6-inch o/c with minimum 1.75 inch (44 mm) cover depth between reinforcement and concrete surface. The concrete surface to receive fabric must be primed with CSS-ES. CSS-CUCF and CSS-CUGF fabrics must be saturated with CSS-ES. The saturated CSS-CUCF fabric must be applied to the bottom of the web and the saturated CSS-CUGF fabric must be applied to the web at the ends of the T-beam in a U-wrap configuration. The coating system is applied over the lightly sanded installed fabrics and CSS-ES coated concrete by first priming the prepared surfaces with Firebond Concentrate Primer and then spray-applying the GCP Z-106 HY material at a minimum average thickness of

½-inch (13 mm) and a minimum average dry density of 23 lbs/ft^3 (368 kg/m^3). Other assembly configurations are beyond the scope of this report.

4.4 Special Inspection:

Special inspection during the installation of the system must be in accordance with the ICC-ES Acceptance Criteria for Inspection and Verification of Concrete and Unreinforced Masonry Strengthening Using Fiber-reinforced Polymer (FRP) Composite Systems (AC178), dated October 2017 (editorially revised December 2017). A statement of special inspection must be prepared in accordance with Sections 1704.3 of the 2018, 2015, and 2012 IBC or Section 1705 of the 2009 IBC and 2006 IBC. Inspection must also comply with Sections 1704 and 1705 of the 2018, 2015, and 2012 IBC, Section 1704 through 1707 of the 2009 and 2006 IBC, or Section 1701 of the UBC.

5.0 CONDITIONS OF USE

The Simpson Strong-Tie Composite Strengthening Systems (CSSs) described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Design and installation of the structural systems recognized in this report must be in accordance with this report, the CSS Quality Control Manual dated June 18, 2015, the CSS Design Manual dated July 24, 2017, and the IBC, IRC or UBC, as applicable.

5.2 Copies of the Simpson Strong-Tie Composite Strengthening Systems installation instructions and the CSS Design Manual must be submitted to the code official for each project where these products are used.

5.3 Complete construction documents, including plans and calculations verifying compliance with this report, must be submitted to the code official for each project at the time of permit application. The construction documents must be prepared and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.4 Fire-resistance rating of the CSS composite strengthening systems must be in accordance with Section 4.3 of this report.

5.5 Special Inspection for application of the Composite Strengthening Systems products must be provided in accordance with Section 4.4 of this report.

5.6 Application of the Composite Strengthening Systems products to concrete at a fabricator's facility must be by an approved fabricator complying with Chapter 17 of the IBC or UBC, or at a jobsite with continuous special inspections in accordance with Chapter 17 of the IBC or UBC and Section 4.4 of this report.

5.7 Multi-layer applications and lap splices of CSS-CUCL precured laminates are outside the scope of this report. Composite Strengthening Systems (CSSs) must be manufactured by Simpson Strong-Tie Company, Inc. under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening using Externally Bonded Fiber-Reinforced Polymer (FRP) Composite Systems (AC125), dated August 2014 (editorially revised November 2017), including alkali-soil resistance, fuel-resistance and drinking water exposure tests.

7.0 IDENTIFICATION

The components of the Simpson Strong-Tie Composite Strengthening Systems (CSSs) (fabric, epoxy saturant, precured laminate and epoxy paste) described in this report are identified with a label indicating the name and address of the manufacturer (Simpson Strong-Tie), the product name, expiration date and the number of the ICC-ES evaluation report (ESR-3403).

The proprietary FX-207 finish coating is labeled with manufacturer's name (Simpson Strong-Tie) and address, the product name, and expiration date.

ICC-ES Evaluation Report

ESR-3403 LABC and LARC Supplement

Issued December 2017

This report is subject to renewal November 2018.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

DIVISION: 03 00 00—CONCRETE
Section: 03 01 00 –Maintenance of Concrete

DIVISION: 04 00 00—MASONRY
Section: 04 01 20—Maintenance of Unit Masonry

REPORT HOLDER:

SIMPSON STRONG-TIE COMPANY, INC.
5956 WEST LAS POSITAS BOULEVARD
PLEASANTON, CALIFORNIA 94588
(800) 925-5099
www.strongtie.com

EVALUATION SUBJECT:

SIMPSON STRONG-TIE COMPOSITE STRENGTHENING SYSTEMS (CSSs)

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Simpson Strong-Tie Composite Strengthening Systems (CSSs), described in ICC-ES master evaluation report ESR-3403, have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

Applicable code editions:

- 2017 *City of Los Angeles Building Code* (LABC)
- 2017 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The Simpson Strong-Tie Composite Strengthening Systems (CSSs), described in Sections 2.0 through 7.0 of the master evaluation report ESR-3403, comply with the LABC Chapters 19 and 21, and the LARC, and are subjected to the conditions of use described in this supplement.

3.0 CONDITIONS OF USE

The Simpson Strong-Tie Composite Strengthening Systems (CSSs), described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the master evaluation report ESR-3403.
- The design, installation, conditions of use and identification of the composite strengthening systems are in accordance with the 2015 *International Building Code®* (2015 IBC) provisions noted in the master evaluation report ESR-3403.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Use of the Simpson Strong-Tie Composite Strengthening Systems for strengthening unreinforced masonry structures must be in accordance with Chapter A1 of the 2017 City of Los Angeles Existing Building Code.
- The Simpson Strong-Tie Composite Strengthening Systems must not be used as compressive reinforcement for strengthening concrete or masonry structure.
- Use of the Simpson Strong-Tie Composite Strengthening Systems to strengthen concrete coupling beams or concrete wall piers is outside the scope of this supplement.

- The Simpson Strong-Tie Composite Strengthening Systems may be used on exterior side of exterior walls without additional weather protection. However, the site-specific exposure conditions must be evaluated by the registered design professional for each application.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the master report, reissued November 2017 and revised January 2018.

EXHIBIT C

Fluid Viscous Damper Data, Details,
and budgetary Cost Estimate

taylor devices, inc.

90 TAYLOR DRIVE
P.O. BOX 748
NORTH TONAWANDA, NY 14120-0748

Telephone: 716-694-0800
Fax: 716-695-6015

Proposal No: 0836318
Reference: 5 Story Concrete Bldg

SPRING SHOKS — TIME DELAY SHOKS — DASHPOTS — SPRINGS — ACTUATORS — ACCUMULATORS

USING LIQUID COMPRESSIBILITY — A NEW ENERGY SOURCE

Proposed to: **Visser Engineering**
32001 32nd Avenue South
Federal Way, WA 98001

Initiated by: **Bob Schneider / Craig Winters**
Seismic Products Sales Managers

Approved by: **Alan R. Klembczyk**
President

Attention: **Bryan Stanton**
Senior Engineer

For information on this Proposal, contact Applications Engineer and reference the Proposal Number

DATE	QUOTATION FIRM	F.O.B.	SALES OFFICE	TERMS
8/14/18	FOR 30 DAYS	Jobsite	North Tonawanda, NY	Progress Payments

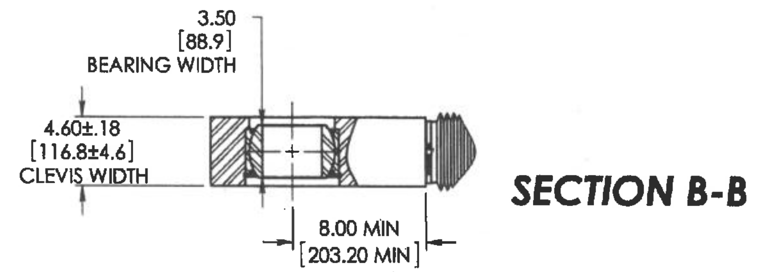
Item	Quantity	Description	Unit Price
1	32 Pcs.	110 kip Fluid Viscous Damper with +/- 4 inch stroke Damper to have a spherical bearing at one end and flange plate at opposite end. Reference Part Number: 67DP-17130-01-1	$ 3,800.00 Each
2	32 Pcs.	350 kip Fluid Viscous Damper with +/- 4 inch stroke Damper to have a spherical bearing at one end and flange plate at opposite end. Reference Part Number: 67DP-17160-01-1	$ 8,600.00 Each
3	32 Pcs.	450 kip Fluid Viscous Damper with +/- 4 inch stroke Damper to have a spherical bearing at one end and flange plate at opposite end. Reference Part Number: 67DP-17174-01-1	$ 10,800.00 Each
4	64 Pcs.	675 kip Fluid Viscous Damper with +/- 4 inch stroke Damper to have a spherical bearing at one end and flange plate at opposite end. Reference Part Number: 67DP-17184-01-1	$ 16,000.00 Each

Notes:

1. **Payment Terms**:
   25% deposit due with order placement
   25% due when machining parts begins (4-6 weeks after NTP)
   50% due when units are shipped from NY
2. Price includes 1 standard stainless steel mounting pin with retainers pins for each damper.
3. Price includes testing each damper with 150% hydrostatic proof pressure test and peak velocity test to verify force within +/- 15%.
4. Price includes shipping costs to the jobsite in WA.
5. Price **Does Not include** installation, field measurements, brackets/mounting plates, storage, sales tax, or bond cost.

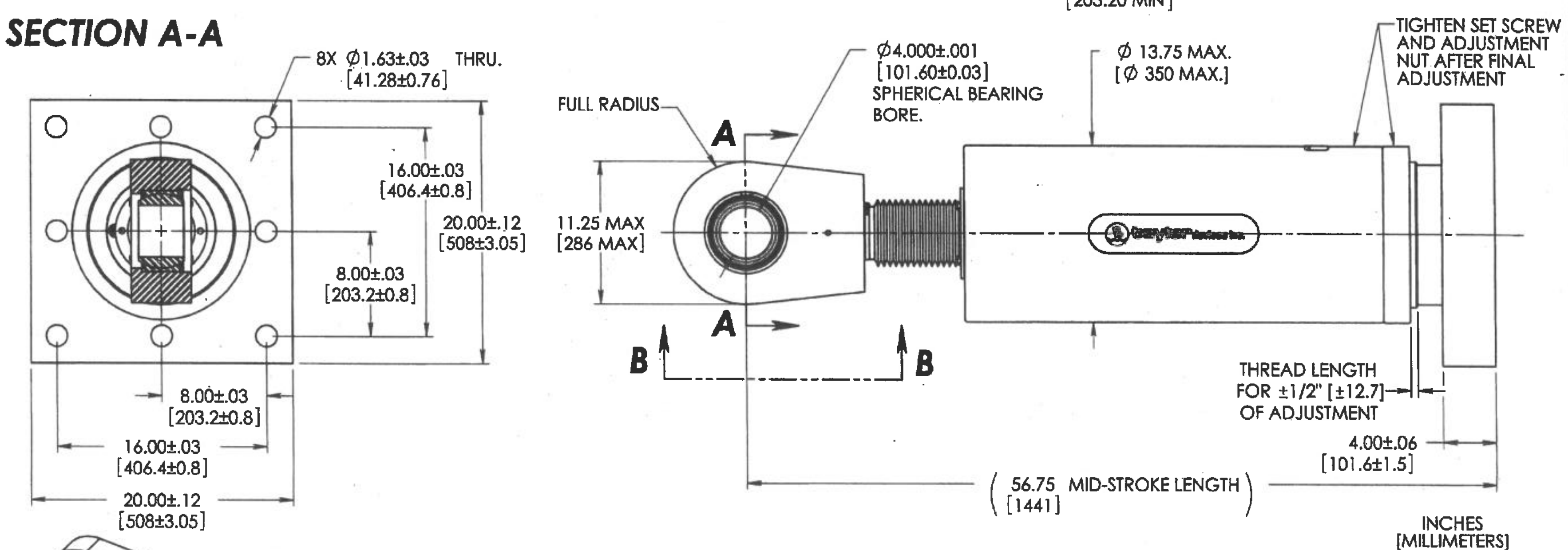
SPECIFICATIONS:
1.) UNIT TYPE: DOUBLE ACTING FLUID VISCOUS DAMPER OR LOCK-UP DEVICE.
2.) ALL PARTS THAT SLIDE RELATIVE TO ANY SEALS SHALL BE MADE FROM 17-4PH STAINLESS STEEL.
3.) APPROXIMATE WEIGHT OF THE UNIT = 1775 LBS. [805 KG.]
4.) UNITS TO BE CONSTRUCTED FROM CORROSION PROTECTED MATERIALS.
5.) OPERATING FLUID IS INERT SILICONE, PER U.S.-FEDERAL STANDARD VV-D-1078.
6.) OPERATING AMBIENT TEMPERATURE RANGE: 32°F TO 120°F [0° TO 49°C] WITH MINIMAL CHANGE IN PERFORMANCE CHARACTERISTICS.
7.) DAMPER STROKE ±5" [±125 mm] WITH IDENTICAL CHARACTERISTICS IN EITHER DIRECTION OF MOTION.
8.) DAMPING FORCE = 715 KIP. [325 MT].
9.) NOMINAL OUTPUT FUNCTION: $F=CV^{\alpha}$
C=TBD α=TBD

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

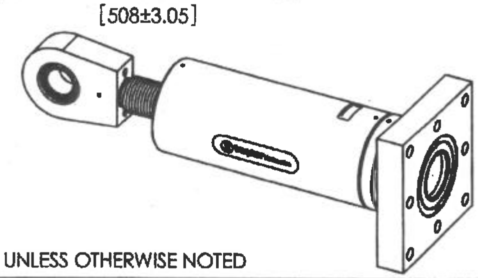


SECTION B-B

SECTION A-A



INCHES
[MILLIMETERS]



NOTES: UNLESS OTHERWISE NOTED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES. ANGLES ±2°
.XX ±.01 .XXX ±.002
.XXXX ±.0002 X/X ±1/16
ALL CORNERS & EDGES TO BE R .01-.02
√ MAX. ALL SURFACES
ALL DIMENSIONS PRIOR TO COATINGS

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FORM 5E

STOCK SIZE (REF):
Ø

PREPARED	K.VARNEY	11/5/16
CHECKED		
Q.A.		
MFG APPR.		
ENGINEER	JCM	14/11/10
APPROVED	JCM	14/11/10
MATERIAL:		

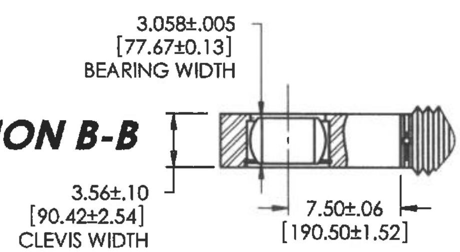
taylor devices inc.
NORTH TONAWANDA, NY
PHONE 716-694-0800
FAX 716-695-6015

715 KIP [325 MT] FLUID VISCOUS DAMPER/ LOCK-UP DEVICE

SIZE	CAGE CODE	DRAWING NO:	REV.
B	06742	67DP-17180-01-3	
SCALE: 1:8	WEIGHT: 1741.80LB.	SHEET 1 OF 1	

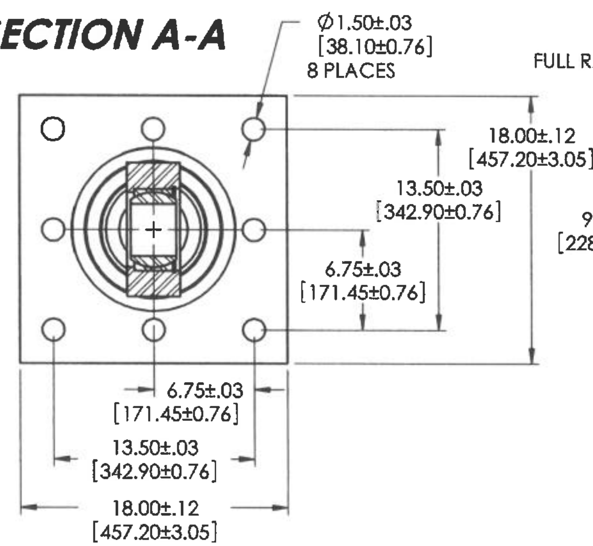
SPECIFICATIONS:
1.) UNIT TYPE: DOUBLE ACTING FLUID VISCOUS DAMPER OR LOCK-UP DEVICE.
2.) ALL PARTS THAT SLIDE RELATIVE TO ANY SEALS SHALL BE MADE FROM 17-4PH STAINLESS STEEL.
3.) APPROXIMATE WEIGHT OF THE UNIT = 1110 LBS. [503 KG.]
4.) UNITS TO BE CONSTRUCTED FROM CORROSION PROTECTED MATERIALS.
5.) OPERATING FLUID IS INERT SILICONE, PER U.S.-FEDERAL STANDARD VV-D-1078.
6.) OPERATING AMBIENT TEMPERATURE RANGE: 32°F TO 120°F [0° TO 49°C] WITH MINIMAL CHANGE IN PERFORMANCE CHARACTERISTICS.
7.) DAMPER STROKE ±5" [±125 mm] WITH IDENTICAL CHARACTERISTICS IN EITHER DIRECTION OF MOTION.
8.) DAMPING FORCE = 440 KIP. [200 MT].
9.) NOMINAL OUTPUT FUNCTION: $F=CV^{\alpha}$
C=TBD α=TBD

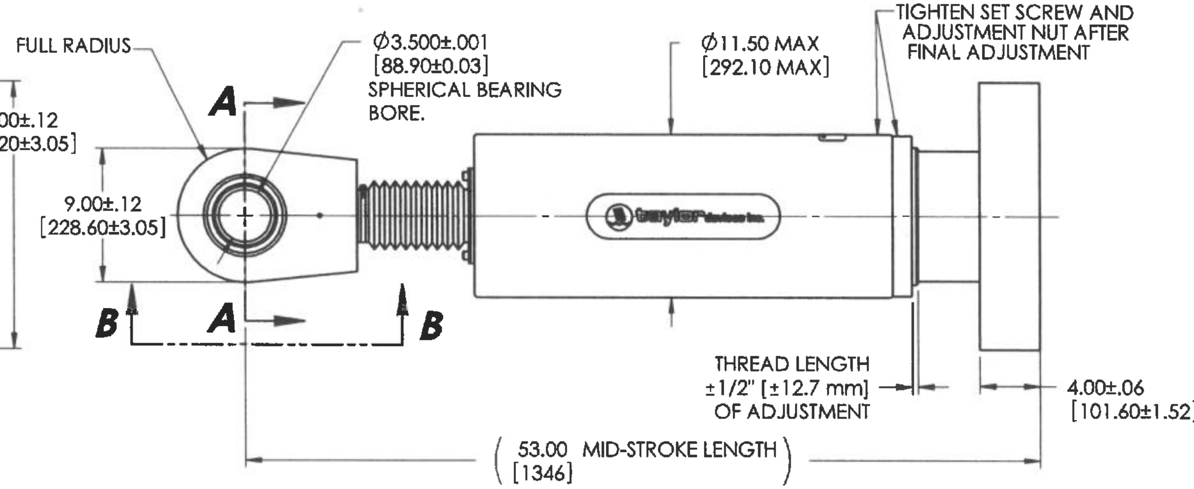
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

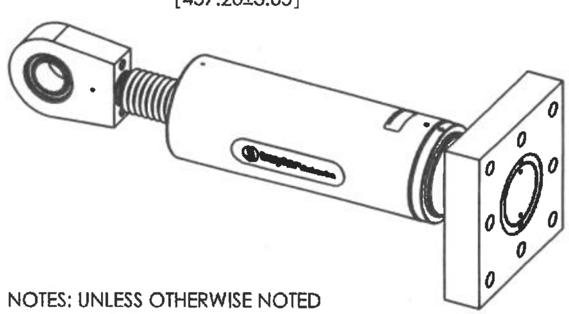


SECTION B-B

SECTION A-A







NOTES: UNLESS OTHERWISE NOTED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES, ANGLES ±2°
.XX ±.01 .XXX ±.002
.XXXX ±.0002 X/X ±1/16
ALL CORNERS & EDGES TO BE R .01-.02
MAX. ALL SURFACES
ALL DIMENSIONS PRIOR TO COATINGS

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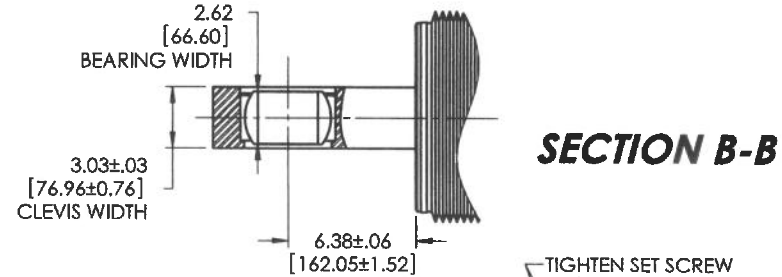
PREPARED	K.VARNEY	13/11/21
CHECKED		
Q.A.		
MFG APPR.		
ENGINEER	JCM	14/11/10
APPROVED	JCM	14/11/10
MATERIAL:		

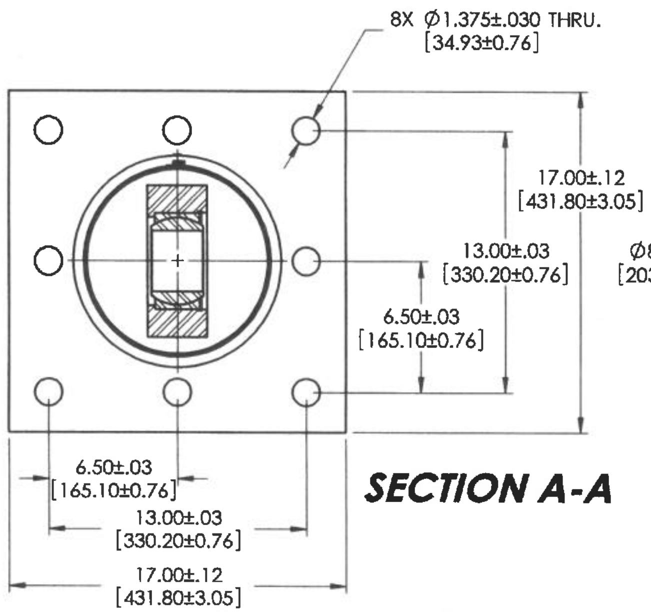
taylor devices inc.
NORTH TONAWANDA, NY
PHONE 716-694-0800
FAX 716-695-6015

440 KIP [200 MT] FLUID VISCOUS DAMPER/ LOCK-UP DEVICE

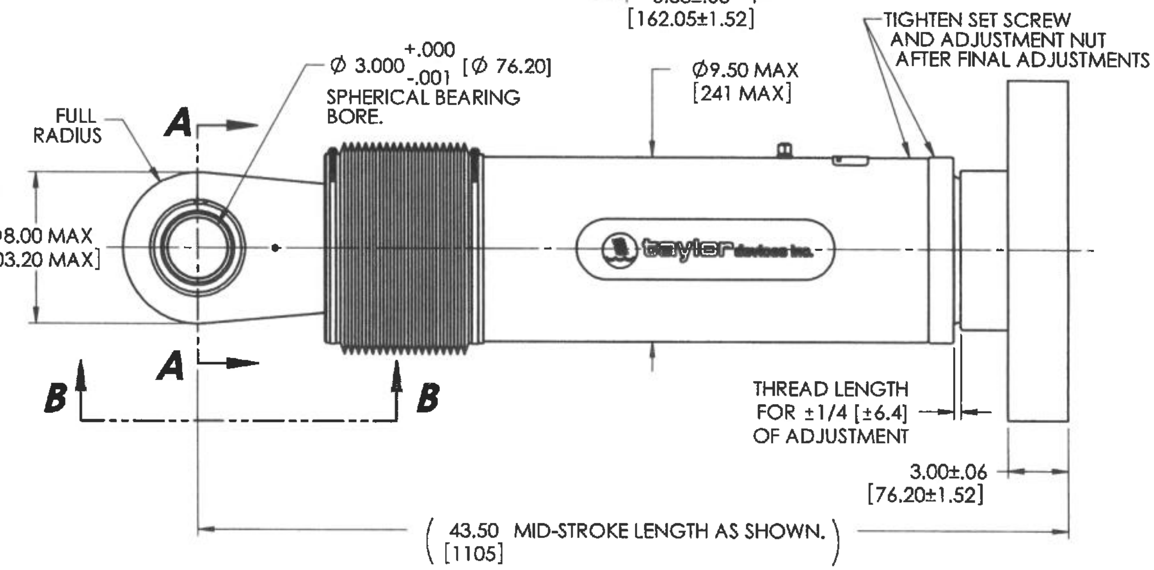
SIZE	CAGE CODE	DRAWING NO:	REV.
B	06742	67DP-17170-01-3	
SCALE: 1:8	WEIGHT:	SHEET 1 OF 1	

SPECIFICATIONS:
1.) UNIT TYPE: DOUBLE ACTING FLUID VISCOUS DAMPER OR LOCK-UP DEVICE.
2.) ALL PARTS THAT SLIDE RELATIVE TO ANY SEALS SHALL BE MADE FROM 17-4PH STAINLESS STEEL.
3.) APPROXIMATE WEIGHT OF THE UNIT = 675 LBS. [306 KG.]
4.) UNITS TO BE CONSTRUCTED FROM CORROSION PROTECTED MATERIALS.
5.) OPERATING FLUID IS INERT SILICONE, PER U.S.-FEDERAL STANDARD VV-D-1078.
6.) OPERATING AMBIENT TEMPERATURE RANGE: 32°F TO 120°F [0° TO 49°C] WITH MINIMAL CHANGE IN PERFORMANCE CHARACTERISTICS.
7.) DAMPER STROKE ±4" [±100 mm] WITH IDENTICAL CHARACTERISTICS IN EITHER DIRECTION OF MOTION.
8.) DAMPING FORCE = 330 KIP. [150 MT].
9.) NOMINAL OUTPUT FUNCTION: $F=CV^{\alpha}$
C=TBD α=TBD

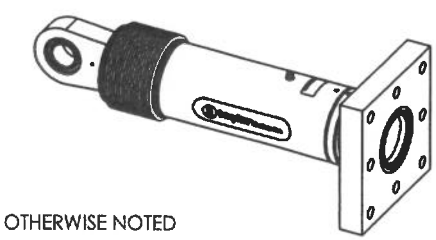




SECTION A-A



INCHES
[MILLIMETERS]



NOTES: UNLESS OTHERWISE NOTED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES, ANGLES ±2°
.XX ±.01 .XXX ±.002
.XXXX ±.0002 X/X ±1/16
ALL CORNERS & EDGES TO BE R .01-.02
√ MAX. ALL SURFACES

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STOCK SIZE (REF): Ø

PREPARED	K.VARNEY	13/11/20
CHECKED		
Q.A.		
MFG APPR.		
ENGINEER	JCM	14/11/10
APPROVED	JCM	14/11/10
MATERIAL:		

taylor devices inc.
NORTH TONAWANDA, NY
PHONE 716-694-0800
FAX 716-695-6015

330 KIP [150 MT] FLUID VISCOUS DAMPER/ LOCK-UP DEVICE

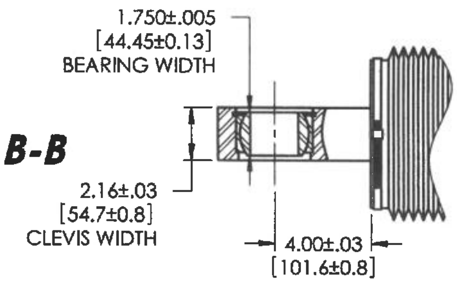
SIZE	CAGE CODE	DRAWING NO:	REV.
B	06742	67DP-17160-01-3	
SCALE: 1:6	WEIGHT:	SHEET 1 OF 1	

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

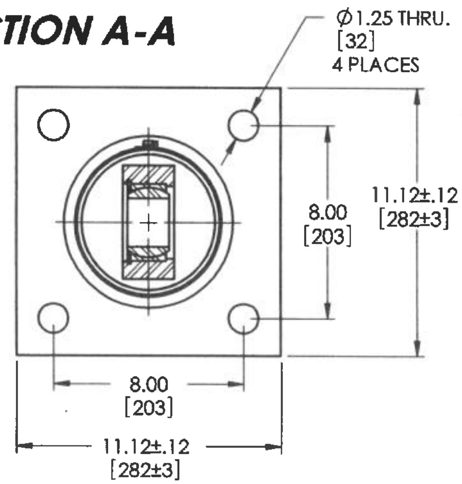
SPECIFICATIONS:
1.) UNIT TYPE: DOUBLE ACTING FLUID VISCOUS DAMPER OR LOCK-UP DEVICE.
2.) ALL PARTS THAT SLIDE RELATIVE TO ANY SEALS SHALL BE MADE FROM 17-4PH STAINLESS STEEL.
3.) APPROXIMATE WEIGHT OF THE UNIT = 215 LBS. [98 KG.]
4.) UNITS TO BE CONSTRUCTED FROM CORROSION PROTECTED MATERIALS.
5.) OPERATING FLUID IS INERT SILICONE, PER U.S.-FEDERAL STANDARD VV-D-1078.
6.) OPERATING AMBIENT TEMPERATURE RANGE: 32°F TO 120°F [0° TO 49°C] WITH MINIMAL CHANGE IN PERFORMANCE CHARACTERISTICS.
7.) DAMPER STROKE ±4" [±100 mm] WITH IDENTICAL CHARACTERISTICS IN EITHER DIRECTION OF MOTION.
8.) DAMPING FORCE = 110 KIP. [50 MT].
9.) NOMINAL OUTPUT FUNCTION: $F=CV^{\alpha}$
C=TBD α=TBD

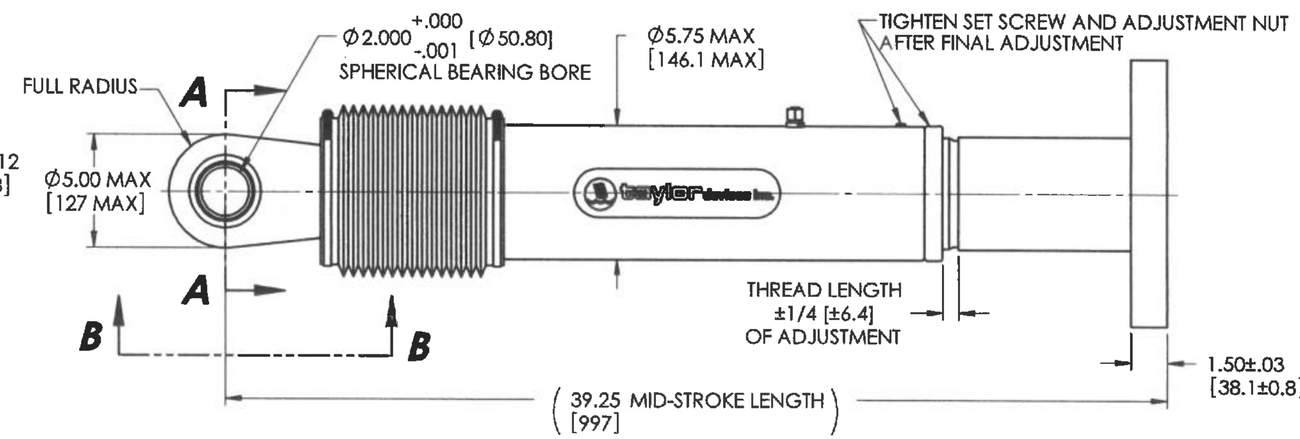
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED

SECTION B-B

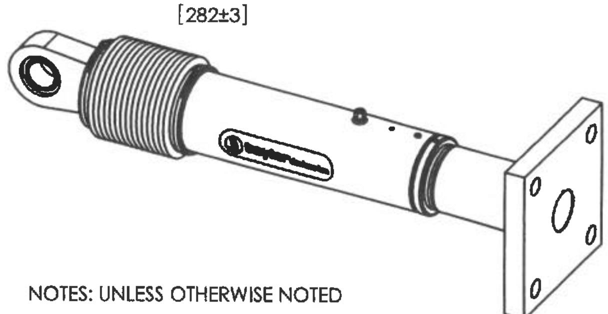


SECTION A-A





INCHES
[MILLIMETERS]



NOTES: UNLESS OTHERWISE NOTED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES, ANGLES ±2°
.XX ±.01 .XXX ±.002
.XXXX ±.0002 X/X ±1/16
ALL CORNERS & EDGES TO BE R .01-.02
MAX. ALL SURFACES

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PREPARED	K.VARNEY	13/11/8
CHECKED		
Q.A.		
MFG APPR.		
ENGINEER	JCM	14/11/10
APPROVED	JCM	14/11/10
MATERIAL:		

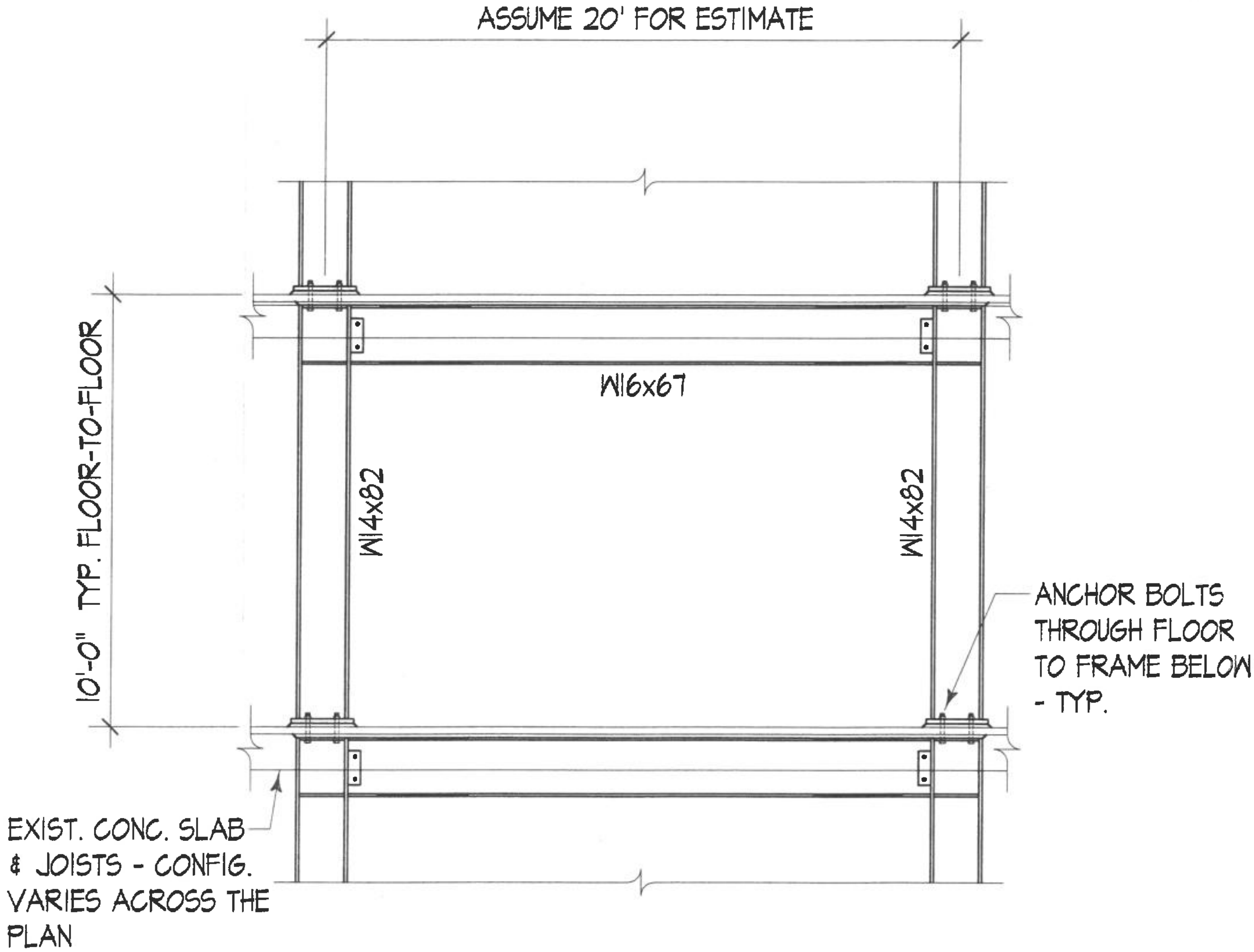
taylor devices inc.
NORTH TONAWANDA, NY
PHONE 716-694-0800
FAX 716-695-6015

110 KIP [50 MT] FLUID VISCOUS DAMPER/ LOCK-UP DEVICE

SIZE	CAGE CODE	DRAWING NO:	REV.
B	06742	67DP-17130-01-3	
SCALE: 1:5	WEIGHT:	SHEET 1 OF 1	

EXHIBIT D

Typical Special Steel Moment Frame Details

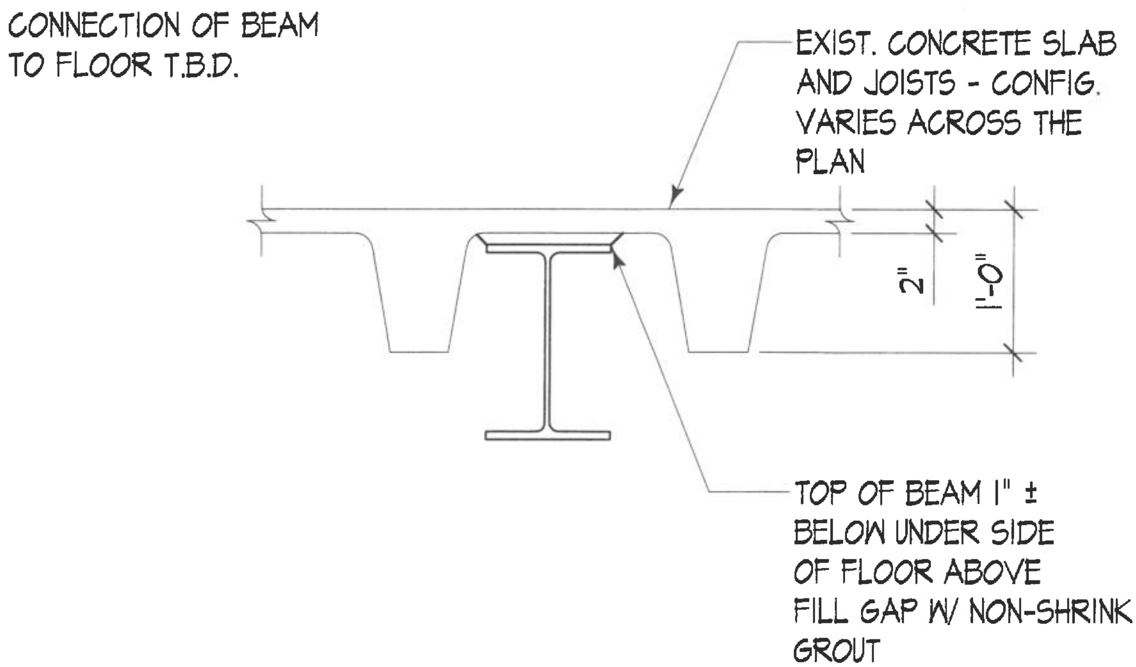


Typical Special Steel Moment Frame
(200) REQUIRED

VISSER ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001
VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: TYP. STEEL MOMENT FRAME	**SCALE:** ¼"=1'-0"
PROJECT: LANDMARK ON THE SOUND DES MOINES, WA	
CLIENT: URBAN STORAGE SEATTLE, WA	
ENGINEER: BTS **CAD:** BTS	**PROJ. NO.:** 18-031
ISSUE DATE: 8-16-18	**SHEET:** 1 of 5



Typical Steel Moment Frame at Existing Floor Slab

VISSER
ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001
VOICE: (253) 835-0810
FAX: (253) 835-0813

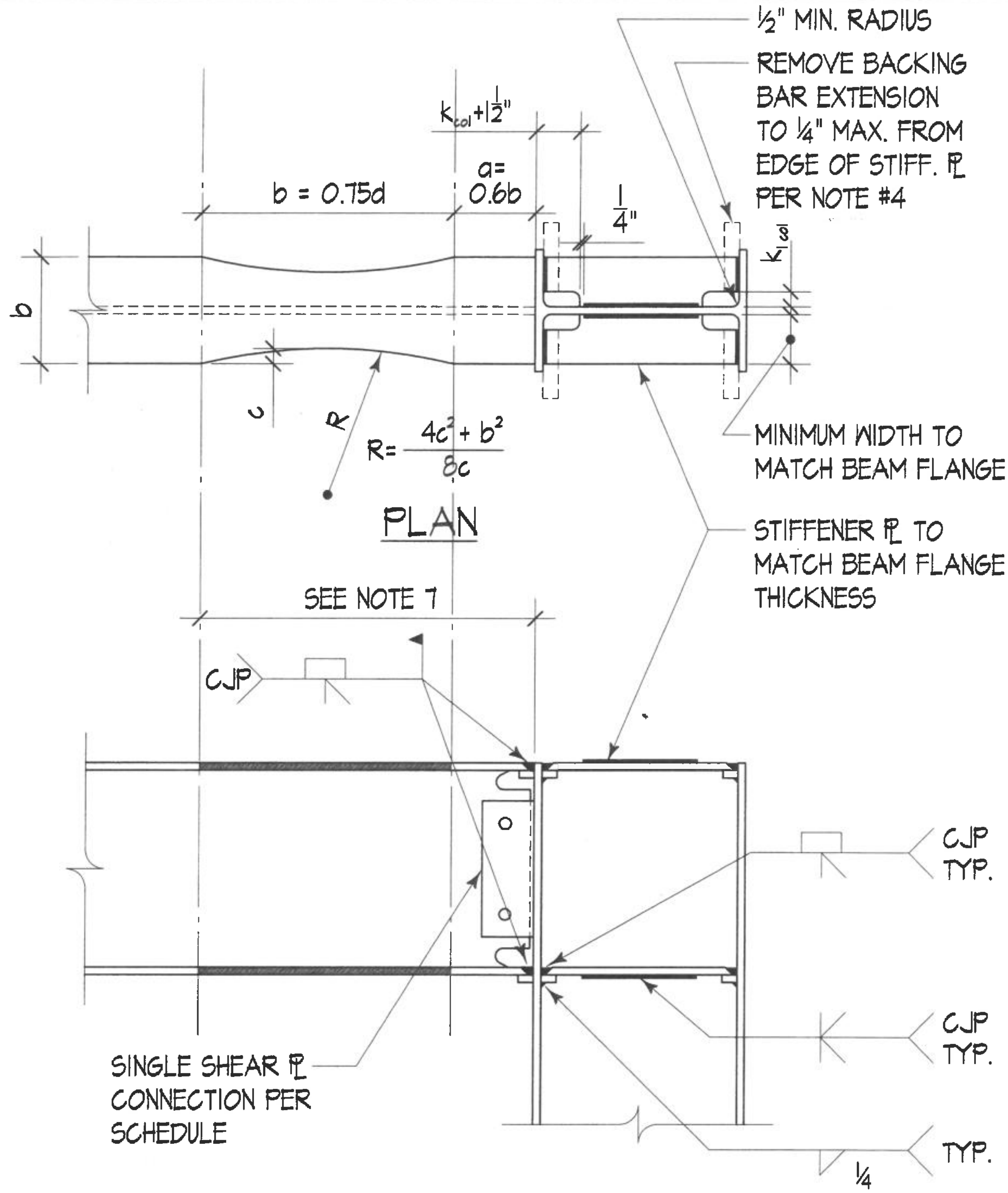
TITLE: STEEL FRAME TO FLOOR **SCALE:** 3/4"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-16-18 **SHEET:** 2 of 5



RBS Girder to Column Connection (SMRF)

VISSER ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: TYP. RBS BEAM TO COLUMN **SCALE:** ¾"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-16-18 **SHEET:** 3 of 5

NOTES

1. BACKING BARS USED IN WELDED JOINTS SHALL BE IN ACCORDANCE WITH AWS D1.1, SECTION 5.10. ALL TACK WELDS ATTACHING BACKING BARS TO THE STEEL PRIOR TO THE WELDING OF THE JOINT SHALL BE MADE WITHIN THE JOINT.

2. FOR CJP GROOVE WELDS AT BEAM TOP FLANGE TO COLUMN, EITHER REMOVE WELD BACKING, BACKGOUGE, AND ADD 5/16" MINIMUM FILLET WELD, OR LEAVE BACKING IN PLACE AND ADD 5/16" MINIMUM FILLET WELD UNDER BACKING. AT BEAM BOTTOM FLANGE TO COLUMN, REMOVE BACKING , BACKGOUGE, AND ADD 5/16" MINIMUM FILLET WELD.

3. BACKING BARS REMOVAL MAY BE PERFORMED BY AIR CARBON ARC CUTTING, GRINDING, CHIPPING, OR THERMAL CUTTING. THE PROCESS SHALL BE CONTROLLED TO MINIMIZE GOUGING AND REMOVAL OF BASE METAL EXCEPT FOR MATERIAL IMMEDIATELY ADJACENT TO THE WELD. AFTER REMOVAL, THE ROOT PASS SHALL BE BACK GOUGED TO SOUND WELD METAL AND BACK WELDED WITH A 5/16" FILLET.

4. THE EXTENSION OF BACKING BARS USED IN WELDED JOINTS SHALL BE IN ACCORDANCE WITH AWS D1.1, SECTION 5.31. THE EXTENSION SHALL EXTEND BEYOND THE EDGE OF THE JOINT BY THE THICKNESS OF THE WELDED PART BUT NOT LESS THAN ONE INCH AND BE ORIENTED PARALLEL TO THE JOINT AND THE WELD DIRECTION. WELD DAMS ARE NOT ALLOWED. EXTENSIONS SHALL BE REMOVED FROM EACH END OF BOTH THE TOP AND BOTTOM BEAM FLANGES.

5. FOR EXTERIOR BEAM-COLUMN CONNECTIONS (BEAM ONE SIDE ONLY), WELDING OF STIFFENER PLATES TO COLUMN FLANGE AT FREE SIDE MAY BE FILLET WELDS AT TOP AND BOTTOM FACE OF PLATE.

6. SEE CHAPTER J OF THE AISC SEISMIC PROVISIONS FOR RECOMMENDED SPECIFICATIONS AND QUALITY ASSURANCE GUIDELINES.

7. SEE ANSI/AISC 358 SECTION 5 FOR HOLES AND ATTACHMENT LIMITATIONS, FABRICATION TOLERANCES INCLUDING CUTTING METHODS, SURFACES ROUGHNESS, CUT TOLERANCES AND REPAIR OF GOUGES AND NOTCHES OCCURRING IN THE THERMAL CUT AREA OF THE RBS.

NOTES: RBS Girder to Column Connection (SMRF)

VISSER ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

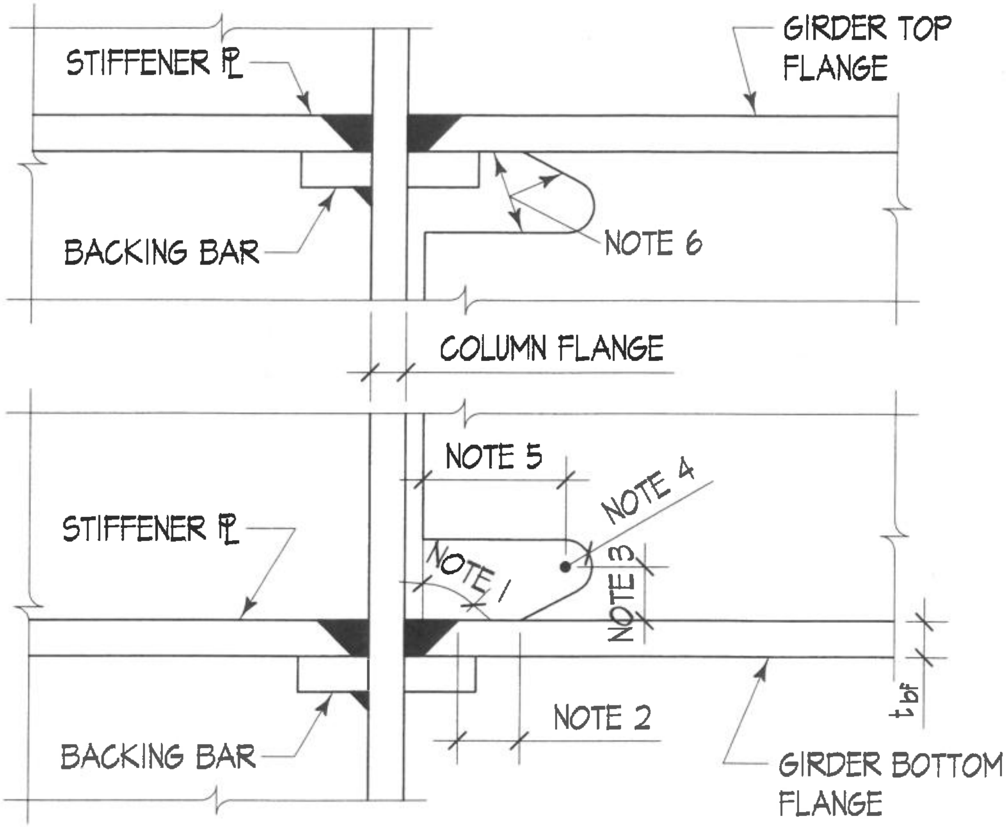
TITLE: RBS BEAM TO COLUMN NOTES **SCALE:** 3/4"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-16-18 **SHEET:** 4 of 5



NOTES

1. BEVEL AS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.
2. LARGER OF t_{bf} OR ½ INCH. (PLUS ½ t_{bf}, OR MINUS ¼ t_{bf})
3. ¾ t_{bf} TO t_{bf}, ¾" MINIMUM (± ¼ INCH)
4. ⅜" MINIMUM RADIUS (PLUS NOT LIMITED, OR MINUS 0)
5. 3 t_{bf}. (± ½ INCH)
6. WELD ACCESS HOLES SHALL MEET THE REQUIREMENTS OF AISC SPECIFICATIONS AND AWS D1.1-98, SECTION 5.17.1. THE ACCESS HOLES MUST BE GROUND SMOOTH TO A SURFACE ROUGHNESS VALUE NOT TO EXCEED 500 MICRO INCHES, BE FREE OF NOTCHES AND GOUGES AND INSPECTED FOR CRACKS BY AN APPROVED METHOD. SEE FEMA-353 FOR RECOMMENDED SPECIFICATIONS AND QUALITY ASSURANCE GUIDELINES AND FOR FABRICATION DETAILS INCLUDING CUTTING METHODS.

Access Hole & Backing Bar Requirements

VISSER ENGINEERING

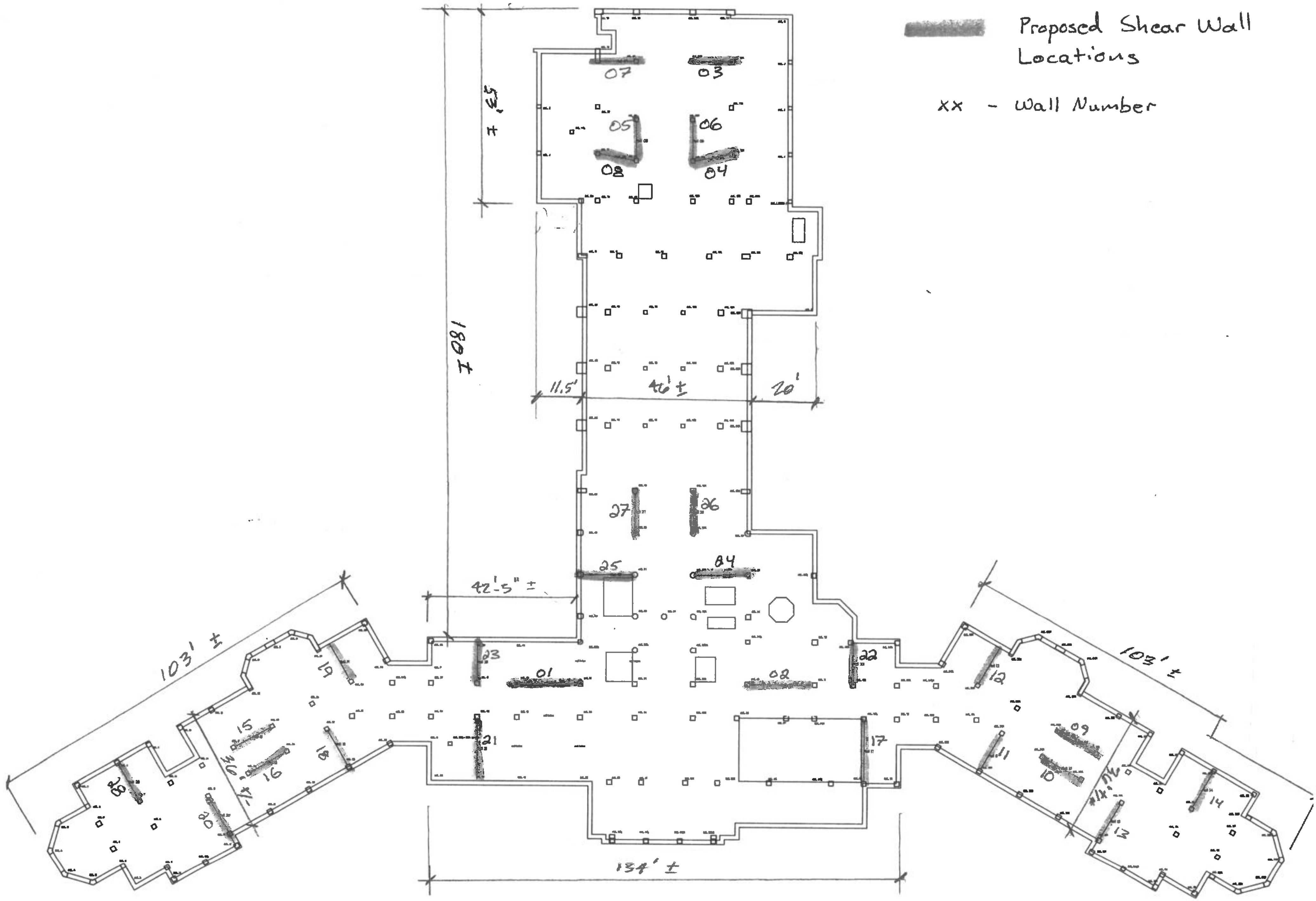
32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: CONNECTION DETAILS	SCALE: ¾"=1'-0"
PROJECT: LANDMARK ON THE SOUND, DES MOINES, WA	
CLIENT: URBAN STORAGE, SEATTLE, WA	
ENGINEER: BTS	CAD: BTS
PROJ. NO.: 18-031	
ISSUE DATE: 8-16-18	SHEET: 5 of 5

EXHIBIT E

Reinforced Concrete Shear Walls
Proposed locations and typical details



Proposed Shear Wall Locations
XX - Wall Number
53' ±
180 ±
11.5'
46' ±
20'
42'-5" ±
103' ±
103' ±
36' +/-
36' +/-
134' ±
01
02
03
04
05
06
07
08
09
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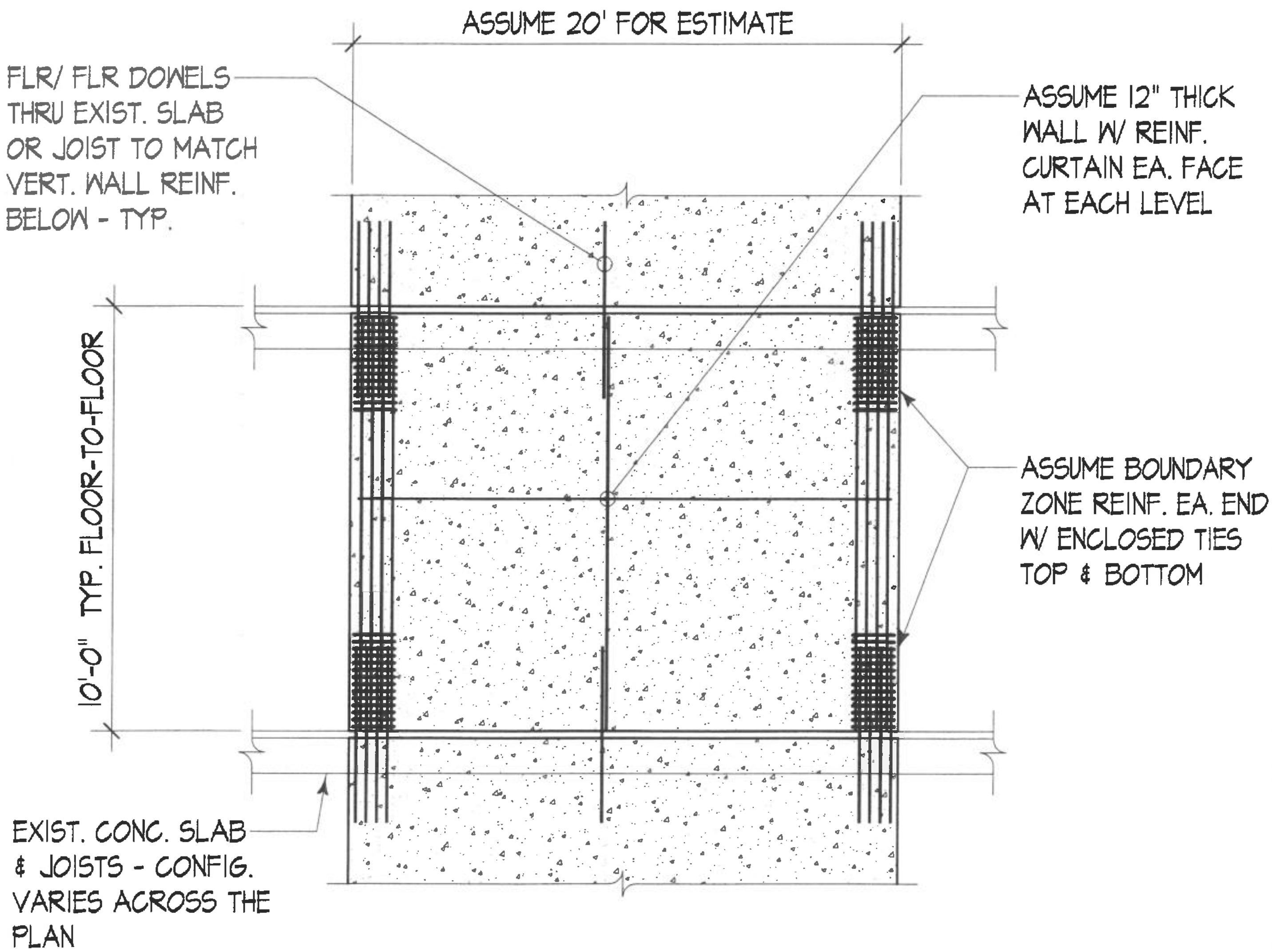
28



Typical Concrete Shear Wall - Elevation
(140) REQUIRED

VISSER
ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001
VOICE: (253) 835-0810
FAX: (253) 835-0813

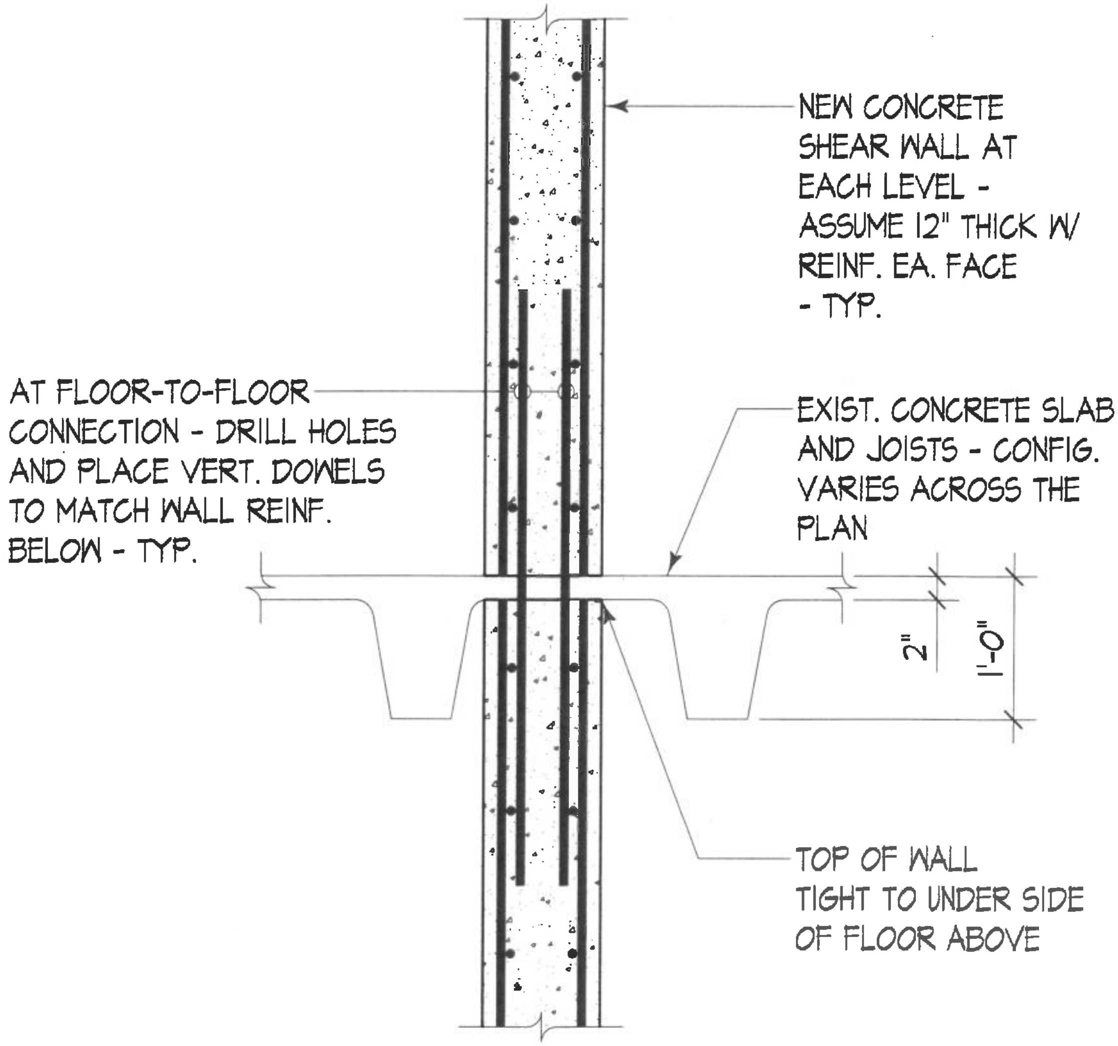
TITLE: TYPICAL RETROFIT SHEAR WALL **SCALE:** 1/4"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-16-18 **SHEET:** 1 of 2



Typical Concrete Shear Wall at Existing Floor Slab

VISSER ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: CONC. SHEAR WALL TO FLOOR **SCALE:** 3/4"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

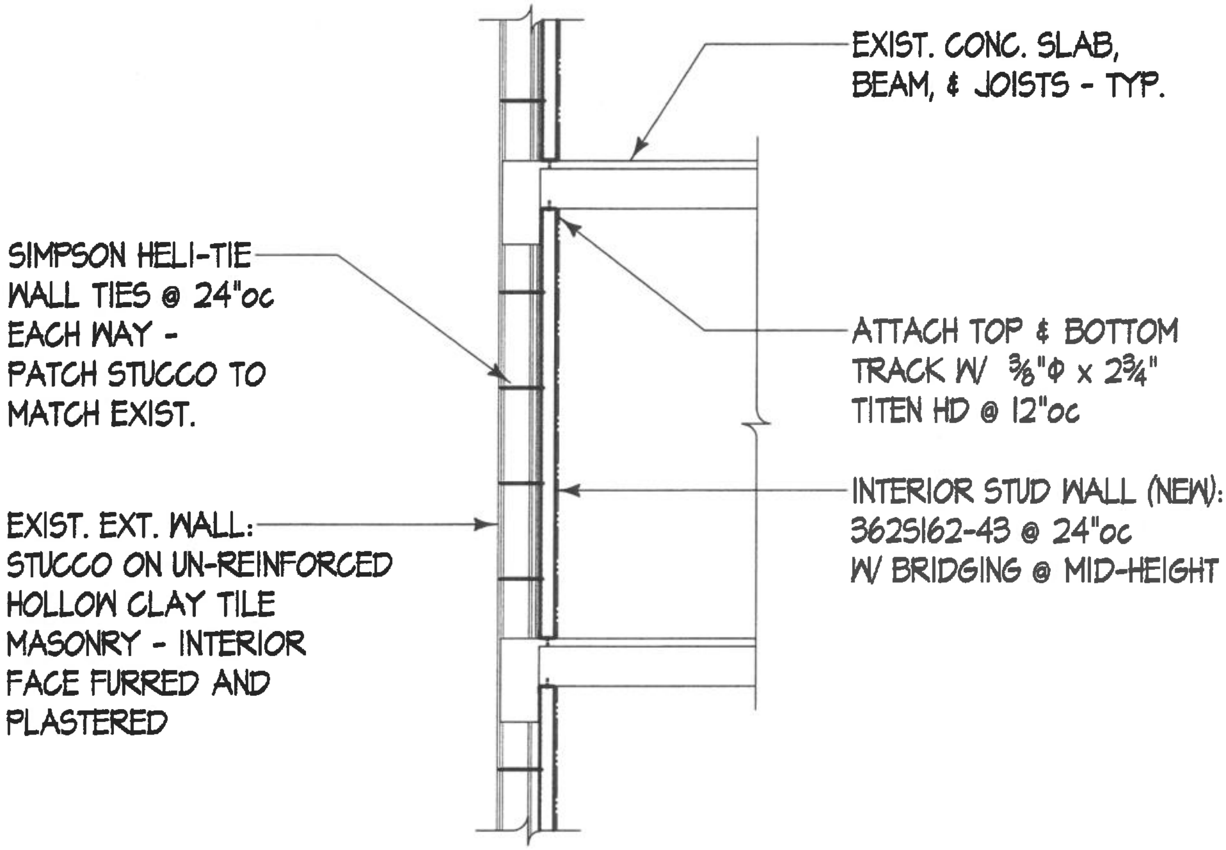
CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-16-18 **SHEET:** 2 of 2

EXHIBIT G

Exterior Wall Anchorage
Materials and Details



Typical Exterior Wall Bracing Detail

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ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: TYP. EXT. WALL BRACING		**SCALE:** ¼"=1'-0"	
PROJECT: LANDMARK ON THE SOUND			
DES MOINES, WA			
CLIENT: URBAN STORAGE			
SEATTLE, WA			
ENGINEER: BTS	**CAD:** BTS	**PROJ. NO.:**	18-031
ISSUE DATE: 8-22-18		**SHEET:**	1 of 1

SIMPSON Strong-Tie®

Heli-Tie™ Helical Wall Tie

DRAFT

The Heli-Tie helical wall tie is a stainless-steel tie used to anchor building façades to structural members or to stabilize brick walls.

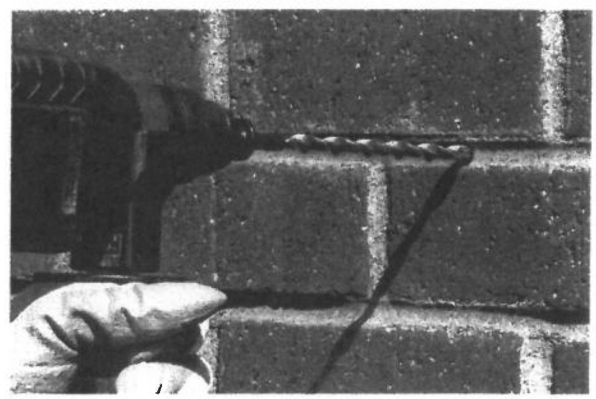
The helical design allows the tie to be driven quickly and easily into a predrilled pilot hole (or embedded into mortar joints in new construction) to provide a mechanical connection between a masonry façade and its backup material. As it is driven, the fins of the tie undercut the masonry to provide an expansion-free anchorage that will withstand tension and compression loads.

The Heli-Tie wall tie is installed into a predrilled hole using a proprietary setting tool with an SDS-PLUS shank rotohammer to drive and countersink the tie. Heli-Tie wall ties perform in concrete and masonry as well as wood and steel studs.

Features

Heli-Tie Helical Wall Tie
U.S. Patent 7,269,987

- Installs quickly and easily — with the rotohammer in hammer mode, the tie installs faster than competitive products.
- Provides an inconspicuous repair that preserves the appearance of the building. After installation, the tie is countersunk up to ½" below the surface, allowing the tie location to be patched.
- Larger core diameter provides higher torsional capacity, resulting in less deflection due to "uncoiling" under load.
- Fractionally sized anchor — no metric drill bits required.
- Patented manufacturing process results in a more uniform helix along the entire tie, allowing easier driving and better interlock with the substrate.



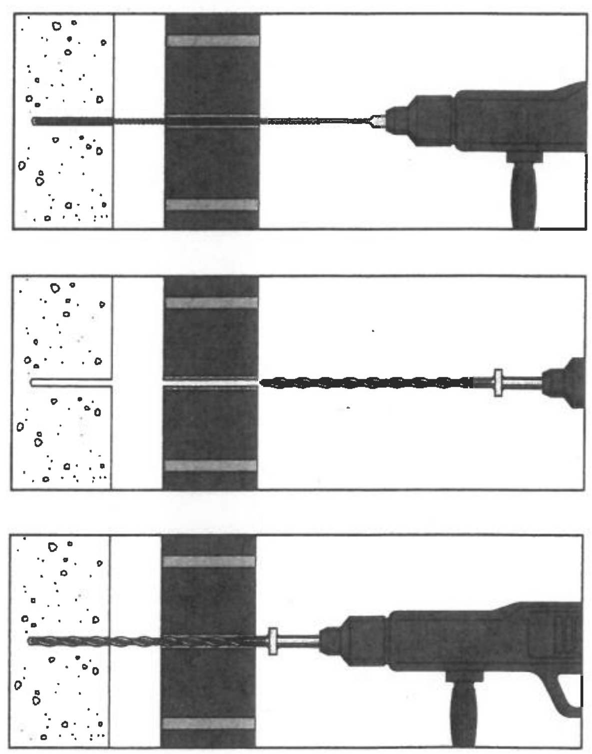
Material: Type 304 stainless steel (Type 316 available by special order — contact Simpson Strong-Tie for details)

Test Criteria: CSA A370

Installation

- Drill pilot hole through the façade material and into the backup material to the specified embedment depth + 1" using appropriate drill bit(s) in the chart below. Drill should be in rotation-only mode when drilling into soft masonry or into hollow backing material.
- Position blue end of the Heli-Tie fastener in the installation tool and insert the tie into the pilot hole.
- With the SDS-plus® rotohammer in hammer mode, drive the tie until the tip of the installation tool enters the exterior surface of the masonry and countersinks the tie below the surface. Patch the hole in the façade with a matching masonry mortar.

Installation Sequence



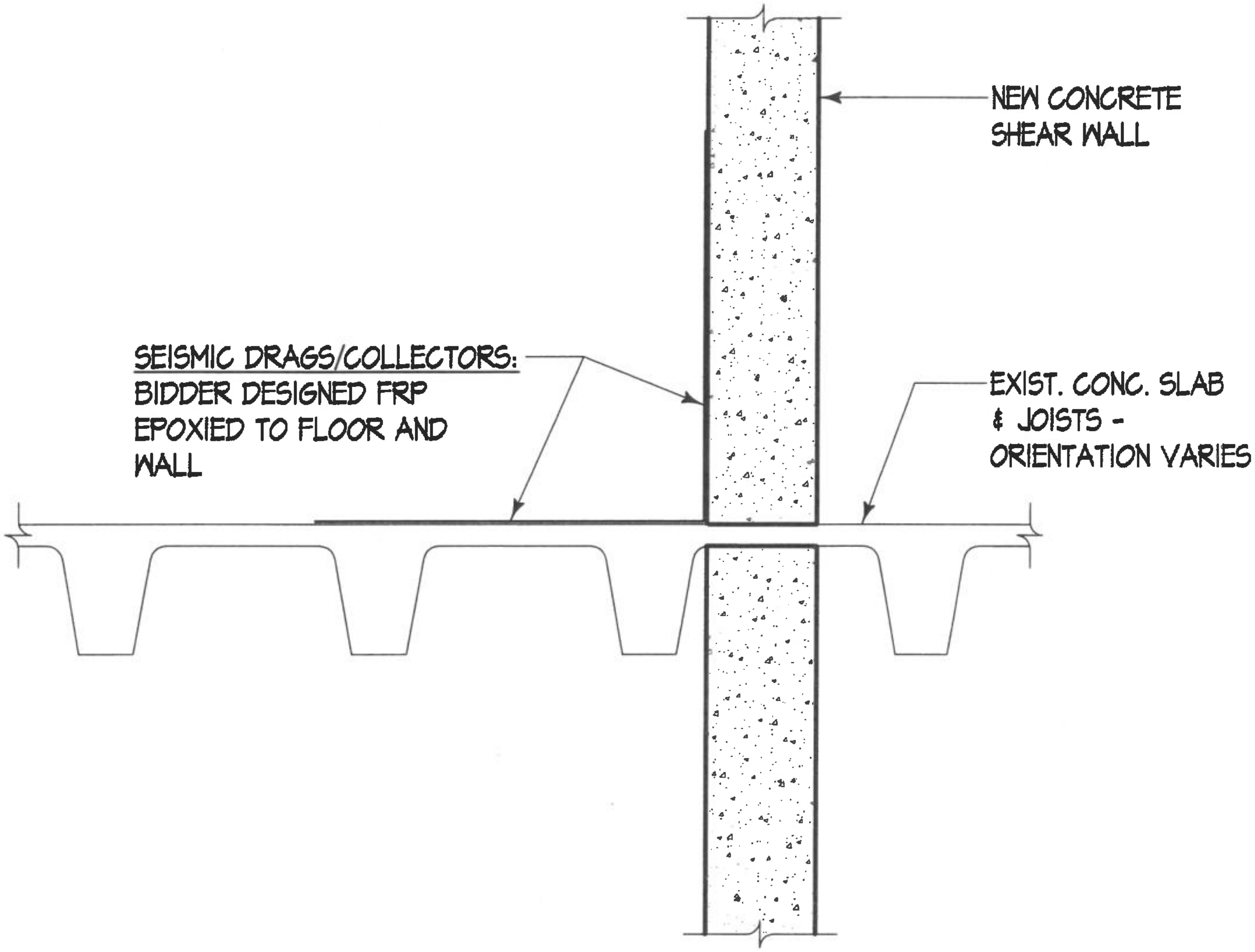
Heli-Tie Helical Wall Tie Product Data

Size (in.)	Model No.	Drill Bit Diameter (in.)	Quantity	
			Box	Carton
⅜ x 7	HELI37700A		50	400
⅜ x 8	HELI37800A		50	400
⅜ x 9	HELI37900A		50	400
⅜ x 10	HELI371000A		50	200
⅜ x 11	HELI371100A	7/32 or 1/4	50	200
⅜ x 12	HELI371200A		50	200
⅜ x 14	HELI371400A		50	200
⅜ x 16	HELI371600A		50	200
⅜ x 18	HELI371800A		50	200
⅜ x 20	HELI372000A		50	200

Special-order lengths are also available; contact Simpson Strong-Tie for details.

EXHIBIT F

Drag/ Collector Options and Details
and Preliminary Design and Budget Estimate
for FRP Drag Materials and Installation

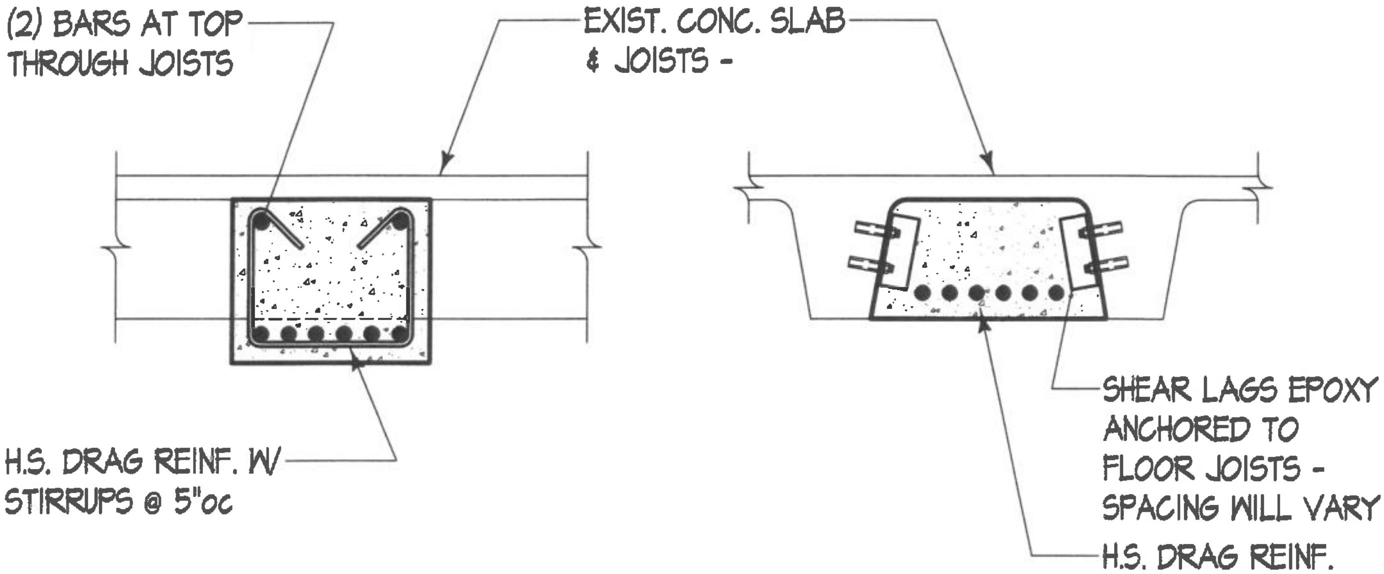


FRP Drags/ Collectors to Shear Wall

VISSER ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001
VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: FRP DRAG TO FLOOR AND WALL	SCALE: 3/4"=1'-0"
PROJECT: LANDMARK ON THE SOUND	
DES MOINES, WA	
CLIENT: URBAN STORAGE	
SEATTLE, WA	
ENGINEER: BTS CAD: BTS	PROJ. NO.: 18-031
ISSUE DATE: 8-22-18	SHEET: 1 of 4



PERPENDICULAR TO FLOOR JOIST

PARALLEL TO FLOOR JOIST

H.S. REINFORCING = ASTM A706 GRADE 80 (f_y = 80 ksi)

Collector Beams w/ High Strength Reinforcing

VISSER
ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

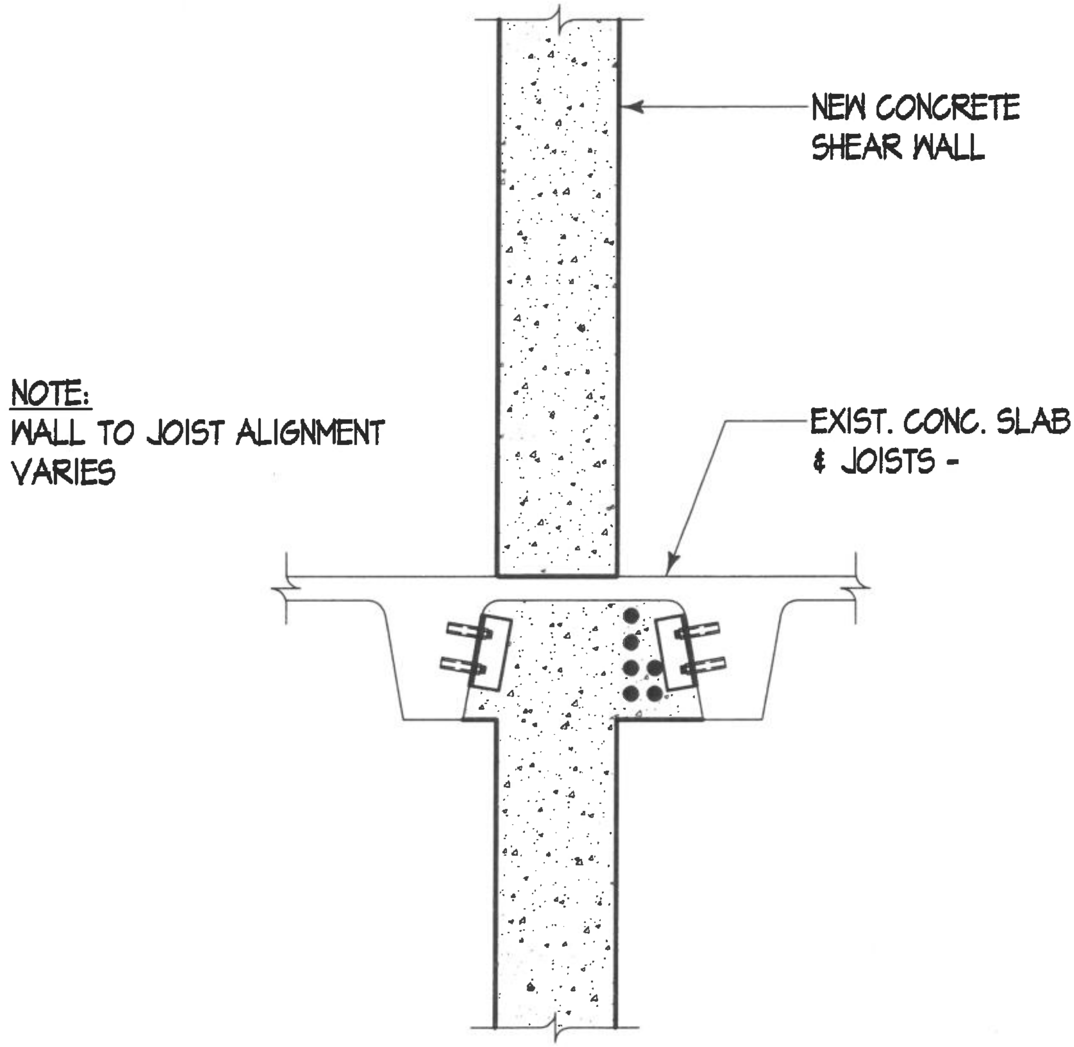
TITLE: TYP. STEEL REINF. DRAG BEAMS **SCALE:** ¾"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-22-18 **SHEET:** 2 of 4



WALL PARALLEL TO FLOOR JOIST

Drags/ Collectors to Shear Wall

VISSER ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001

VOICE: (253) 835-0810
FAX: (253) 835-0813

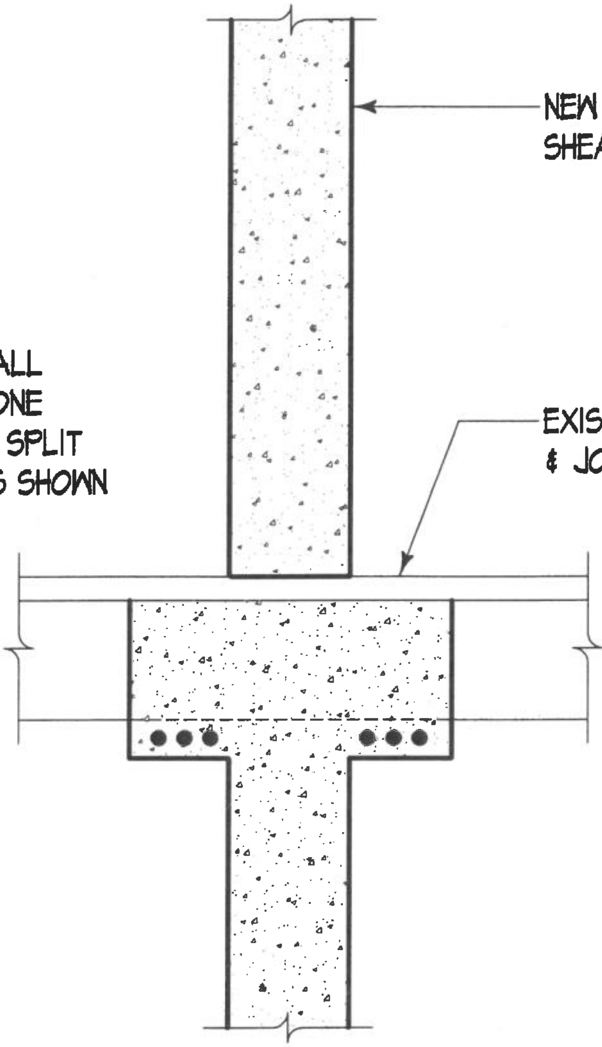
TITLE: STEEL REINF. DRAG TO WALL   SCALE: ¾"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS   CAD: BTS   PROJ. NO.: 18-031

ISSUE DATE: 8-22-18   SHEET: 3 of 4



WALL PERPENDICULAR TO FLOOR JOIST

Drags/ Collectors to Shear Wall

VISSER
ENGINEERING

32129 WEYERHAEUSER WAY S.
SUITE 103
FEDERAL WAY, WA. 98001
VOICE: (253) 835-0810
FAX: (253) 835-0813

TITLE: STEEL REINF. DRAG TO WALL **SCALE:** 3/4"=1'-0"

PROJECT: LANDMARK ON THE SOUND
DES MOINES, WA

CLIENT: URBAN STORAGE
SEATTLE, WA

ENGINEER: BTS **CAD:** BTS **PROJ. NO.:** 18-031

ISSUE DATE: 8-22-18 **SHEET:** 4 of 4

SIMPSON Strong-Tie®

SIMPSON STRONG-TIE® COMPANY, INC.
The World's "No Equal" Structural Connector Company
5956 W. Las Positas Blvd. • Pleasanton, California 94588
Telephone: (800) 999-5099 • Fax: (925) 847-15977

COMPOSITE STRENGTHENING SYSTEMS

PRELIMINARY DESIGN PACKAGE

BUDGETARY ESTIMATE = $400,000.00 INSTALLED COST

Component capacities for

Landmark Building
Des Moines
WA

Prepared for

Visser Engineering

Date of Drawings

August 16, 2018

Date of Input

August 23, 2018

Job No.

ES-183246

Designed by

H.P.

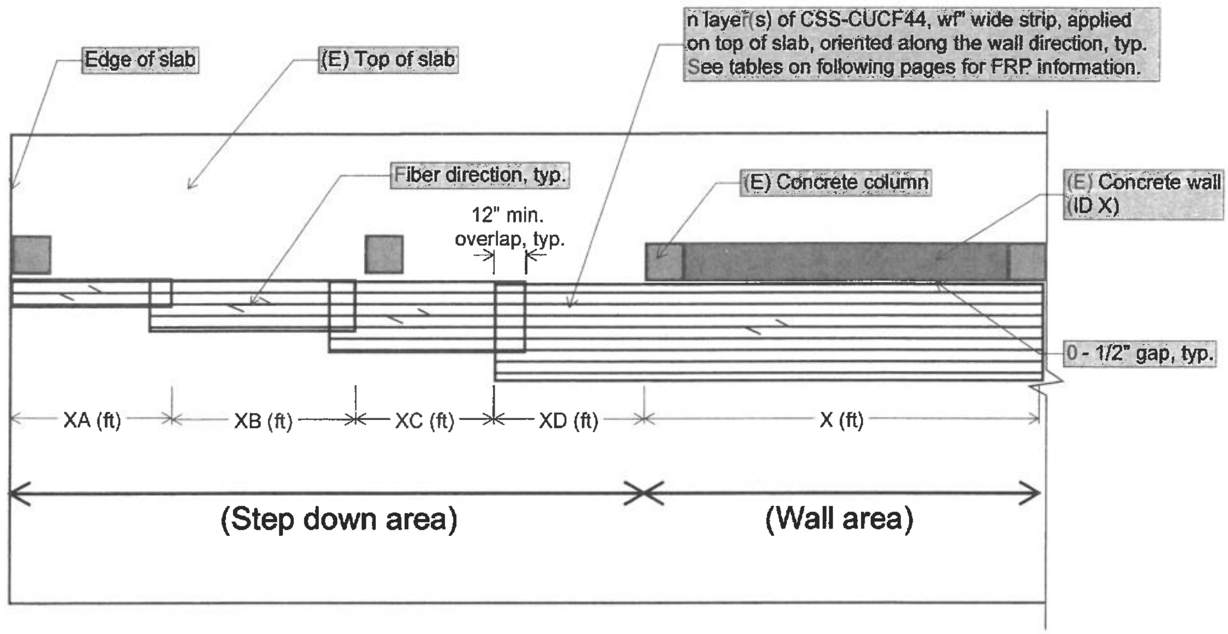
Checked by

B.E.

This design and associated costs are only valid if the following assumptions are correct:

1. Concrete compressive strength f'_c = 3000 psi

1 WALL ON 1 LINE



Typical FRP Detail

Note:

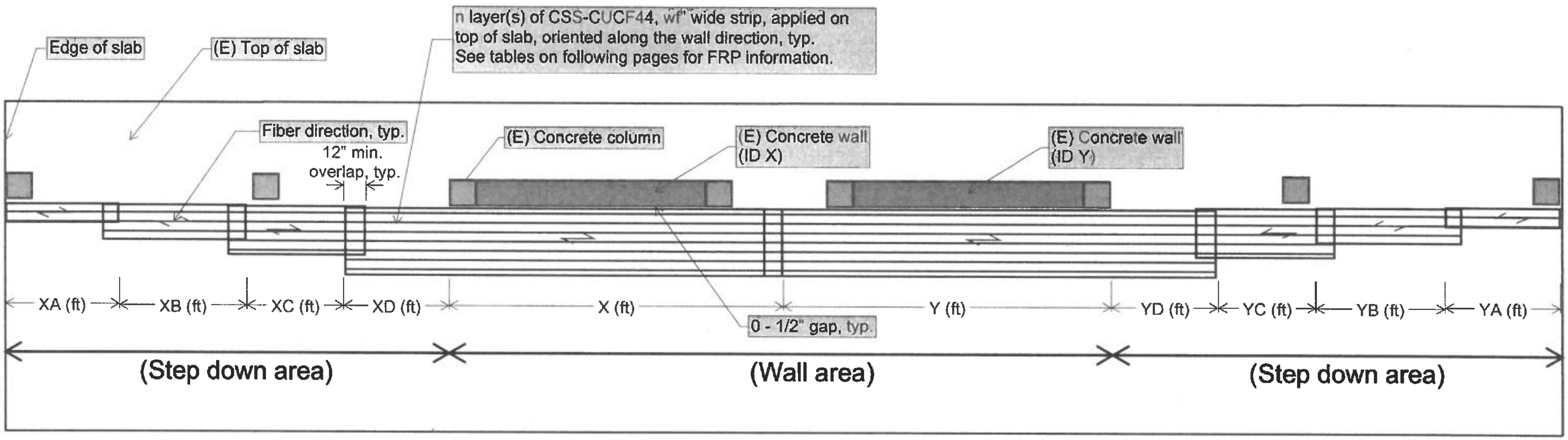
1. Where the number of layers or strip width change, extend the strip with more layers or wider strip to 12" min.

2. 12" lap splice can be used for ease of installation

3. Where multiple layers are used, stagger lap splices 12" min.

4. Place the FRP on either side of columns.

2 WALLS ON 1 LINE



Typical FRP Detail

Note:

1. Where the number of layers or strip width change, extend the strip with more layers or wider strip to 12" min.

2. 12" lap splice can be used for ease of installation

3. Where multiple layers are used, stagger lap splices 12" min.

4. Place the FRP on either side of columns.

STEP DOWN AREA

Wall ID	Label	Strengthening length (ft)	FRP force (kips)	w_f (in)	n
1-1	1A	17.1	44.5	12	1
	1B	17.1	89.0	24	1
	1C	17.1	133.4	36	1
	1D	20.4	188.7	36	2
1-2	1A	15.0	44.5	12	1
	1B	15.0	89.0	24	1
	1C	15.0	133.4	36	1
	1D	18.6	188.7	36	2
	1E	8.1	251.6	48	2
1-3	1A	24.9	44.5	12	1
	1B	24.9	89.0	24	1
	1C	21.8	133.4	36	1
1-4	1A	19.1	44.5	12	1
	1B	19.1	89.0	24	1
	1C	19.1	133.4	36	1
	1D	14.3	188.7	36	2
1-5	1A	18.4	44.5	12	1
	1B	18.4	89.0	24	1
	1C	18.4	133.4	36	1
	1D	16.6	188.7	36	2
2-1	2A	15.0	44.5	12	1
	2B	15.0	89.0	24	1
	2C	15.0	133.4	36	1
	2D	18.6	188.7	36	2
	2E	8.1	251.6	48	2
2-2	2A	13.9	44.5	12	1
	2B	13.9	89.0	24	1
	2C	13.9	133.4	36	1
	2D	17.3	188.7	36	2
	2E	12.7	251.6	48	2
2-3	2A	23.2	44.5	12	1
	2B	23.2	89.0	24	1
	2C	23.2	133.4	36	1
	2D	2.0	177.9	48	1
2-4	2A	17.8	44.5	12	1
	2B	17.8	89.0	24	1
	2C	17.8	133.4	36	1
	2D	18.4	188.7	36	2
2-5	2A	15.0	44.5	12	1
	2B	15.0	89.0	24	1
	2C	15.0	133.4	36	1
	2D	18.6	188.7	36	2
	2E	8.1	251.6	48	2
3-1	3A	4.8	44.5	12	1
	3B	4.8	89.0	24	1
	3C	5.0	133.4	36	1
3-2	3A	5.0	44.5	12	1
	3B	5.0	89.0	24	1
	3C	4.6	133.4	36	1
3-3	3A	6.4	44.5	12	1
	3B	6.4	89.0	24	1
	3C	1.7	133.4	36	1
4-1	4A	4.8	44.5	12	1
	4B	4.8	89.0	24	1
	4C	4.9	133.4	36	1
4-2	4A	5.0	44.5	12	1
	4B	5.0	89.0	24	1
	4C	4.5	133.4	36	1
4-3	4A	5.6	44.5	12	1
	4B	5.6	89.0	24	1
	4C	3.2	133.4	36	1
5-1	5A	11.2	44.5	12	1
	5B	11.2	89.0	24	1
	5C	6.2	133.4	36	1
5-2	5A	11.9	44.5	12	1
	5B	11.9	89.0	24	1
	5C	4.9	133.4	36	1

Wall ID	Label	Strengthening length (ft)	FRP force (kips)	w_f (in)	n
5-3	5A	8.9	44.5	12	1
	5B	8.9	89.0	24	1
	5C	8.9	133.4	36	1
	5D	2.0	188.7	36	2
6-1	6A	11.2	44.5	12	1
	6B	11.2	89.0	24	1
	6C	6.3	133.4	36	1
6-2	6A	11.9	44.5	12	1
	6B	11.9	89.0	24	1
	6C	4.9	133.4	36	1
6-3	6A	8.9	44.5	12	1
	6B	8.9	89.0	24	1
	6C	8.9	133.4	36	1
	6D	2.0	188.7	36	2
7-1	7A	4.9	44.5	12	1
	7B	4.9	89.0	24	1
	7C	5.0	133.4	36	1
7-2	7A	5.1	44.5	12	1
	7B	5.1	89.0	24	1
	7C	4.6	133.4	36	1
7-3	7A	6.6	44.5	12	1
	7B	6.6	89.0	24	1
	7C	1.5	133.4	36	1
8-1	8A	4.8	44.5	12	1
	8B	4.8	89.0	24	1
	8C	5.1	133.4	36	1
8-2	8A	5.1	44.5	12	1
	8B	5.1	89.0	24	1
	8C	4.6	133.4	36	1
8-3	8A	5.8	44.5	12	1
	8B	5.8	89.0	24	1
	8C	3.2	133.4	36	1
9-1 (Left)	9A	11.0	44.5	12	1
	9B	11.0	89.0	24	1
	9C	11.0	133.4	36	1
	9D	2.7	188.7	36	2
9-2 (Left)	9A	11.0	44.5	12	1
	9B	11.0	89.0	24	1
	9C	11.0	133.4	36	1
	9D	2.7	188.7	36	2
9-3 (Left)	9A	21.7	44.5	12	1
	9B	13.9	89.0	24	1
9-4 (Left)	9A	15.5	44.5	12	1
	9B	15.5	89.0	24	1
	9C	4.6	133.4	36	1
9-5 (Left)	9A	30.4	44.5	12	1
	9B	5.2	89.0	24	1
9-1 (Right)	9A	17.6	44.5	12	1
	9B	17.6	89.0	24	1
	9C	17.6	133.4	36	1
	9D	4.3	188.7	36	2
9-2 (Right)	9A	17.6	44.5	12	1
	9B	17.6	89.0	24	1
	9C	17.6	133.4	36	1
	9D	4.3	188.7	36	2
9-3 (Right)	9A	34.8	44.5	12	1
	9B	22.3	89.0	24	1
9-4 (Right)	9A	24.8	44.5	12	1
	9B	24.8	89.0	24	1
	9C	7.4	133.4	36	1
9-5 (Right)	9A	48.7	44.5	12	1
	9B	8.4	89.0	24	1
10-1 (Left)	10A	12.9	44.5	12	1
	10B	12.9	89.0	24	1
	10C	12.9	133.4	36	1
	10D	2.9	188.7	36	2
10-2 (Left)	10A	12.9	44.5	12	1
	10B	12.9	89.0	24	1
	10C	12.9	133.4	36	1
	10D	2.9	188.7	36	2

STEP DOWN AREA (CONT.)

Wall ID	Label	Strengthening length (ft)	FRP force (kips)	w_f (in)	n
10-3 (Left)	10A	24.6	44.5	12	1
	10B	16.9	89.0	24	1
10-4 (Left)	10A	18.1	44.5	12	1
	10B	18.1	89.0	24	1
	10C	5.3	133.4	36	1
10-5 (Left)	10A	35.2	44.5	12	1
	10B	6.3	89.0	24	1
10-1 (Right)	10A	17.7	44.5	12	1
	10B	17.7	89.0	24	1
	10C	17.7	133.4	36	1
	10D	4.0	188.7	36	2
10-2 (Right)	10A	17.7	44.5	12	1
	10B	17.7	89.0	24	1
	10C	17.7	133.4	36	1
	10D	3.9	188.7	36	2
10-3 (Right)	10A	33.9	44.5	12	1
	10B	23.2	89.0	24	1
10-4 (Right)	10A	24.9	44.5	12	1
	10B	24.9	89.0	24	1
	10C	7.2	133.4	36	1
10-5 (Right)	10A	48.4	44.5	12	1
	10B	8.7	89.0	24	1
11-1	11A	9.2	44.5	12	1
	11B	9.2	89.0	24	1
	11C	8.4	133.4	36	1
11-2	11A	9.3	44.5	12	1
	11B	9.3	89.0	24	1
	11C	8.1	133.4	36	1
11-3	11A	12.4	44.5	12	1
	11B	12.4	89.0	24	1
	11C	1.9	133.4	36	1
11-4	11A	13.8	44.5	12	1
	11B	12.9	89.0	24	1
11-5	11A	22.5	44.5	12	1
	11B	4.3	89.0	24	1
12-1	12A	6.3	44.5	12	1
	12B	6.3	89.0	24	1
	12C	6.3	133.4	36	1
12-2	12A	6.3	44.5	12	1
	12B	6.3	89.0	24	1
	12C	6.4	133.4	36	1
12-3	12A	8.6	44.5	12	1
	12B	8.6	89.0	24	1
	12C	1.8	133.4	36	1
12-4	12A	9.2	44.5	12	1
	12B	9.8	89.0	24	1
12-5	12A	13.0	44.5	12	1
	12B	6.0	89.0	24	1
13-1	13A	3.2	44.5	12	1
	13B	3.2	89.0	24	1
	13C	2.9	133.4	36	1
13-2	13A	3.3	44.5	12	1
	13B	3.3	89.0	24	1
	13C	2.7	133.4	36	1
13-3	13A	4.0	44.5	12	1
	13B	4.0	89.0	24	1
	13C	1.3	133.4	36	1
13-4	13A	4.8	44.5	12	1
	13B	4.4	89.0	24	1
13-5	13A	7.6	44.5	12	1
	13B	1.6	89.0	24	1
14-1	14A	7.9	44.5	12	1
	14B	7.9	89.0	24	1
	14C	7.1	133.4	36	1
14-2	14A	8.1	44.5	12	1
	14B	8.1	89.0	24	1
	14C	6.7	133.4	36	1
14-3	14A	9.7	44.5	12	1
	14B	9.7	89.0	24	1
	14C	3.6	133.4	36	1
14-4	14A	12.0	44.5	12	1
	14B	11.0	89.0	24	1
14-5	14A	19.1	44.5	12	1
	14B	3.9	89.0	24	1

Wall ID	Label	Strengthening length (ft)	FRP force (kips)	w_f (in)	n
15-1 (Left)	15A	17.5	44.5	12	1
	15B	17.5	89.0	24	1
	15C	17.5	133.4	36	1
	15D	4.4	188.7	36	2
15-2 (Left)	15A	17.5	44.5	12	1
	15B	17.5	89.0	24	1
	15C	17.5	133.4	36	1
	15D	4.4	188.7	36	2
15-3 (Left)	15A	34.6	44.5	12	1
	15B	22.4	89.0	24	1
15-4 (Left)	15A	24.5	44.5	12	1
	15B	24.5	89.0	24	1
	15C	8.0	133.4	36	1
15-5 (Left)	15A	47.3	44.5	12	1
	15B	9.7	89.0	24	1
15-1 (Right)	15A	10.7	44.5	12	1
	15B	10.7	89.0	24	1
	15C	10.7	133.4	36	1
	15D	2.7	188.7	36	2
15-2 (Right)	15A	10.7	44.5	12	1
	15B	10.7	89.0	24	1
	15C	10.7	133.4	36	1
	15D	2.7	188.7	36	2
15-3 (Right)	15A	21.1	44.5	12	1
	15B	13.6	89.0	24	1
15-4 (Right)	15A	14.9	44.5	12	1
	15B	14.9	89.0	24	1
	15C	4.9	133.4	36	1
15-5 (Right)	15A	28.8	44.5	12	1
	15B	5.9	89.0	24	1
16-1 (Left)	16A	17.6	44.5	12	1
	16B	17.6	89.0	24	1
	16C	17.6	133.4	36	1
	16D	4.1	188.7	36	2
16-2 (Left)	16A	17.6	44.5	12	1
	16B	17.6	89.0	24	1
	16C	17.6	133.4	36	1
	16D	4.1	188.7	36	2
16-3 (Left)	16A	33.7	44.5	12	1
	16B	23.3	89.0	24	1
16-4 (Left)	16A	24.6	44.5	12	1
	16B	24.6	89.0	24	1
	16C	7.9	133.4	36	1
16-5 (Left)	16A	47.0	44.5	12	1
	16B	10.0	89.0	24	1
16-1 (Right)	16A	14.0	44.5	12	1
	16B	14.0	89.0	24	1
	16C	14.0	133.4	36	1
	16D	3.3	188.7	36	2
16-2 (Right)	16A	14.0	44.5	12	1
	16B	14.0	89.0	24	1
	16C	14.0	133.4	36	1
	16D	3.3	188.7	36	2
16-3 (Right)	16A	26.8	44.5	12	1
	16B	18.5	89.0	24	1
16-4 (Right)	16A	19.5	44.5	12	1
	16B	19.5	89.0	24	1
	16C	6.3	133.4	36	1
16-5 (Right)	16A	37.4	44.5	12	1
	16B	8.0	89.0	24	1
17-1	17A	5.1	44.5	12	1
	17B	5.1	89.0	24	1
	17C	5.1	133.4	36	1
	17D	4.6	188.7	36	2
17-2	17A	4.4	44.5	12	1
	17B	4.4	89.0	24	1
	17C	4.4	133.4	36	1
	17D	5.4	188.7	36	2
	17E	1.5	251.6	48	2

STEP DOWN AREA (CONT.)

Wall ID	Label	Strengthening length (ft)	FRP force (kips)	w_f (in)	n
17-3	17A	7.0	44.5	12	1
	17B	7.0	89.0	24	1
	17C	6.0	133.4	36	1
17-4	17A	6.6	44.5	12	1
	17B	6.6	89.0	24	1
	17C	6.8	133.4	36	1
17-5	17A	4.9	44.5	12	1
	17B	4.9	89.0	24	1
	17C	4.9	133.4	36	1
	17D	5.2	188.7	36	2
18-1	18A	9.6	44.5	12	1
	18B	9.6	89.0	24	1
	18C	7.4	133.4	36	1
18-2	18A	9.7	44.5	12	1
	18B	9.7	89.0	24	1
	18C	7.2	133.4	36	1
18-3	18A	12.5	44.5	12	1
	18B	12.5	89.0	24	1
	18C	1.7	133.4	36	1
18-4	18A	14.0	44.5	12	1
	18B	12.6	89.0	24	1
18-5	18A	22.7	44.5	12	1
	18B	3.9	89.0	24	1
19-1	19A	6.6	44.5	12	1
	19B	6.6	89.0	24	1
	19C	5.7	133.4	36	1
19-2	19A	6.6	44.5	12	1
	19B	6.6	89.0	24	1
	19C	5.9	133.4	36	1
19-3	19A	8.7	44.5	12	1
	19B	8.7	89.0	24	1
	19C	1.6	133.4	36	1
19-4	19A	9.4	44.5	12	1
	19B	9.6	89.0	24	1
19-5	19A	13.3	44.5	12	1
	19B	5.7	89.0	24	1
20-1	20A	3.5	44.5	12	1
	20B	3.5	89.0	24	1
	20C	2.5	133.4	36	1
20-2	20A	3.6	44.5	12	1
	20B	3.6	89.0	24	1
	20C	2.4	133.4	36	1
20-3	20A	4.1	44.5	12	1
	20B	4.1	89.0	24	1
	20C	1.3	133.4	36	1
20-4	20A	5.0	44.5	12	1
	20B	4.5	89.0	24	1
20-5	20A	7.9	44.5	12	1
	20B	1.6	89.0	24	1
22-1	22A	13.3	44.5	12	1
	22B	13.3	89.0	24	1
	22C	10.4	133.4	36	1
22-2	22A	13.6	44.5	12	1
	22B	13.6	89.0	24	1
	22C	9.8	133.4	36	1
22-3	22A	22.0	44.5	12	1
	22B	15.0	89.0	24	1
22-4	22A	21.7	44.5	12	1
	22B	15.3	89.0	24	1
22-5	22A	37.0	44.5	12	1
24-1	24A	4.4	44.5	12	1
	24B	4.4	89.0	24	1
	24C	4.4	133.4	36	1
	24D	3.6	188.7	36	2
24-2	24A	4.0	44.5	12	1
	24B	4.0	89.0	24	1
	24C	4.0	133.4	36	1
	24D	4.5	188.7	36	2

Wall ID	Label	Strengthening length (ft)	FRP force (kips)	w_f (in)	n
24-3	24A	7.7	44.5	12	1
	24B	7.7	89.0	24	1
	24C	1.2	133.4	36	1
24-4	24A	5.3	44.5	12	1
	24B	5.3	89.0	24	1
	24C	6.0	133.4	36	1
24-4	24A	6.5	44.5	12	1
	24B	6.5	89.0	24	1
	24C	3.7	133.4	36	1
26-1	26A	31.1	44.5	12	1
	26B	31.1	89.0	24	1
	26C	21.9	133.4	36	1
26-2	26A	32.1	44.5	12	1
	26B	32.1	89.0	24	1
	26C	19.7	133.4	36	1
26-3	26A	52.8	44.5	12	1
	26B	31.2	89.0	24	1
26-4	26A	51.3	44.5	12	1
	26B	32.7	89.0	24	1
26-5	26A	84.0	44.5	12	1
27-1	27A	31.2	44.5	12	1
	27B	31.2	89.0	24	1
	27C	21.6	133.4	36	1
27-2	27A	32.2	44.5	12	1
	27B	32.2	89.0	24	1
	27C	19.5	133.4	36	1
27-3	27A	52.8	44.5	12	1
	27B	31.2	89.0	24	1
27-4	27A	51.3	44.5	12	1
	27B	32.7	89.0	24	1
27-5	27A	84.0	44.5	12	1
28-1	28A	8.6	44.5	12	1
	28B	8.6	89.0	24	1
	28C	5.8	133.4	36	1
28-2	28A	8.7	44.5	12	1
	28B	8.7	89.0	24	1
	28C	5.6	133.4	36	1
28-3	28A	9.6	44.5	12	1
	28B	9.6	89.0	24	1
	28C	3.8	133.4	36	1
28-4	28A	12.3	44.5	12	1
	28B	10.7	89.0	24	1
28-5	28A	19.1	44.5	12	1
	28B	3.9	89.0	24	1

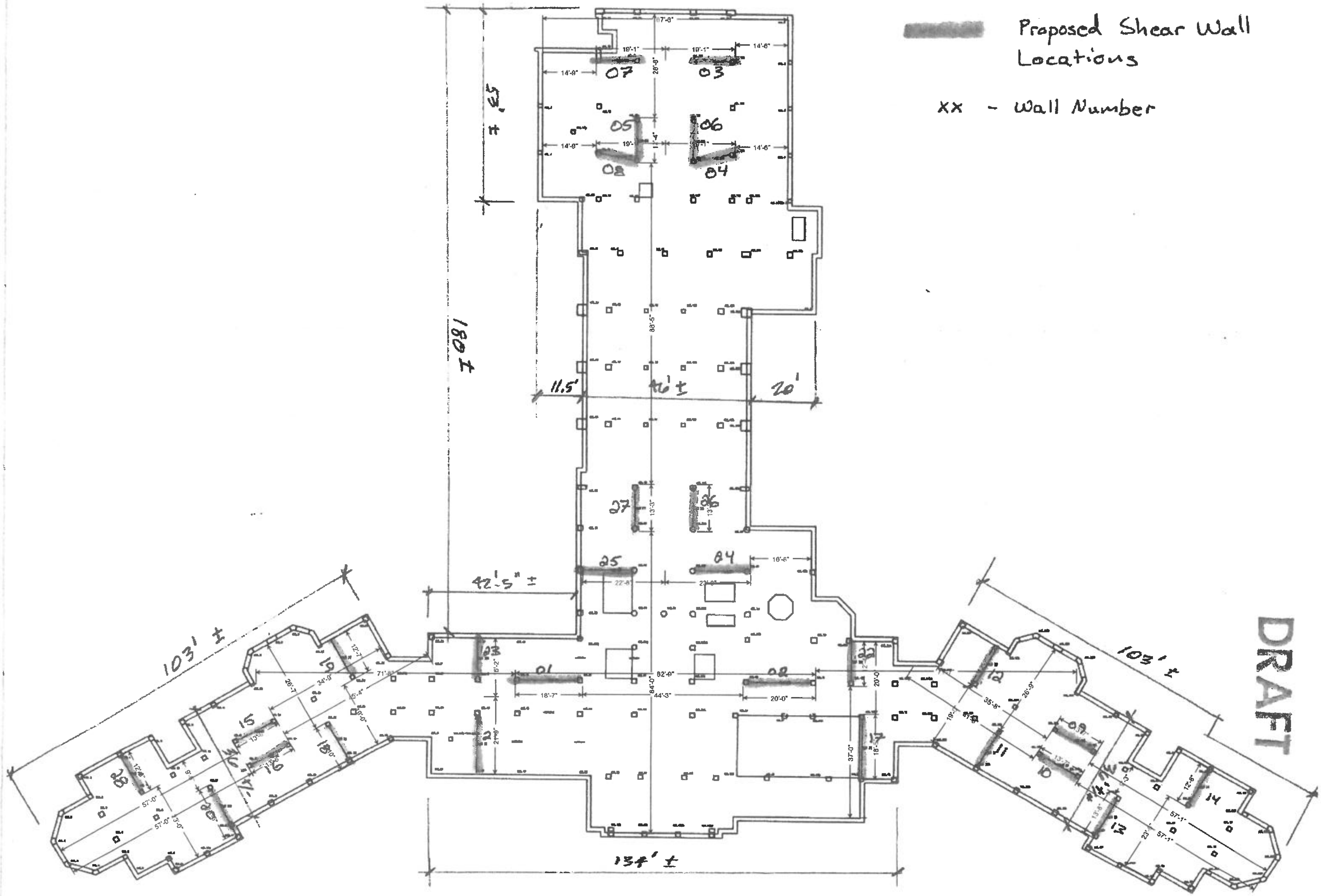
Legend

1-1: Wall ID 1 on level 1

WALL AREA

Level	Wall ID	Strengthening length (ft)	w_f (in)	n
1	1-1	18.6	36	2
2	1-2	18.6	48	2
3	1-3	18.6	36	1
4	1-4	18.6	36	2
5	1-5	18.6	36	2
1	2-1	64.3	48	2
2	2-2	64.3	48	2
3	2-3	64.3	48	1
4	2-4	64.3	36	2
5	2-5	64.3	48	2
1	3-1	19.1	36	1
2	3-2	19.1	36	1
3	3-3	19.1	36	1
1	4-1	19.1	36	1
2	4-2	19.1	36	1
3	4-3	19.1	36	1
1	5-1	12.3	36	1
2	5-2	12.3	36	1
3	5-3	12.3	36	2
1	6-1	12.3	36	1
2	6-2	12.3	36	1
3	6-3	12.3	36	2
1	7-1	19.1	36	1
2	7-2	19.1	36	1
3	7-3	19.1	36	1
1	8-1	19.1	36	1
2	8-2	19.1	36	1
3	8-3	19.1	36	1
1	9-1	13.6	36	2
2	9-2	13.6	36	2
3	9-3	13.6	24	1
4	9-4	13.6	36	1
5	9-5	13.6	24	1
1	10-1	13.6	36	2
2	10-2	13.6	36	2
3	10-3	13.6	24	1
4	10-4	13.6	36	1
5	10-5	13.6	24	1
1	11-1	12.3	36	1
2	11-2	12.3	36	1
3	11-3	12.3	36	1
4	11-4	12.3	24	1
5	11-5	12.3	24	1
1	12-1	12.6	36	1
2	12-2	12.6	36	1
3	12-3	12.6	36	1
4	12-4	12.6	24	1
5	12-5	12.6	24	1
1	13-1	13.7	36	1
2	13-2	13.7	36	1
3	13-3	13.7	36	1
4	13-4	13.7	24	1
5	13-5	13.7	24	1
1	14-1	12.7	36	1
2	14-2	12.7	36	1
3	14-3	12.7	36	1
4	14-4	12.7	24	1
5	14-5	12.7	24	1
1	15-1	13.5	36	2
2	15-2	13.5	36	2
3	15-3	13.5	24	1
4	15-4	13.5	36	1
5	15-5	13.5	24	1
1	16-1	13.5	36	2
2	16-2	13.5	36	2
3	16-3	13.5	24	1
4	16-4	13.5	36	1
5	16-5	13.5	24	1

Level	Wall ID	Strengthening length (ft)	w_f (in)	n
1	17-1	18.4	36	2
2	17-2	18.4	48	2
3	17-3	18.4	36	1
4	17-4	18.4	36	1
5	17-5	18.4	36	2
1	18-1	13.8	36	1
2	18-2	13.8	36	1
3	18-3	13.8	36	1
4	18-4	13.8	24	1
5	18-5	13.8	24	1
1	19-1	12.6	36	1
2	19-2	12.6	36	1
3	19-3	12.6	36	1
4	19-4	12.6	24	1
5	19-5	12.6	24	1
1	20-1	15.4	36	1
2	20-2	15.4	36	1
3	20-3	15.4	36	1
4	20-4	15.4	24	1
5	20-5	15.4	24	1
1	21-1	21.8	36	1
2	21-2	21.8	36	1
3	21-3	21.8	24	1
4	21-4	21.8	24	1
5	21-5	21.8	12	1
1	22-1	12.3	36	1
2	22-2	12.3	36	1
3	22-3	12.3	24	1
4	22-4	12.3	24	1
5	22-5	12.3	12	1
1	23-1	16.2	36	1
2	23-2	16.2	36	1
3	23-3	16.2	24	1
4	23-4	16.2	24	1
5	23-5	16.2	12	1
1	24-1	23.5	36	2
2	24-2	23.5	36	2
3	24-3	23.5	36	1
4	24-4	23.5	36	1
5	24-5	23.5	36	1
1	25-1	22.7	36	2
2	25-2	22.7	36	2
3	25-3	22.7	36	1
4	25-4	22.7	36	1
5	25-5	22.7	36	1
1	26-1	13.3	36	1
2	26-2	13.3	36	1
3	26-3	13.3	24	1
4	26-4	13.3	24	1
5	26-5	13.3	12	1
1	27-1	13.3	36	1
2	27-2	13.3	36	1
3	27-3	13.3	24	1
4	27-4	13.3	24	1
5	27-5	13.3	12	1
1	28-1	12.7	36	1
2	28-2	12.7	36	1
3	28-3	12.7	36	1
4	28-4	12.7	24	1
5	28-5	12.7	24	1



DRAFT
Proposed Shear Wall Locations
XX - Wall Number
180 ±
53' ±
11.5'
46' ±
20'
42'-5" ±
134' ±
103' ±
103' ±

Diaphragm Shear Transfer and Collector Forces

		Diaphragm Design Forces			Collector Forces (based on ASCE 7-10 Eq. 12.10-3)		
Wall	Level	Force due to Vx (kips)	Force due to Vy (kips)	Max Force (kips)	Force due to Vx (kips)	Force due to Vy (kips)	Max Force (kips)
Wall 01							
	L1	79.99	1.15	80	186.71	1.67	186.72
	L2	105.45	1.17	105.45	212.83	1.64	212.83
	L3	64.11	0.09	64.11	127.95	0.03	127.95
	L4	117.29	1.49	117.3	166.56	1.49	166.57
	L5/Roof	140.5	2.3	140.52	173.51	2.33	173.52
Wall 02							
	L1	81.87	1.2	81.88	197	1.76	197.01
	L2	112.95	1.25	112.96	229.23	1.75	229.23
	L3	68.39	0.08	68.39	137.32	0.01	137.32
	L4	126.21	1.6	126.22	179.41	1.6	179.42
	L5/Roof	159.43	2.57	159.45	196.09	2.6	196.11
Wall 03							
	L1	71.9	-1.54	71.91	135.54	-3.45	135.58
	L2	67.61	-1.28	67.62	129.76	-2.94	129.8
	L3	77.47	1.23	77.48	100.39	1.39	100.4
Wall 04							
	L1	70.75	10.23	71.49	133.45	18.62	134.74
	L2	66.33	8.84	66.91	127.59	17.51	128.79
	L3	87.04	20.59	89.44	111.11	26.71	114.27
Wall 05							
	L1	0.62	59.44	59.44	1.01	113.37	113.38
	L2	0.78	52.47	52.48	1.18	107.07	107.08
	L3	-0.55	109.61	109.61	-0.67	143.41	143.41
Wall 06							
	L1	0.26	59.67	59.67	-0.15	113.81	113.81
	L2	-0.11	52.66	52.66	-0.52	107.44	107.44
	L3	3.21	109.62	109.67	3.33	143.4	143.43
Wall 07							
	L1	71.75	-1.53	71.77	135.04	-3.43	135.08
	L2	67.3	-1.27	67.31	129.08	-2.92	129.12
	L3	76.5	1.22	76.51	99.17	1.38	99.18
Wall 08							
	L1	-70.58	12.55	71.69	-133.28	24.03	135.43
	L2	-66.2	10.78	67.07	-127.47	22.17	129.38
	L3	-86.57	18.06	88.43	-110.64	23.92	113.19

E

Diaphragm Shear Transfer and Collector Forces (2)

Wall 09							
	L1	-67.62	32.5	75.02	-129.26	64.02	144.25
	L2	-68.73	32.47	76.01	-129.18	64.52	144.39
	L3	-26.75	17.28	31.85	-61.2	39.71	72.95
	L4	-66.41	19.92	69.34	-93.81	40.51	102.19
	L5/Roof	-32.64	11.75	34.69	-44.98	26.35	52.13
Wall 10							
	L1	-67.3	32.37	74.68	-128.46	63.76	143.41
	L2	-68.15	32.36	75.44	-128.11	64.3	143.34
	L3	-29.1	17.24	33.83	-63.64	39.68	75
	L4	-66.16	19.92	69.1	-93.46	40.52	101.87
	L5/Roof	-32.98	11.77	35.02	-45.34	26.38	52.45
Wall 11							
	L1	35.45	58.36	68.29	63.93	112.73	129.59
	L2	32.11	57.41	65.78	59.79	112.49	127.4
	L3	46.96	29.79	55.61	67.69	67.77	95.78
	L4	35.08	35.74	50.08	49.25	70.67	86.14
	L5/Roof	22.21	19.94	29.85	29.24	44.1	52.91
Wall 12							
	L1	35.48	58.3	68.25	66.36	115.64	133.33
	L2	33.89	59.34	68.34	64.06	117.71	134.01
	L3	45.75	31.01	55.27	67.59	71.33	98.27
	L4	37.59	37.85	53.34	52.79	74.95	91.68
	L5/Roof	27.84	26.5	38.44	35.9	54.1	64.93
Wall 13							
	L1	34.03	58.98	68.09	60.32	113.99	128.97
	L2	29.53	57.96	65.04	55	113.63	126.24
	L3	57.58	29.98	64.91	78.73	67.98	104.02
	L4	33.97	35.78	49.33	47.68	70.75	85.32
	L5/Roof	23.74	19.97	31.02	30.85	44.17	53.88
Wall 14							
	L1	33.76	59.1	68.06	59.57	114.15	128.76
	L2	28.99	58	64.85	53.98	113.69	125.85
	L3	59.51	29.98	66.64	80.7	67.92	105.48
	L4	33.67	35.72	49.09	47.27	70.65	85
	L5/Roof	23.83	19.78	30.97	30.92	43.89	53.69
Wall 15							
	L1	68.13	32.8	75.61	129.77	63.54	144.49
	L2	69.19	32.8	76.57	129.63	64.17	144.64
	L3	27.11	17.13	32.07	61.56	39.57	73.18
	L4	67.12	21.64	70.53	94.52	42.23	103.53

Diaphragm Shear Transfer and Collector Forces (3)

	L5/Roof	33.31	13.49	35.94	45.65	28.19	53.65
Wall 16							
	L1	67.81	32.93	75.38	128.96	63.8	143.88
	L2	68.61	32.91	76.1	128.56	64.39	143.79
	L3	29.46	17.16	34.1	64	39.6	75.26
	L4	66.88	21.64	70.29	94.17	42.23	103.21
	L5/Roof	33.65	13.47	36.25	46.01	28.16	53.94
Wall 17							
	L1	-6.08	68.77	69.04	-11.39	172.61	172.99
	L2	-6.93	95.07	95.32	-12.5	203.67	204.05
	L3	26.35	49.89	56.42	27.33	124.41	127.37
	L4	-1.73	66.41	66.43	-2.87	135.1	135.13
	L5/Roof	11.09	106.93	107.5	11.97	179.37	179.77
Wall 18							
	L1	-34.48	54.69	64.65	-62.9	106.13	123.37
	L2	-31.25	54.31	62.66	-58.87	106.84	121.98
	L3	-46.33	28.96	54.63	-67.03	67.17	94.89
	L4	-33.81	34.86	48.56	-47.95	69.83	84.71
	L5/Roof	-21.12	19.53	28.77	-28.15	43.87	52.12
Wall 19							
	L1	-34.6	54.85	64.85	-65.48	109.43	127.52
	L2	-33.09	56.36	65.35	-63.26	112.3	128.9
	L3	-45.1	30.21	54.29	-66.95	70.71	97.37
	L4	-36.31	36.87	51.75	-51.51	73.97	90.14
	L5/Roof	-26.54	25.85	37.05	-34.61	53.57	63.78
Wall 20							
	L1	-33.14	54.07	63.42	-59.44	104.93	120.6
	L2	-28.74	53.8	61	-54.22	105.83	118.91
	L3	-56.95	28.8	63.82	-78.11	67.05	102.94
	L4	-32.75	34.88	47.85	-46.47	69.85	83.89
	L5/Roof	-22.64	19.67	29.99	-29.76	44.06	53.16
Wall 21							
	L1	6.62	66.08	66.41	11.56	167.19	167.59
	L2	7.58	92.6	92.91	12.75	198.72	199.13
	L3	-23.61	49.1	54.48	-24.52	123.76	126.17
	L4	3.81	66.43	66.54	4.87	135.11	135.19
	L5/Roof	-6.61	107.26	107.46	-7.45	179.91	180.06
Wall 22							
	L1	-0.99	65.82	65.82	-3.81	123.81	123.87
	L2	-2.75	62.52	62.58	-5.58	121.1	121.23

Diaphragm Shear Transfer and Collector Forces (4)

	L3	13.95	32.44	35.32	14.49	73.46	74.88
	L4	-0.81	38.08	38.08	-1.4	75.71	75.72
	L5/Roof	1.88	15.04	15.16	1.91	38.87	38.92
Wall 23							
	L1	1.91	64.2	64.23	4.64	119.88	119.97
	L2	3.53	60.66	60.76	6.27	117.02	117.19
	L3	-12.89	31.65	34.18	-13.42	72.1	73.34
	L4	2.08	37.5	37.55	2.65	74.52	74.56
	L5/Roof	-0.74	13.64	13.66	-0.76	36.65	36.66
Wall 24							
	L1	79.79	0.44	79.8	170.02	0.26	170.02
	L2	93.31	0.47	93.32	183.26	0.3	183.26
	L3	43.81	-0.07	43.81	95.82	-0.09	95.82
	L4	98.51	1.25	98.52	139.43	1.25	139.44
	L5/Roof	90.58	1.72	90.6	114.53	1.78	114.54
Wall 25							
	L1	79.64	0.44	79.64	168.62	0.27	168.62
	L2	92.35	0.47	92.36	180.98	0.3	180.99
	L3	43.39	-0.07	43.39	94.67	-0.08	94.67
	L4	97.19	1.23	97.2	137.53	1.23	137.54
	L5/Roof	87.46	1.67	87.47	110.82	1.73	110.83
Wall 26							
	L1	0.31	64.93	64.93	-0.11	120.24	120.24
	L2	-0.03	60.5	60.5	-0.45	116.26	116.26
	L3	2.35	31.31	31.4	2.43	70.78	70.82
	L4	0.41	36.61	36.61	0.32	72.77	72.77
	L5/Roof	0.62	11.28	11.3	0.61	33	33.01
Wall 27							
	L1	0.71	64.7	64.71	1.12	119.79	119.8
	L2	0.9	60.31	60.32	1.32	115.88	115.89
	L3	-1.68	31.25	31.29	-1.76	70.73	70.75
	L4	0.85	36.61	36.62	0.94	72.77	72.78
	L5/Roof	0.29	11.31	11.32	0.29	33.05	33.05
Wall 28							
	L1	-32.46	53.82	62.86	-57.71	104.42	119.3
	L2	-27.51	53.58	60.23	-51.91	105.37	117.46
	L3	-61.74	28.73	68.1	-83.05	66.98	106.69
	L4	-32.17	34.88	47.45	-45.65	69.84	83.44
	L5/Roof	-23.21	19.65	30.41	-30.34	44.03	53.47

PART 1 GENERAL

1.01 DESCRIPTION

A. This specification section shall define the minimum requirements of the externally bonded composite strengthening system.

1.02 REFERENCES

A. General

1. The latest reference edition available on the day of bid invite shall be used for all standards.

B. American Concrete Institute (ACI)

1. ACI 440.2R, Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening of Concrete Structures
2. ACI Repair Application Procedures (RAP) No. 1 through No. 7

C. American Society for Testing and Materials (ASTM)

1. ASTM D3039, Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials
2. ASTM D4263, Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
3. ASTM D4541, Standard Test Method for Pull-Off Strength for Coatings Using Portable Adhesion Testers
4. ASTM D7522, Standard Test Method for Pull-Off Strength for FRP Bonded to Concrete Substrate
5. ASTM D7565, Standard Test Method for Determining Tensile Properties of Fiber Reinforced Polymer Matrix Composites Used for Strengthening of Civil Structures
6. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials

D. International Concrete Repair Institute (ICRI)

1. ICRI Technical Guideline No. 310.1R, Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion
2. ICRI Technical Guideline No. 310.2R, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays
3. ICRI Technical Guideline No. 320.2R, Guide for Selecting and Specifying Materials for Repair of Concrete Surfaces
4. ICRI Technical Guideline No. 210.3R, Guide for Using In-Situ Tensile Pulloff Tests to Evaluate Bond of Concrete Surface Materials
5. ICRI Technical Guideline No. 210.1R, Guideline for Verifying Field Performance of Epoxy Injection of Concrete Cracks

E. ICC Evaluation Service (ICC-ES)

1. AC125, Acceptance Criteria for Concrete and Reinforced and Unreinforced Masonry Strengthening using Externally Bonded Fiber-Reinforced Polymer (FRP) Composite Systems
2. AC178, Acceptance Criteria for Inspection and Verification of Concrete and Reinforced and Unreinforced Masonry Strengthening using Fiber-Reinforced Polymer (FRP) Composite Systems

1.03 MEASUREMENT AND PAYMENT

A. The composite strengthening system shall be bid as a lump sum and is to include all costs associated with the work defined in this specification section. This includes the furnishing of all submittals, materials, tools, equipment, labor, surface preparation, transportation, storage, and supervision required for the application of the FRP materials.

1.04 SUBMITTALS

A. Manufacturers' Product Data

1. Current ICC Evaluation Service Report for the proposed materials.

2. Technical data sheets for materials to be used.
3. Safety data sheets (SDS) for each material component.
4. Installation instructions, including temperature restrictions, moisture limitations, surface preparation methods, curing times, and finish requirements.

B. Calculations and Drawings

1. Design calculations and shop drawings for the composite system shall be compliant with ACI 440.2R and must be stamped and signed by Civil or Structural Engineer registered in the state that the project site resides in.
2. Shop drawings, at a minimum, must detail the necessary surface preparation, composite system to be used, number of layers, locations, end details, primary fiber direction, and finish requirements.

C. Applicator Qualification

1. Written documentation from the composite system manufacturer that the contractor has completed the manufacturer's training program and has been trained to install the proposed system.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. All products shall be delivered, stored, and handled according to the manufacturer's recommendations.

B. Materials shall be clearly labeled and delivered in factory-sealed containers with manufacturing dates and shelf lives easily identifiable.

C. Materials shall be stored in a protected area free of moisture and UV exposure, with temperatures between 45°F and 95°F.

PART 2 PRODUCTS

2.01 FRP COMPOSITE STRENGTHENING SYSTEM

A. The FRP composite strengthening system has been preapproved and shall be a Composite Strengthening System™ supplied by Simpson

Strong-Tie®, Inc., 5956 W. Las Positas Boulevard, Pleasanton, CA 94588, Phone: 925.560.9000, Fax: 925.847.1605.

1. Fabric
    a. CSS-CUCF44: Code listed, unidirectional carbon fabric.
2. Epoxy Adhesive
    a. CSS-ES: Epoxy saturant and primer.
3. Epoxy Paste
    a. CSS-EP: Epoxy paste and filler.
    b. CSS-ES thickened with fumed silica: Epoxy paste and filler.
    c. FX-702: Oven-Dried Rounded Silica Filler.

2.02 CONCRETE REPAIR PRODUCTS

A. The concrete repair products have been preapproved and shall be supplied by Simpson Strong-Tie®, Inc., 5956 W. Las Positas Boulevard, Pleasanton, CA 94588, Phone: 925.560.9000, Fax: 925.847.1605.

1. Crack repair products. Cracked substrates with cracks wider than 0.01 inch must be pressure injected with epoxy prior to FRP installation. For concrete substrates, refer to ACI 224.1R. Smaller cracks exposed to aggressive environments may require resin injection or sealing to prevent corrosion of existing steel reinforcement. Crack-width criteria for various exposure conditions are given in ACI 224.1R. The crack repair system shall be epoxy based two-component high-solids formulation, meeting the mechanical strength requirements of ASTM C-881 type IV epoxy bonding systems. The crack repair system shall be suitable for the condition at which it will be placed: dry, damp, wet, high or low temperature, horizontal or vertical. The crack repair system shall not be installed in an active leaking crack or an active moving crack. The crack repair system shall be able to be installed by crack

injection or gravity fed as needed for the application. Pre-approved systems include:

a. For hairline cracks up to 1/4" in width use: Simpson Strong-Tie ETI-SLV: meets the requirements of ASTM C-881 type I, and IV, grade 1
b. For fine cracks (greater than 1/64") up to 1/4" in width use: Simpson Strong-Tie ETI-LV: meets the requirements of ASTM C-881 type I, and IV, grade 1. Approved under NSF/ANSI standard 61 (22 in2/1000 gal)
c. For medium size cracks (greater than 3/32") up to 1/4" in width use: Simpson Strong-Tie ETI-GV: meets the requirements of ASTM C-881 type I, and IV, grade 3

2. Reinforcement steel primer. Primer shall be used to protect steel reinforcing from corrosion and promote positive bond from existing steel reinforcing to new repair material. Pre-approved systems include: Simpson Strong-Tie FX-406 Zinc-Rich Primer
3. Bonding agent for bonding new repair material to existing concrete. Pre-approved systems include:
   a. For applications 40°F (4.4°C) and above. Bonding agent shall meet the requirements of ASTM C881, type II, grade 2, class B: Simpson Strong-Tie FX-752 Epoxy Bonding Agent
   b. For applications 60°F (15.5°C) and above or when extended working time is required, bonding agent shall meet the requirements of ASTM C881, type II, grade 2, class C: Simpson Strong-Tie FX-792 LPL Long Pot Life Epoxy Bonding Agent
4. High performance repair mortars. Repair material shall be used to repair areas of damaged concrete. Note: any repairs made using cementitious repair mortars must be fully cured prior to applying

FRP. Allow 3-7 days for full cure or verify moisture content is less than 5% prior to applying FRP. Pre-approved systems include:

a. Simpson Strong-Tie FX-263 Rapid-Hardening Vertical/Overhead Repair Mortar
b. Simpson Strong-Tie FX-261S Form and Pour Repair Mortar
c. Simpson Strong-Tie FX-32GMF Repair Mortar with Fibers

5. Protective coatings for the FRP System. Pre-approved systems include:
   a. Simpson Strong-Tie FX-505 Water-Based Acrylic Coating
   b. Simpson Strong-Tie FX-207 Slurry Seal
   c. Simpson Strong-Tie FX-70-9 Epoxy Coating

PART 3 EXECUTION OF WORK

3.01 CONCRETE REPAIR PRIOR TO FRP INSTALLATION

A. All problems associated with the condition of the original concrete substrate should be addressed before surface preparation begins. This section details approved concrete repair products and procedures.

B. Before repairing the concrete, contractor shall remove all loose or deteriorated concrete by high-pressure water jetting or other mechanical means to reach sound concrete. If reinforcing steel is exposed, contractor shall remove all concrete behind the reinforcing steel following ICRI Technical Guideline 310.1R.

C. Cracks in the areas where loose or deteriorated concrete have been removed or in areas where the FRP will be installed shall be repaired using a crack repair system for non-moving and load bearing cracks.

D. Areas where loose or deteriorated concrete have been removed shall be filled with a repair system as necessary to restore the original shape of the element and prepare the surface profile for the composite strengthening system.

1. The repair system shall either consist of a:

a. Single component high performance mortar repair product, or

b. A combination of: steel reinforcing primer, bonding agent (if required by the engineer of record), and high performance mortar repair product

as noted in the construction drawings depending on the size and condition of the void to be filled.

2. The contractor shall follow the manufacturer's printed surface preparation and installation instructions of each component of the repair system to be used.

3.02 SURFACE PREPARATION

A. Surfaces to receive FRP shall be clean and sound at time of application. All dust, laitance, grease, curing compounds, and other foreign materials that may hinder the bond must be removed before installation.

B. All concrete surfaces shall be dry and free of surface moisture. If surface moisture is of concern, the surfaces shall be tested by the contractor to evaluate moisture transmission in accordance with ASTM D4263.

C. Existing concave and convex surfaces must be filled/transitioned with epoxy paste. To repair voids, CSS-EP or CSS-ES thickened with fumed silica may be extended with FX-702 at no more than a 1:1 ratio by volume.

D. The concrete shall be abrasively prepared to achieve an ICRI CSP 3 profile by means of grinding, sand blasting, shot blasting, or pressure washing.

3.03 SURFACE MOUNTED APPLICATION

A. Verify ambient and concrete surface temperatures are between 45°F and 95°F.

B. Apply one coat of epoxy primer using a nap roller when using fabrics.

C. Apply epoxy paste where minor surface defects are present.

D. Allow the primer and/or paste to become tacky to the touch before applying the saturated fabric.

E. When manually saturating fabric, precut sheets to required length using heavy duty shears before saturating with hand rollers. If mechanically saturating fabric with rollers, cut sheets using heavy duty shears either before or after they go through the epoxy bath. In both cases, ensure full fabric saturation is achieved.

F. Apply the saturated fabric to the installation surface and remove entrapped air using hand pressure, rollers, or trowels.

G. Apply additional layers as necessary to meet the project requirements, ensuring each layer is firmly adhered to the previous layer.

H. Feather all fabric seams/edges with epoxy paste.

I. Confirm that intimate contact between composite system and substrate will be maintained throughout the curing process.

J. Apply finish coating after full epoxy cure, lightly sanding epoxy surfaces before installation.

K. When metal penetrations are made through carbon FRP or metal is to be placed against carbon FRP, a barrier of glass FRP, epoxy paste, or air shall be provided between the carbon FRP and metal to ensure no electrical connection between the two materials.

3.04 QUALITY CONTROL

A. Field Monitoring

1. The work performed in the preceding sections of Part 3 of this specification will be field monitored by the Owner's Special Inspection Agency and will be paid for by the owner. The surface preparation shall be checked immediately before application of the composite system materials. Periodic inspection shall be provided during the application process.

2. The special inspector shall create daily reports that document the following:
    a. Date and time of installation.
    b. Ambient temperature, relative humidity, and weather conditions.
    c. Substrate surface temperature and dryness.
    d. Surface preparation method and ICRI concrete surface profile.
    e. Surface cleanliness description.
    f. Fabric batch numbers.
    g. Epoxy batch numbers, mix ratios, and mixing times.
    h. Application locations.
    i. Conformance with installation procedures.
    j. Location and size of any delaminations/voids identified or repaired.
3. For fabric systems, the contractor shall create a minimum of two material sample sets daily. Each set will consist of two 12 in. by 12 in. panels made of two layers of saturated fabric and the sets shall be taken at different times during the working shift so that it is representative of maximum variances in material/site conditions. Prepare samples on a flat, level surface covered with heavy-duty vinyl (or similar). Prime vinyl with epoxy saturant, place saturated layers, and apply a top coat of epoxy saturant. Samples shall be cured at the site under the same environmental conditions as the production work they represent and must be marked with sample date, time, epoxy/fabric batch numbers, and installation locations.

B. Field Testing

1. Adhesion Tests

a. Pull-off tests shall be conducted in accordance with ASTM D7522 and/or ASTM D4541 and performed on flat surfaces. 3 tests shall be executed on each type of substrate or surface preparation method used, with a minimum of 3 tests per 1000 square feet of surface area covered. Testing shall be done on an area adjacent to strengthening locations with substrate, surface preparation, and orientation (i.e. overhead, vertical, etc.) that are representative of that being strengthened. Before pull-off tests are performed, the composite system shall be allowed to reach full cure.

b. Adhesion strengths shall be in excess of 200 psi.

2. Concrete Repair

a. The cured repair material shall be sounded for delaminations.

b. An in-situ direct tensile pull-off bond test of the cured repair material shall be performed per ICRI Technical Guideline No. 210.3R to evaluate the bond of the repair material to the substrate (if required by the engineer of record).

C. Lab Testing

1. Tension Tests

a. General

i. Lab tension tests are only required when structural performance criteria is specified.

ii. Tension tests shall be performed to verify the tensile strength, strain, and modulus of the composite strengthening system based on the nominal layer thickness reported on the manufacturer's data sheet and used in the design calculations.

iii. The composite tensile properties used in the design calculations must be lower than the average of the test results unless calculations are performed with the reported average tensile properties show that the strengthening requirements are satisfied.

b. Fabric Systems

i. One panel from a minimum of 15% of all sample sets shall be selected for tension testing performed in accordance with ASTM D7565 and/or ASTM D3039.

D. Defects

1. Small delaminations less than 2 square inches are acceptable so long as the delaminated area is less than 5% of the total laminate area and there are no more than 10 such delaminations per 10 square feet.
2. Large delaminations greater than 25 square inches shall be locally cut away and a new material shall be applied with an equivalent number of layers and sufficient development length overlaps.
3. Delaminations between 2 square inches and 25 square inches shall be injected with epoxy or replaced, depending on the size, number of delaminations, and locations.

E. Remedial Measures

1. If the composite tensile properties used in the design calculations are higher than the average of the laboratory test results, design calculations shall be resubmitted, showing that the target design performance has been achieved. If this is not the case, additional layers shall be applied until the target design performance is reached.

Appendix B

Reference Hazardous Material Reports

30620 Pacific Hwy S Suite 103 Federal Way, WA 98003
Tel: 253 941 4343 Fax: 253 941 4175

Asbestos Northwest, LLC - Survey Report

30620 Pacific Hwy S, #103, Federal Way, WA 98003
253.941.4343

Revised 10/21/2019 – Revisions in Blue

Survey Location: **23660 Marine View Dr S Des Moines WA**

Prepared for: Ascendent LLC

Date: Jul 1st, 2019

Asbestos Northwest Batch Number: 201912224

Inspector: Sean Butler (#173733)

E-mail: seanb@asbestosnw.com

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Contents

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1. Background Information and Scope of Work

On July 1st 2019 Asbestos Northwest, LLC conducted a limited survey of portions of the residential complex at 23660 Marine View Dr S in Des Moines WA. AHERA-certified building inspector Sean Butler (#168124) conducted the survey to determine the presence of Asbestos Containing Materials (ACM's) prior to the sale of the property and the possible demolition or remodel of the surveyed areas.

The property had previously been in use as a retirement home and had been under the ownership of one organization since opening in the early 20th century. The focus of this limited survey was on the outbuildings, the only area of the main building accessed was one basement boiler room. The remainder of the main building and attached medical wing were the subject of an asbestos survey in 2003 which is still being considered sufficient by the client.

The complex was largely vacant, with only facility caretakers still on the site full time. Maintenance was ongoing although several of the outbuildings had been unused for some time and were now quite overgrown. The condition of these structures was generally good however.

This survey covered the boiler system in room 56 of the main building, the two maintenance garages, barbecue covered areas and associated restroom, and the two residences at the south side of the property with addresses C49 and C51. Of these areas, only the garages were still in active use by the groundskeeping and maintenance staff and were in the best condition of the areas surveyed.

Potential asbestos-containing materials were located and sampled from the interior and exterior of the buildings. See Appendix B for a detailed floor plan with sample locations.

Materials were located and sampled following AHERA protocol in 40 CFR 763.86, then analyzed in-house at Asbestos Northwest per 40 CFR 763.86. See section 3 for detailed sampling information.

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2. Building Descriptions

Each area is described separately, and each grouping was examined independently from the others. Photos are provided in appendix B.

Boiler Room 56

The main building was constructed in the 1920's and was a retirement home. The only portion accessed was room 56, a basement level boiler room. This room contained two large oil-fired boilers and a large quantity of insulated piping. Per the building owner representative the boilers were originally coal fired and supplied hot water to radiators throughout the building. Most pipe insulation in this area appeared to have been replaced with fiberglass however suspect wrap materials were in place on the hot water lines and within the boiler which was open for inspection.

All wrap and insulation materials sampled from this area were asbestos free. Other boilers and mechanical spaces are present on the property and were not accessible, these spaces may have asbestos containing materials within. The mechanical system was still in operation and the majority of the system was inaccessible to the inspector.

Garages

Two garages were located behind the main residential structure and were nested together in similar arch shapes. Both of these structures were still in use at the time of the inspection and appeared to be in good condition.

The north-eastern garage appeared to be relatively new, perhaps built sometime in the last 30 years. It was still in use primarily as a storage facility for grounds keeping equipment. It was of wood framed construction and was on a concrete foundation. Its interior walls and ceilings were bare drywall with joint compound on seams and was configured as one large open space. Fiberglass insulation was in place in the walls and attic, while floors were bare concrete. The exterior was clad in wood siding over plaster vapor barrier and the roof was asphaltic shingle. The building had modern wiring and no heating system in place.

The south-western garage was older and was in use as storage. It was subdivided into smaller garage spaces with individual west facing doors. This building was of wood construction and the interior was entirely unfinished. Wiring was older and the panel was inaccessible. This building lacked any form of heating system. Exterior walls were concrete stucco and glazed windows were located at either end.

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Barbecue Area

At the west end of the property were located a trio of structures all of similar style and likely age. These were an outdoor barbecue or kitchen area, covered seating area, and a restroom. The barbecue and seating structures had wood framed, pitched roofs of asphaltic shingles with low concrete walls and bare concrete flooring. The restroom was entirely of wood construction on a concrete slab with bare concrete flooring, and a similar roof to the other two structures. All three were simple structures with no insulation, mechanical systems, or windows.

Residences C49 and C51

The two residences located at the south east border of the property were model homes for an abandoned plan of expansion through the forested portion of the property. These structures had been built prior to the great recession but had been unoccupied since that time. They had suffered from this abandonment but were fundamentally still sound at the time of the inspection. The two residences were attached as duplexes, but for the purposes of this inspection each interior was treated as a distinct homogenous area.

These structures were of wood framed construction on concrete foundations. Interior walls and ceilings were finished with drywall throughout. Flooring was mostly carpet with some ceramic tile, wood laminate, vinyl tile and sheet vinyl in small areas. Windows lacked suspect glazing materials. The roof was asphaltic shingle and the exterior walls were clad in stucco. Electricity was live in both units, and electrical panels contained breakers.

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3. Material Sampling Information

Asbestos survey work performed by Asbestos Northwest meets inspection regulatory requirements enforced by federal, state, and local agencies, including Asbestos Hazard Emergency Response Act (AHERA), WAC 296-62-077 (WISHA) and 40 CFR Part 61 (NESHAP) and 29 CFR Part 1926.1101 (OSHA)

Definitions

Homogenous – Materials with the same appearance, texture, color, and which were applied during the same general construction period.

Surfacing Material – Material that has been sprayed-on, troweled-on or otherwise applied to surfaces, such as acoustical plaster, texture and joint compound, and fireproofing materials on structural members.

Thermal System Insulation – Material applied to pipes, fittings, boilers, breaching, ducts, and other interior structural components to prevent heat loss or gain.

Miscellaneous Material – Building materials such as structural components, structural members or fixtures not included in surfacing and thermal insulation.

Survey Methodology

Before sampling began, inspectors documented the total surveyed area. A sketch of each space was created, and total square footage was roughly measured. The inspectors then determined the extent of each visible homogenous material throughout the survey area.

Materials were classified as surfacing, thermal insulation, or miscellaneous material, and friability was assessed according to AHERA specifications.

Materials were sampled according to 40 CFR 763.86. Depending on homogeneity, square footage, and material type, the proper number of samples needed to accurately assess the location and extent of asbestos was determined and collected. At the point of collection, samples were placed in an appropriate container and labeled. Location was noted on the building floor plan, and a description of the material was recorded with the label number.

Sampling tools were then wiped clean to prevent contamination between samples. Any suspect debris was sealed. The samples were then counted, and their label numbers were recorded on a chain of custody form. The inspector then signed and released the form to the laboratory with the samples. Samples were analyzed in-house at Asbestos Northwest.

Below is a list of all materials sampled. Appendix C contains the laboratory report and analytical results for each sample.

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Description	Material Type	Sample Numbers and Locations
White Brittle TSI	Friable Thermal Systems Insulation	1- Water Tank by Boiler 3
White Woven TSI	Friable Thermal Systems Insulation	2- Boiler 3 Door Seal
White Brittle TSI	Friable Thermal Systems Insulation	3- Boiler 3 Packing Around Rope Seal
White Woven Rope Seal	Friable Thermal Systems Insulation	4- Boiler 3
Gray Brittle Material	Friable Thermal Systems Insulation	5- Inside Boiler 3 Combustion Chamber
Joint Compound	Friable Surfacing Material	6- New Garage Wall by Large Door 7- New Garage NW Wall 8- New Garage Wall at Middle 9- New Garage South Wall 10- New Garage South Ceiling 20- C49 Entryway Wall 23- C49 Kitchen Wall 24- C49 Laundry Wall 28- C51 Kitchen Wall 31- C51 Downstairs Bathroom Wall 32-C51 Back East Room Wall 33- C51 Back West Room Wall 35- C51 Upstairs Front Bedroom Wall
Asphaltic Shingle	Non-Friable Miscellaneous Material	11- New Garage Roof 16- Old Garage Roof 17- Barbecue Shelter Roof 18- Barbecue Seating Roof 19- Barbecue Bathroom Roof 39- C51 Roof
White Brittle Window Glazing	Non-Friable Miscellaneous Material	12- Old Garage North Window 14- Old Garage South Window
Stucco	Non-Friable Miscellaneous Material	13- Old Garage North Wall 15- Old Garage South Wall 26- C49 Exterior Wall

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Texture	Friable Surfacing Material	21- C49 Living Room Wall 22- C49 Den Wall 25- C49 Bathroom Wall 27- C51 Living Room Wall 28- C51 Den Wall 34- C51 Upstairs Landing Wall 36- C51 Upstairs Mid Bedroom Wall 38- C51 Upstairs Bathroom Wall
Blue and White Vinyl Tiles	Non-Friable Miscellaneous Material	30- C51 Utility Room Floor
White Sheet Vinyl	Non-Friable Miscellaneous Material	36- C51 Upstairs Bathroom Floor

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4. Asbestos Containing Material

A homogenous material is considered ACM (Asbestos Containing Material) if one or more samples of the material are found to have greater than 1% asbestos. Analysis can result in both positive and negative conclusions in materials containing less than 10% asbestos, or materials that have very fine asbestos fibers, have been hand mixed, or have asbestos fibers tightly bound in the matrix; therefore, EPA recommends a minimum of three samples be analyzed by PLM for these types of materials. All materials that were sampled during the inspection were analyzed under PLM, EPA Method 600/R-93/116.

Laboratory results show that none of the samples taken contained asbestos.

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5. Conclusions

None of the materials sampled contained asbestos.

The boiler room appeared to have been abated in the past, as all accessible runs of pipe appeared to be wrapped exclusively in fiberglass. As the system is extensive and still active further materials may be present that would warrant testing. The emphasis here was strictly on the boiler that had been opened for inspection.

The two garages were of different ages but were both of simple construction and all suspect materials were found to be asbestos free. The older garage lacked interior finishing materials entirely, and only had two windows. Glazing from both was tested and contained no asbestos.

The trio of barbecue shelters were all simple structures of wood and concrete with asphaltic shingle roofing. All three lacked suspect finishing materials beyond roofing, which was found to be asbestos free.

The residences C49 and C51 were of recent construction and very similar in materials. As duplexes they were likely completed at the same time by the same organization and contained no suspect materials.

The prior survey report on the main building and hospital wing carried out in 2003 was reviewed by Asbestos Northwest and was found to still meet current inspection standards. Asbestos survey reports are not considered subject to expiration so long as the condition of the building is unchanged, a follow-on survey of the main building and hospital wing was considered unnecessary at this time.

Further materials may be exposed during the demolition process that would warrant testing. Any identified asbestos containing material must be abated before demolition can continue. A Certified Asbestos Abatement Contractor must carry out abatement.

Different materials require different abatement processes depending on the friability, type of asbestos, and amount of asbestos present. It is important that materials are treated by a Certified Asbestos Abatement Contractor.

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Appendix A – Certifications

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200993-0

Asbestos Northwest, LLC
Federal Way, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2019-04-01 through 2020-03-31
Effective Dates

For the National Voluntary Laboratory Accreditation Program

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21905 64th Ave W, #100
Mountlake Terrace, WA 98043
(206) 285-3373

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

This certifies that

Sean T. Butler

has satisfactorily completed
4 hours of refresher training as an
AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

Instructor Date: Jun 18, 2019

EPA Provider # 1085
Expires in 1 year.

Cert. Num: 173733

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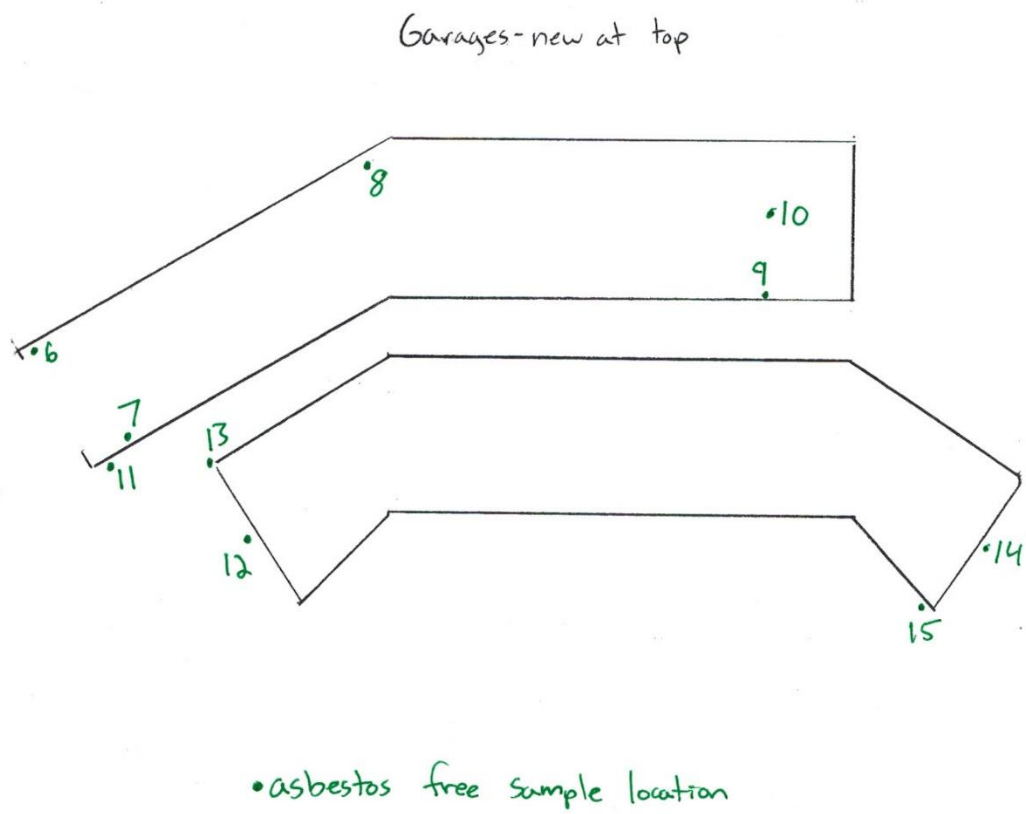
Appendix B – Building Layout



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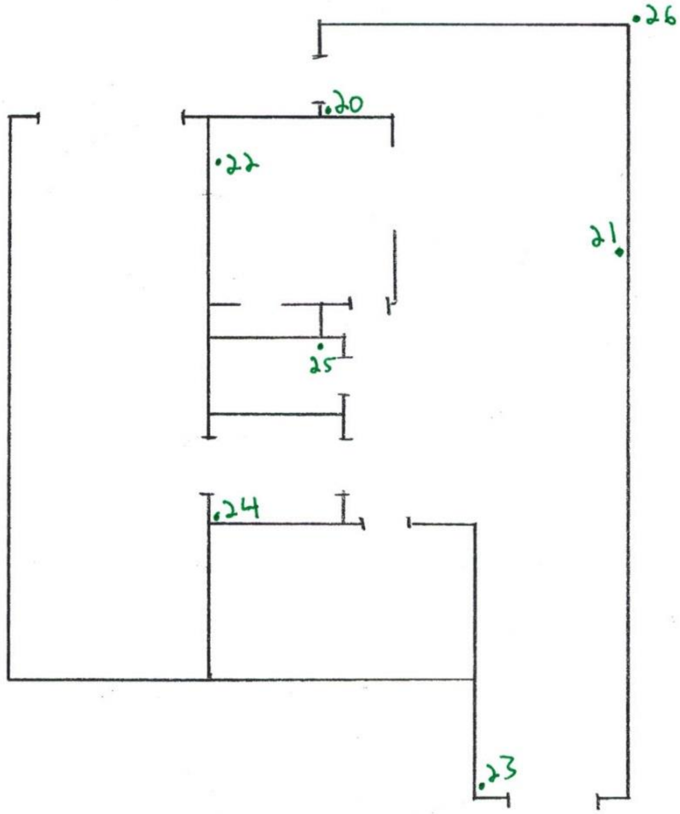
C49



•asbestos free sample location

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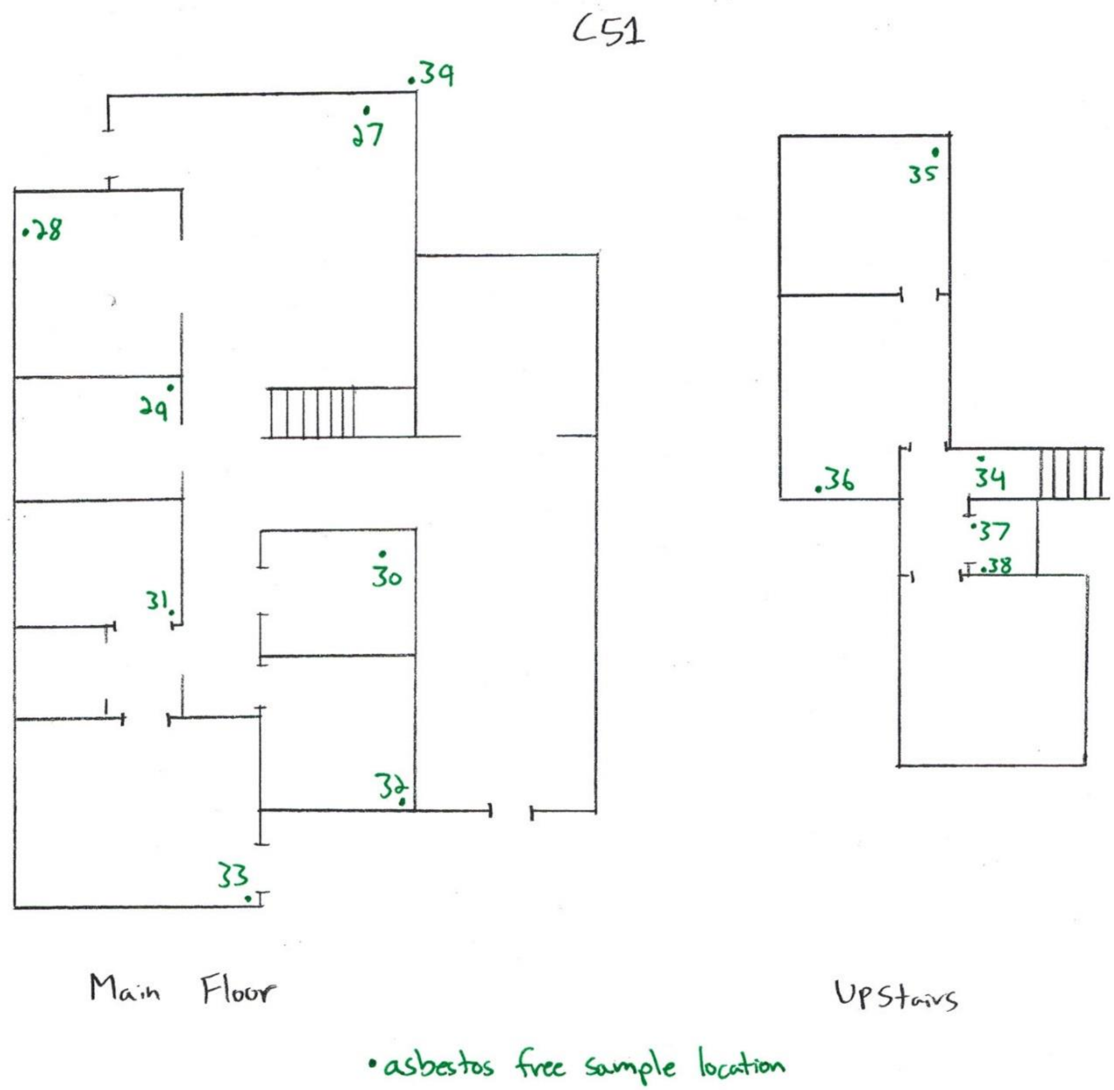

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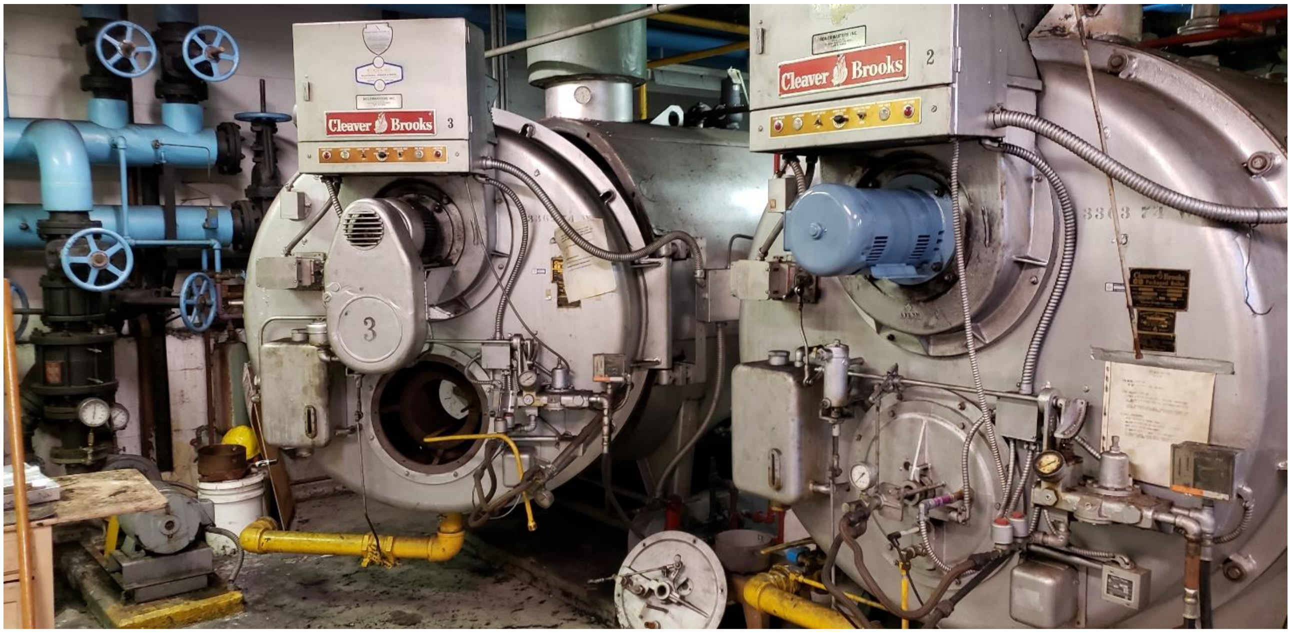

Boiler 3

Samples 2-5

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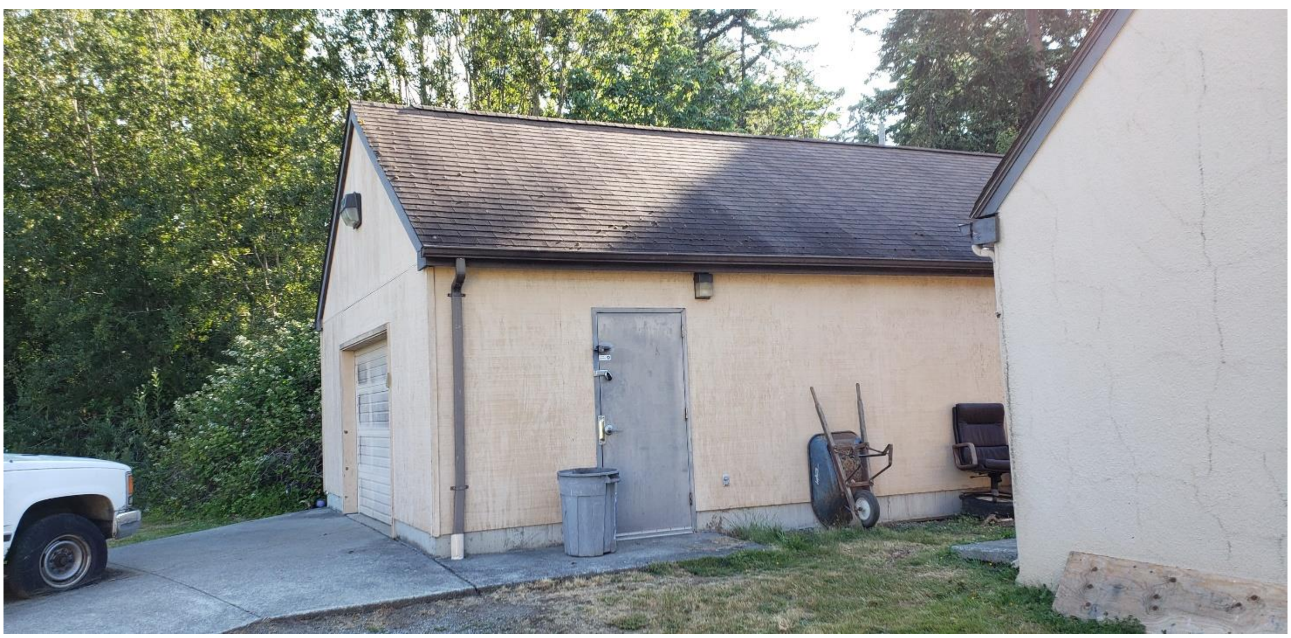
Old Garage Exterior



New Garage Exterior

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New Garage Interior

Old Garage Interior

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Barbecue Shelter

Barbecue Shelter Interior

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Barbecue Seating Area

Barbecue Restroom Exterior

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Restroom Interior

C49 & C51

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C49 Living Room

C51 East Room

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Appendix C – Laboratory Report

ASBESTOS NORTHWEST
30620 Pacific Hwy S. #103, Federal Way, WA 98003
(253) 941-4343 NVLAP Lab Code: 200993-0

Asbestos NW Batch# 201912224

1 of 2

Bulk Samples Chain of Custody (EPA 600/R-93/116)

Name/Company: Ascendent LLC
Address: 106 Frontage Rd N Pacific WA 98047
Project Manager: Rick Estes
Project Location: 23660 Marine View Dr S Des Moines WA

Date: 7/8/2019
Phone:
E-mail: restes@ascdemo.com
Project #
Number of Samples: 39
Turn around time: 72

#	Sample ID	Description	Location/Comments
1	1	White Brittle TSI	Water Tank by Boiler 3 Room 56
2	2	White Woven TSI	Boiler 3 Door Seal Room 56
3	3	White Brittle TSI	Boiler 3 Packing Around Rope Seal Room 56
4	4	Rope Seal	Boiler 3 Room 56
5	5	Gray Brittle Material	Inside Boiler 3 Combustion Chamber Room 56
6	6	Joint Compound	New Garage Wall by Large Door
7	7	Joint Compound	New Garage NW Wall
8	8	Joint Compound	New Garage Wall at Middle
9	9	Joint Compound	New Garage South Wall
10	10	Joint Compound	New Garage South Ceiling
11	11	Asphaltic Shingle	New Garage Roof
12	12	White Brittle Window Glazing	Old Garage North Window
13	13	Stucco	Old Garage North Wall
14	14	White Brittle Window Glazing	Old Garage South Window
15	15	Stucco	Old Garage South Wall
16	16	Asphaltic Shingle	Old Garage Roof
17	17	Asphaltic Shingle	Barbecue Shelter Roof
18	18	Asphaltic Shingle	Barbecue Seating Shelter Roof
19	19	Asphaltic Shingle	Barbecue Bathroom Roof
20	20	Joint Compound	C49 Entryway Wall
21	21	Texture	C49 Living Room Wall
22	22	Texture	C49 Den Wall
23	23	Joint Compound	C49 Kitchen Wall
24	24	Joint Compound	C49 Laundry Wall
25	25	Texture	C49 Bathroom Wall
26	26	Stucco	C49 Exterior Wall
27	27	Texture	C51 Living Room Wall
28	28	Texture	C51 Den Wall
29	29	Joint Compound	C51 Kitchen Wall
30	30	Blue/White Checkered Vinyl Tiles and Mastic	C51 Utility Room Floor

	Print	Sign	Company	Date	Time
Sampled by:	Sean Butler		Asbestos NW	7/1/2019	8:00AM
Relinquished by:					
Delivered by:	Sean Butler			7/1/2019	11:30AM
Accepted by:	Dan Lafley			7/1/2019	11:30AM
Analyzed by:	Cathy Butler			7-3-19	

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ASBESTOS NORTHWEST
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Asbestos NW Batch# 201912224

2 of 2

Bulk Samples Chain of Custody (EPA 600/R-93/116)

Name/Company: Ascendent LLC
Date: 7/8/2019
Address: 106 Frontage Rd N Pacific WA 98047
Phone:
E-mail: restes@ascdemo.com
Project Manager: Rick Estes
Project #
Project Location: 23660 Marine View Dr S Des Moines WA
Number of Samples: 39
Turn around time: 72

#	Sample ID	Description	Location/Comments
1	31	Joint Compound	C51 Downstairs Bath Wall
2	32	Joint Compound	C51 Back East Room Wall
3	33	Joint Compound	C51 Back West Room Wall
4	34	Texture	C51 Upstairs Landing Wall
5	35	Joint Compound	C51 Upstairs Front Bedroom Wall
6	36	Texture	C51 Upstairs Mid Bedroom Wall
7	37	White Sheet Vinyl	C51 Upstairs Bathroom Floor
8	38	Texture	C51 Upstairs Bathroom Wall
9	39	Asphaltic Shingle	C51 Roof
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

	Print	Sign	Company	Date	Time
Sampled by:	Sean Butler	[signature]	Asbestos NW	7/1/2019	8:00AM
Relinquished by:					
Delivered by:	Sean Butler	[signature]		7/1/2019	11:30AM
Accepted by:	Dan Lafley	[signature]		7/1/2019	11:30AM
Analyzed by:	Cathy Butler	Cathy Butler		7-3-19	

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Asbestos Northwest, LLC
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Ph: (253) 941-4343 Fax: (253) 941-4175

TESTING
NVLAP LAB CODE 200993-0

Batch Number: 201912224

PLM Analysis by EPA Method 600/M4-82-020 and 600/R-93/116

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Attn: Rick Estes
Ascendent LLC
106 Frontage Rd N, Pacific, WA 98047

Date Received: 7/1/2019
Date Analyzed: 7/3/2019
Samples Received: 39
Samples Analyzed: 39

Location: 23660 Marine View Dr S Des Moines WA

Client Sample ID	Lab Sample ID	Layer	Description	Matrix	% Non-Asbestos Fibers	% Asbestos Fibers and Type
1		1	White brittle material with paint	Binder/filler, Paint	3% Cellulose, Glass fibers	**None Detected**
2		1	White woven material with mastic	Filler/binder, mastic	70% Cellulose, Synthetic fibers	**None Detected**
3		1	White woven material	Filler/binderc	70% Cellulose, Synthetic fibers	**None Detected**
4		1	White/Black woven material	Filler/binderc	70% Glass fibers	**None Detected**
5		1	Gray brittle material	Binder/filler	3% Cellulose, Glass fibers	**None Detected**
6		1	White powdery material with paper	Filler/binder	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
7		1	White powdery material with paper	Filler/binder	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**

Analyzed by: Cathy Butler Cathy Butler

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Batch Number: 201912224

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Attn: Rick Estes
Ascendent LLC
106 Frontage Rd N, Pacific, WA 98047

Date Received: 7/1/2019
Date Analyzed: 7/3/2019
Samples Received: 39
Samples Analyzed: 39

Location: 23660 Marine View Dr S Des Moines WA

Client Sample ID	Lab Sample ID	Layer	Description	Matrix	% Non-Asbestos Fibers	% Asbestos Fibers and Type
8		1	White powdery material with paper	Filler/binder	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
9		1	White powdery material with paper	Filler/binder	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
10		1	White powdery material with paper	Filler/binder	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
11		1	Black asphaltic material with sand	Asphalt/binder, Sand	50% Cellulose, Glass fibers, Polyethylene	**None Detected**
12		1	White brittle material	Binder/filler	2% Cellulose, Talc	**None Detected**
13		1	Gray sandy/brittle material with paint	Filler, Binder, Sand, Paint	1% Cellulose	**None Detected**
14		1	White brittle material	Binder/filler	2% Cellulose, Talc	**None Detected**
15		1	Gray sandy/brittle material with paint	Filler, Binder, Sand, Paint	1% Cellulose	**None Detected**

Analyzed by: Cathy Butler Cathy Butler

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Batch Number: 201912224

PLM Analysis by EPA Method 600/M4-82-020 and 600/R-93/116

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Attn: Rick Estes
Ascendent LLC
106 Frontage Rd N, Pacific, WA 98047

Date Received: 7/1/2019
Date Analyzed: 7/3/2019
Samples Received: 39
Samples Analyzed: 39

Location: 23660 Marine View Dr S Des Moines WA

Client Sample ID	Lab Sample ID	Layer	Description	Matrix	% Non-Asbestos Fibers	% Asbestos Fibers and Type
16		1	Black asphaltic material with sand	Asphalt/binder, Sand	50% Cellulose, Glass fibers, Polyethylene	**None Detected**
17		1	Black asphaltic material with sand	Asphalt/binder, Sand	50% Cellulose, Glass fibers, Polyethylene	**None Detected**
18		1	Black asphaltic material with sand	Asphalt/binder, Sand	50% Cellulose, Glass fibers, Polyethylene	**None Detected**
19		1	Black asphaltic material with sand	Asphalt/binder, Sand	70% Cellulose, Glass fibers	**None Detected**
20		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
21		1	White chalky material with paint and paper	Filler/binder, Gypsum, Paint	15% Cellulose, Glass fibers	**None Detected**
22		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
23		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**

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Batch Number: 201912224

PLM Analysis by EPA Method 600/M4-82-020 and 600/R-93/116

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Attn: Rick Estes
Ascendent LLC
106 Frontage Rd N, Pacific, WA 98047

Date Received: 7/1/2019
Date Analyzed: 7/3/2019
Samples Received: 39
Samples Analyzed: 39

Location: 23660 Marine View Dr S Des Moines WA

Client Sample ID	Lab Sample ID	Layer	Description	Matrix	% Non-Asbestos Fibers	% Asbestos Fibers and Type
24		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
25		1	White chalky material with paint and paper	Filler/binder, Gypsum, Paint	15% Cellulose, Glass fibers	**None Detected**
26		1	Gray sandy/brittle material	Filler, Binder, Sand	1% Cellulose	**None Detected**
27		1	White chalky material with paint and paper	Filler/binder, Gypsum, Paint	15% Cellulose, Glass fibers	**None Detected**
28		1	White chalky material with paint and paper	Filler/binder, Gypsum, Paint	15% Cellulose, Glass fibers	**None Detected**
29		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
30		1	Blue tile, White tile	Vinyl/binder, Mineral grains	2% Cellulose, Wollastonite	**None Detected**
		2	Green mastic	Mastic/binder	1% Cellulose	**None Detected**

Analyzed by: Cathy Butler Cathy Butler

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TESTING
NVLAP LAB CODE 200993-0

Batch Number: 201912224

PLM Analysis by EPA Method 600/M4-82-020 and 600/R-93/116

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Attn: Rick Estes
Ascendent LLC
106 Frontage Rd N, Pacific, WA 98047

Date Received: 7/1/2019
Date Analyzed: 7/3/2019
Samples Received: 39
Samples Analyzed: 39

Location: 23660 Marine View Dr S Des Moines WA

Client Sample ID	Lab Sample ID	Layer	Description	Matrix	% Non-Asbestos Fibers	% Asbestos Fibers and Type
31		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
32		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
33		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
34		1	White chalky material with paint and paper	Filler/binder, Gypsum, Paint	15% Cellulose, Glass fibers	**None Detected**
35		1	White powdery material with paint and paper	Binder/filler, Paint	10% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**
36		1	White powdery material with paint	Binder/filler, Paint	2% Cellulose	**None Detected**
		2	White chalky material with paper	Filler/binder, Gypsum	15% Cellulose, Glass fibers	**None Detected**

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30620 Pacific Hwy S, #103, Federal Way, WA 98003
Ph: (253) 941-4343 Fax: (253) 941-4175

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NVLAP LAB CODE 200993-0

Batch Number: 201912224

PLM Analysis by EPA Method 600/M4-82-020 and 600/R-93/116

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Attn: Rick Estes
Ascendent LLC
106 Frontage Rd N, Pacific, WA 98047

Date Received: 7/1/2019
Date Analyzed: 7/3/2019
Samples Received: 39
Samples Analyzed: 39

Location: 23660 Marine View Dr S Des Moines WA

Client Sample ID	Lab Sample ID	Layer	Description	Matrix	% Non-Asbestos Fibers	% Asbestos Fibers and Type
37		1	White sheet vinyl	Vinyl/binder	None Detected	**None Detected**
		2	Tan woven material with mastic	Filler, Mastic/binder	75% Cellulose, Synthetic fibers	**None Detected**
38		1	White chalky material with paint and paper	Filler/binder, Gypsum, Paint	15% Cellulose, Glass fibers	**None Detected**
39		1	Black asphaltic material with sand	Asphalt/binder, Sand	50% Cellulose, Glass fibers, Polyethylene	**None Detected**

Analyzed by: Cathy Butler Cathy Butler

Report Page 6

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

November 12, 2019

Mr. Bryce Snyder
Tarragon
601 Union Street, #3500
Seattle, WA 98101

Subject: Lead (Pb) Paint Inspection @ 23660 Marine View Drive S, Des Moines, WA 98198

NVL PROJECT # 2019-0870

Dear Mr. Snyder,

Mr. Tanveer Khan (a Washington Department of Commerce - Certified Lead Risk Assessor) and Mr. Jason Lindahl (a Washington Department of Commerce - Certified Lead Inspector), conducted Lead (Pb) paint inspection at the subject property on November 5, 2019.

The purpose of this inspection was to identify lead paint coatings which would be impacted by the planned demolition of the following structures.

1- 1926 built, a 6-story structure.
2- 1966 built; 3 wings associated with the 6-story structure.
3- 2- Large garages with a detached shed.
4- Duplex structure.
5- Restroom, BBQ area, sitting area (including benches)
6- Pump houses, water tower, and the greenhouse.

This paint inspection was conducted to comply with WAC 296-155-176 "Lead in Construction". The Lead in Construction regulations are designed to protect workers from lead hazards during construction and demolition activities.

PAINT CHIP SAMPLING

A through visual inspection was conducted of all the structures listed above. Representative paint chip samples were collected using cold-scraping method described in ASTM E1729-05, "Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atopic Spectrometry Techniques."

Paint samples are analyzed for the presence of inorganic lead using atomic absorption spectroscopy (AAS) in accordance with EPA SW 846, method 7420 as revised 1986. This method reports results in milligrams per kilogram (mg/kg) or parts per million (ppm).

PAINT SAMPLE RESULTS

Sample Number	Material Description	Location	Lead in mg/kg	Lead in %
2019-0870-Pb-1	White paint on drywall	Duplex - interior walls / ceilings	< 45	< 0.0045
2019-0870-Pb-2	White paint on wood	Duplex - interior window / door trims	< 46	< 0.0046
2019-0870-Pb-3	Green paint on stucco	Duplex - exterior sidings	< 32	< 0.0032
2019-0870-Pb-4	Gray paint on wood	Duplex - ext. door / porch components & trims	< 53	< 0.0053
2019-0870-Pb-5	White paint on wood	Restroom - walls / ceilings / window / door components & BBQ - cabinetry	< 45	< 0.0045
2019-0870-Pb-6	**Gray paint on concrete**	**Restroom - interior floor**	**79**	**0.0079**
2019-0870-Pb-7	Beige paint on wood	Restroom / BBQ / sitting - exterior siding	< 52	< 0.0052
2019-0870-Pb-8	**Black paint on metal**	**Water tower - posts**	**140000**	**14**
2019-0870-Pb-9	**Silver paint on CMU**	**Pump house - exterior walls**	**85**	**0.0085**
2019-0870-Pb-10	White paint on wood	Garage / shed - int. walls / window components	< 48	< 0.0048
2019-0870-Pb-11	Beige paint on metal	Garage / shed - exterior sliding doors	< 46	< 0.0046
2019-0870-Pb-12	**Beige paint on concrete**	**Garage / shed - exterior siding**	**990**	**0.099**
2019-0870-Pb-13	**Gray paint on wood**	**Garage / shed - ext. window / door components & fascia**	**39000**	**3.9**
2019-0870-Pb-14	Brown paint on wood	Exterior benches	< 50	< 0.0050
2019-0870-Pb-15	**White paint on plaster**	**6-story bldg. North to South wing - int. walls / ceilings**	**270**	**0.027**
2019-0870-Pb-16	**White paint on drywall**	**6-story bldg. North to South wing - int. walls / ceilings**	**390**	**0.039**
2019-0870-Pb-17	**Green paint on wood**	**6-story bldg. North to South wing - int. door components**	**680**	**0.068**
2019-0870-Pb-18	White paint on metal	6-story bldg. North to South wing - int. door / window components & radiators	< 54	< 0.0054
2019-0870-Pb-19	**White paint on plaster**	**6-story bldg. East to West wing - int. walls / ceilings**	**450**	**0.045**
2019-0870-Pb-20	White paint on drywall	6-story bldg. East to West wing - int. walls / ceilings	< 44	< 0.0044
2019-0870-Pb-21	**White paint on metal**	**6-story bldg. East to West wing - int. door / window components & radiators**	**600**	**0.060**

< Lead content of material analyzed is below the Lower Detection Limit.

Samples in bold contain lead in excess of detectable levels

PAINT SAMPLE RESULTS (CONTINUED)

Sample Number	Material Description	Location	Lead in mg/kg	Lead in %
2019-0870-Pb-22	**Purple paint on wood**	**6-story bldg. East to West wing - int. door components**	**84**	**0.0084**
2019-0870-Pb-23	**White paint on plaster**	**6-story bldg. South wing - int. walls / ceilings**	**780**	**0.078**
2019-0870-Pb-24	**White paint on drywall**	**6-story bldg. South wing - int. walls / ceilings**	**410**	**0.041**
2019-0870-Pb-25	**Purple paint on metal**	**6-story bldg. South wing - int. door / window components & radiators**	**590**	**0.059**
2019-0870-Pb-26	**White paint on wood**	**6-story bldg. South wing - int. door components**	**230**	**0.023**
2019-0870-Pb-27	Green paint on concrete	6-story bldg. South wing - floor	< 43	< 0.043
2019-0870-Pb-28	**Beige paint on concrete**	**6-story bldg. & greenhouse Exterior foundation walls**	**110000**	**11**
2019-0870-Pb-29	**Gray paint on wood**	**6-story bldg. & round pump house Exterior window / door components**	**17000**	**1.7**
2019-0870-Pb-30	**Gray paint on metal**	**6-story bldg. exterior stair wells**	**82000**	**8.2**
2019-0870-Pb-31	**Beige paint on wood**	**6-story bldg. - exterior canopy**	**14000**	**1.4**
2019-0870-Pb-32	**White paint on plaster**	**6-story bldg. - int. walls / ceilings**	**4800**	**0.48**
2019-0870-Pb-33	**White paint on plaster**	**6-story bldg. - int. walls / ceilings**	**560**	**0.056**
2019-0870-Pb-34	**Beige paint on stucco**	**6-story bldg. - 1960's wings exterior siding**	**1700**	**0.17**
2019-0870-Pb-35	White paint on drywall	6-story bldg. - int. walls / ceilings	< 48	< 0.0048
2019-0870-Pb-36	White paint on drywall	6-story bldg. - int. walls / ceilings	< 47	< 0.0047
2019-0870-Pb-37	**White paint on wood**	**6-story bldg. - int. door components & trims**	**19000**	**1.9**
2019-0870-Pb-38	**Beige paint on wood**		**8500**	**0.85**
2019-0870-Pb-39	**White paint on wood**	**6-story bldg. - int. window components & trims**	**35000**	**3.5**
2019-0870-Pb-40	**Beige paint on wood**		**6200**	**0.62**
2019-0870-Pb-41	**White paint on wood**	**6-story bldg. - int. shelving**	**130000**	**13**
2019-0870-Pb-42	**White paint on metal**	**6-story bldg. - int. radiators**	**58**	**0.0058**

< Lead content of material analyzed is below the Lower Detection Limit.

Samples in bold contain lead in excess of detectable levels

PAINT SAMPLE RESULTS (CONTINUED)

Sample Number	Material Description	Location	Lead in mg/kg	Lead in %
2019-0870-Pb-43	**White paint on metal**	**6-story bldg. - elevator components**	**2000**	**0.20**
2019-0870-Pb-44	Silver paint on metal	6-story bldg. - boiler	< 50	< 0.0050
2019-0870-Pb-45	**Gray paint on concrete**	**6-story bldg. - floor**	**740**	**0.074**
2019-0870-Pb-46	White paint on wood	6-story bldg. - cabinetry	< 51	< 0.0051
2019-0870-Pb-47	**Beige paint on concrete**	**6-story bldg. - exterior siding**	**150**	**0.015**

< Lead content of material analyzed is below the Lower Detection Limit.

Samples in bold contain lead in excess of detectable levels

CONCLUSIONS AND RECOMMENDATIONS

Paint coatings identified with detectable levels of lead (Pb) are highlighted in **bold** in the above table. Worker protection protocols apply.

The Federal Occupational Safety & Health Administration's (OSHA) interim lead safety standard (29 CFR 1926.59) for the construction industry became effective on June 3, 1993. Lead exposure in construction is regulated in Washington State by WAC 296-155-176. These regulations protect workers disturbing building surfaces with lead containing paints. Paint with "any detectable level" of lead is classified as a lead containing paint by federal and state regulations and the applicable worker safety provisions must be implemented.

WORKER EXPOSURE

WAC 296-155-176, Lead (Pb), applies to all construction work where an employee may be occupationally exposed to Lead (Pb). Construction work includes activities such as demolition or salvage, removal or encapsulation, and renovation of materials that contain Lead (Pb). When an employee may be occupational exposed to Lead (Pb), the employer must perform an exposure assessment according to WAC 296-155-176.

The exposure assessment consists of personal air monitoring to determine representative Lead (Pb) exposure levels for the work being performed. During the exposure assessment, the employer must provide the following:

- As a minimum, a half mask air purifying respirators equipped with high efficiency particulate air (HEPA) filters in accordance with WAC 296-155-17613.
- Appropriate personal protective clothing / equipment, as per WAC 296-155-17615.
- A designated change area which allows for separate storage areas for work and street clothing to prevent cross contamination in accordance with WAC 296-155-17619(2).

CONCLUSIONS AND RECOMMENDATIONS

- Hand washing facilities to wash their hands and faces WAC 296-155-17619(5).
- Biological monitoring in the form of blood survey and analysis for Lead (Pb) and zinc protoporphyrin levels in accordance with WAC 296-155-17621 (1)(a).
- Training to include hazard communication, safety, and the limitations, proper use, and maintenance of respirators in accordance with WAC 296-155-100.

In addition to the protective equipment and hygiene requirements, the employer must attempt to reduce the levels of airborne Lead (Pb) using engineering controls like ventilation / wet methods.

DISCLAMIER / LIMITATIONS

This lead (Pb) paint inspection report has been prepared for the exclusive use of the Client named herein for the specified site address. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. NVL Laboratories, Inc. (NVL) accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

NVL is not responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the inspection / report was prepared.

This document is the sole property of NVL Laboratories and the property owner or its agent, requesting this service.

Please do not hesitate to contact me at (206) 547-0100 if you have any questions or concerns or for any of your hazardous materials needs.

Prepared By:	Reviewed by:
Jason Lindahl Lead Paint Inspector Certification # 7145 Expires on: March 20, 2021	Tanveer Khan Project Manager Lead Risk Assessor Certification # 6110 Expires on: January 13, 2020

ATTACHMENTS:

- Appendix A : Sample Locations (floor plan)
- Appendix B : Laboratory Analysis Results
- Appendix C : Inspector's Certifications & Laboratory Qualifications

Appendix A

Sample Locations (Floor Plan)

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

NVL Project # **2019-0870**

Client: Tarragon - Bryce Snyder

Page 1 of 11

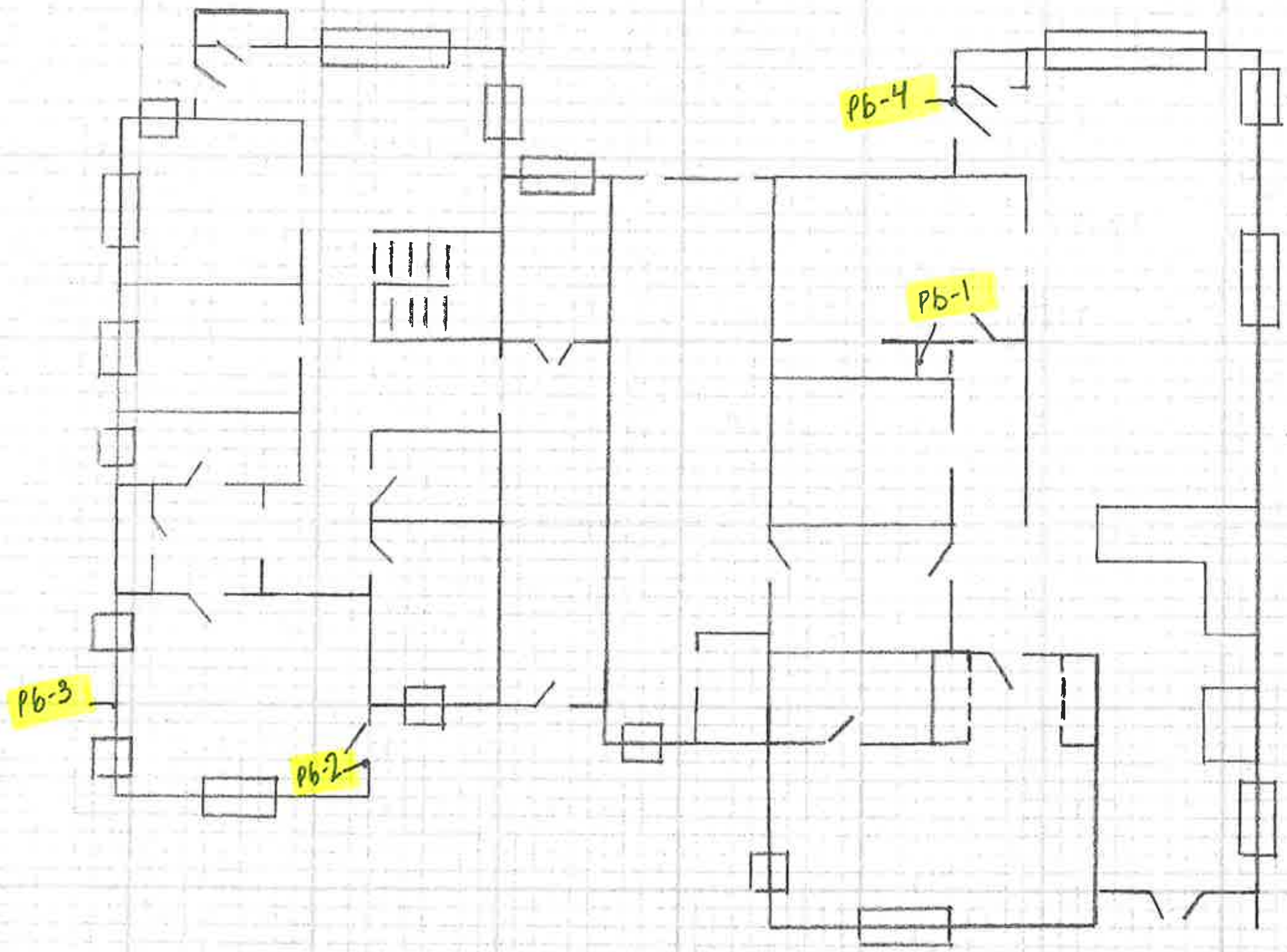
Location: 23660 Marine View Dr. S

Date: 11/5/2019

City: Des Moines

Made by: Tanveer Khan

DUPLEX



(NOT TO SCALE)

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

NVL Project # **2019-0870**

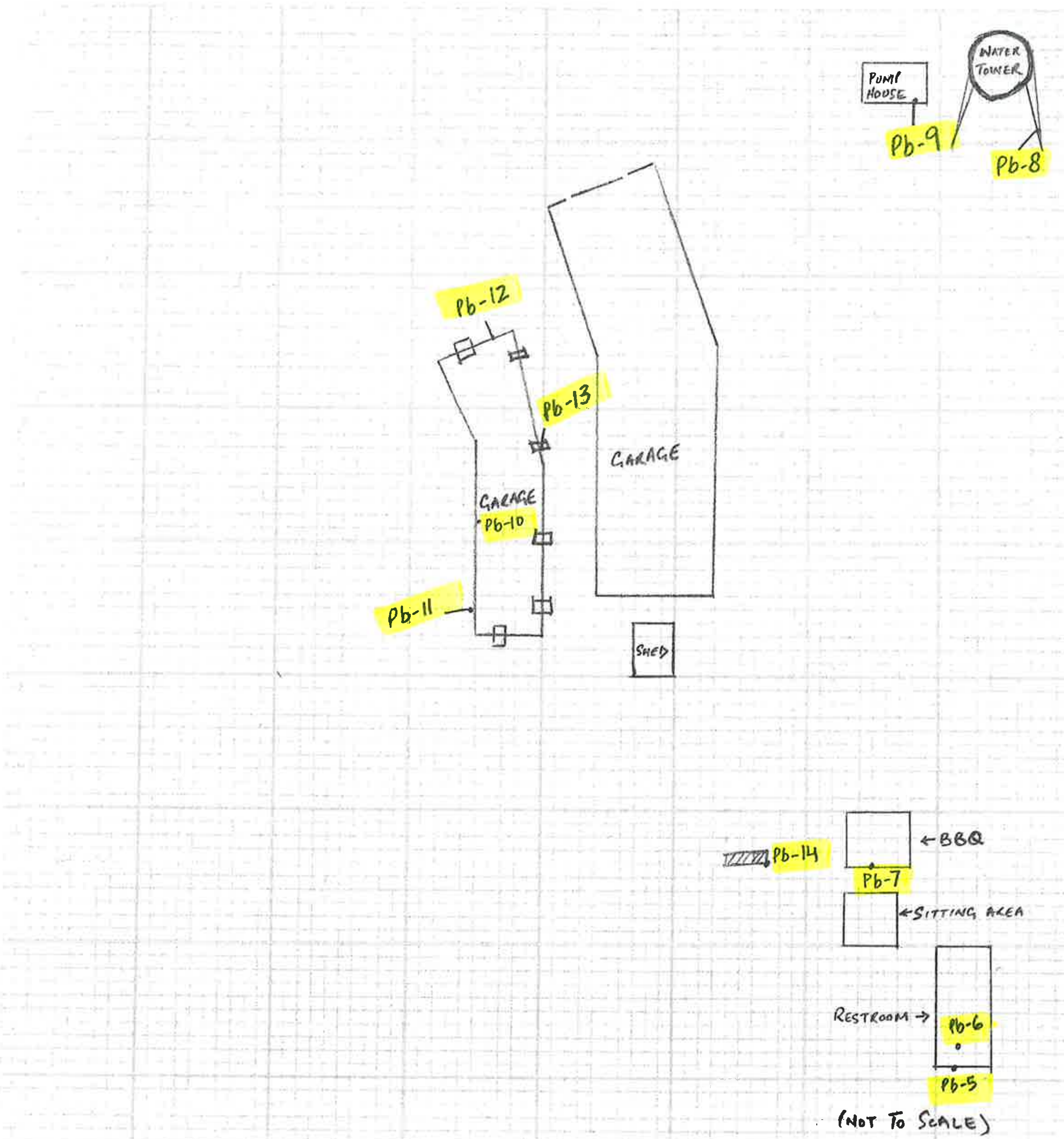
Client: Tarragon - Bryce Snyder

Location: 23660 Marine View Dr. S

City: Des Moines

Date: 11/5/2019

Made by: Tanveer Khan



Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

NVL Project # **2019-0870**

Client: Tarragon - Bryce Snyder

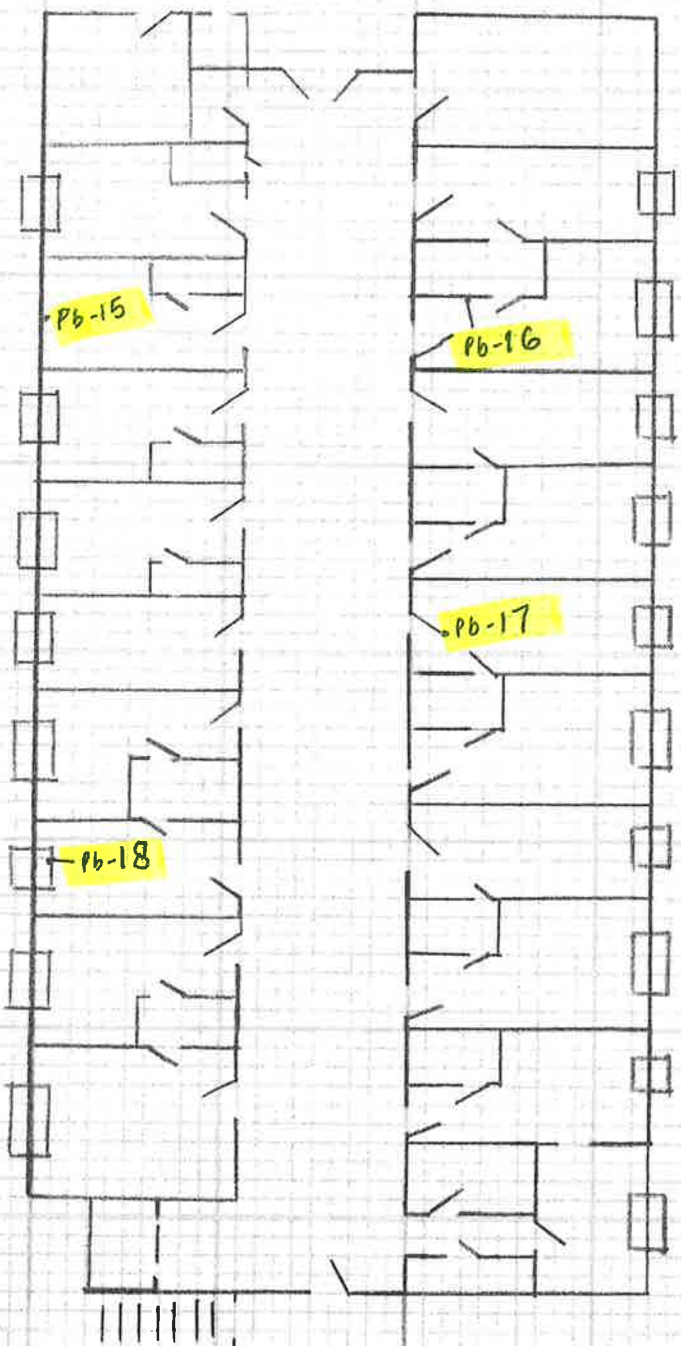
Location: 23660 Marine View Dr. S

City: Des Moines

Date: 11/5/2019

Made by: Tanveer Khan

NORTH TO SOUTH WING



(NOT TO SCALE)

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

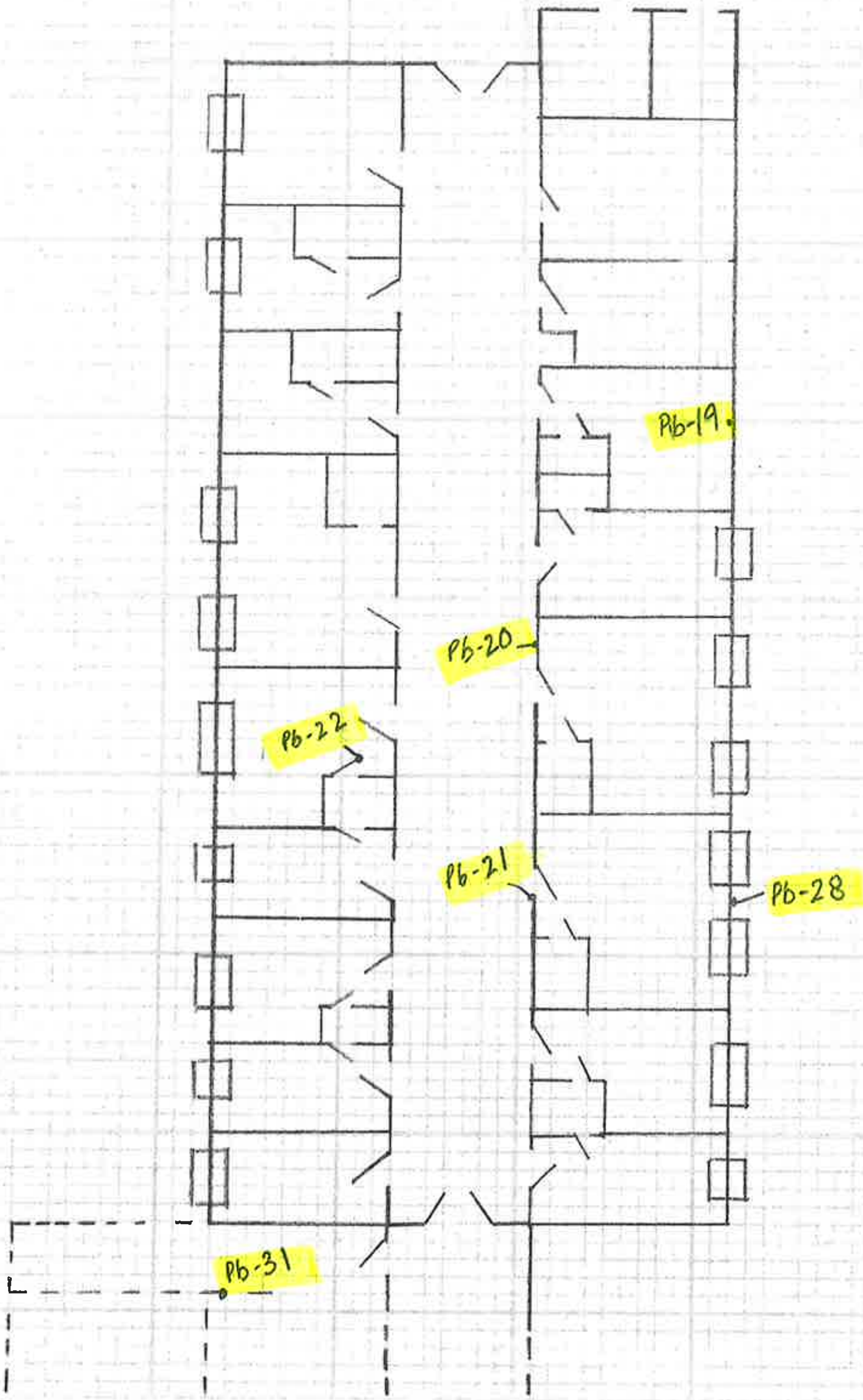
NVL Project # **2019-0870**

Client: Tarragon - Bryce Snyder | Page 4 of 17

Location: 23660 Marine View Dr. S | Date 11/5/2019

City: Des Moines | Made by Tanveer Khan

EAST TO WEST WING



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NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY • MANAGEMENT • TRAINING

NVL Project # **2019-0870**

Client: Tarragon - Bryce Snyder

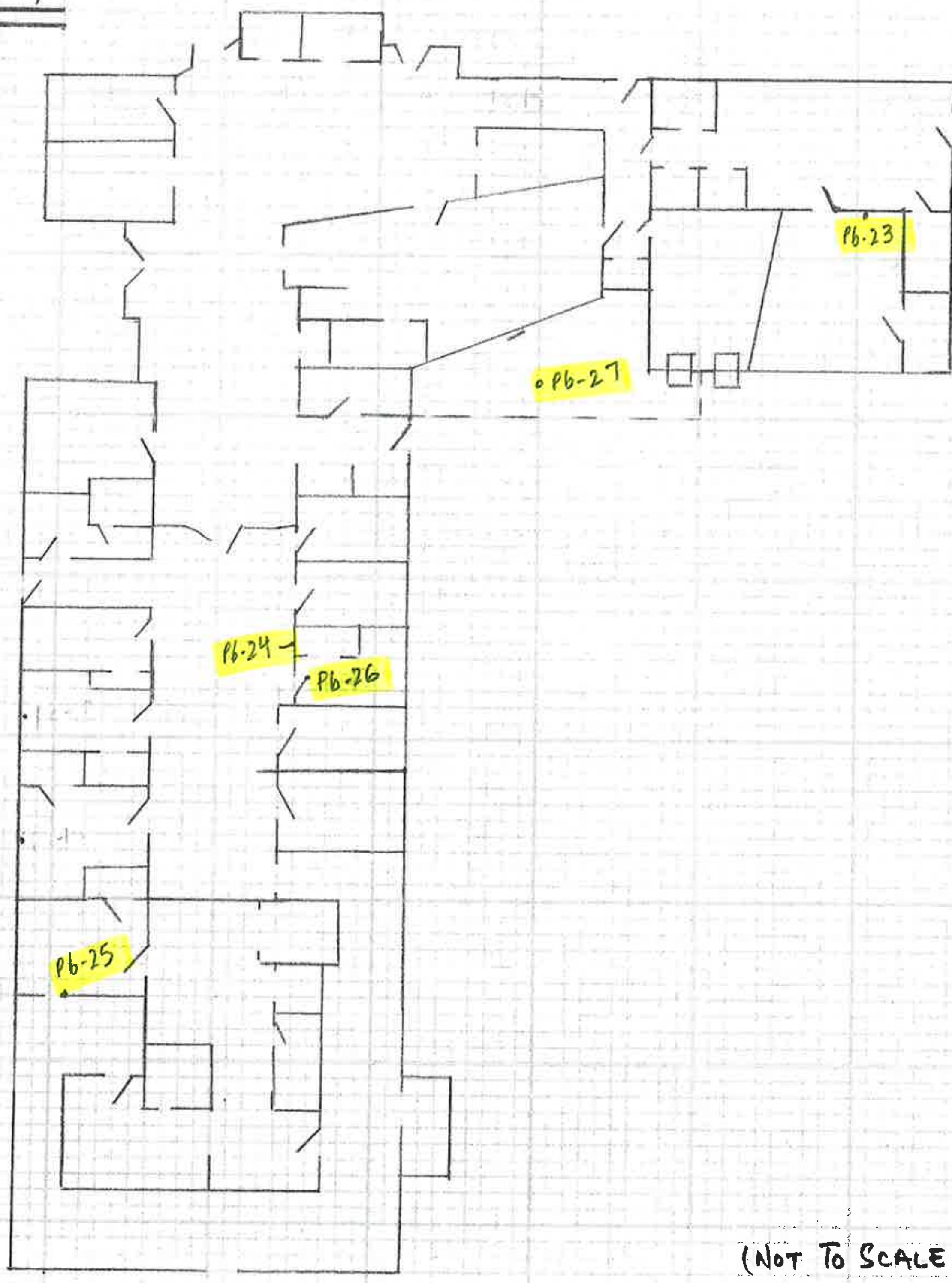
Location: 23660 Marine View Dr. S

City: Des Moines

Date: 11/5/2019

Made by: Tanveer Khan

SOUTH WING

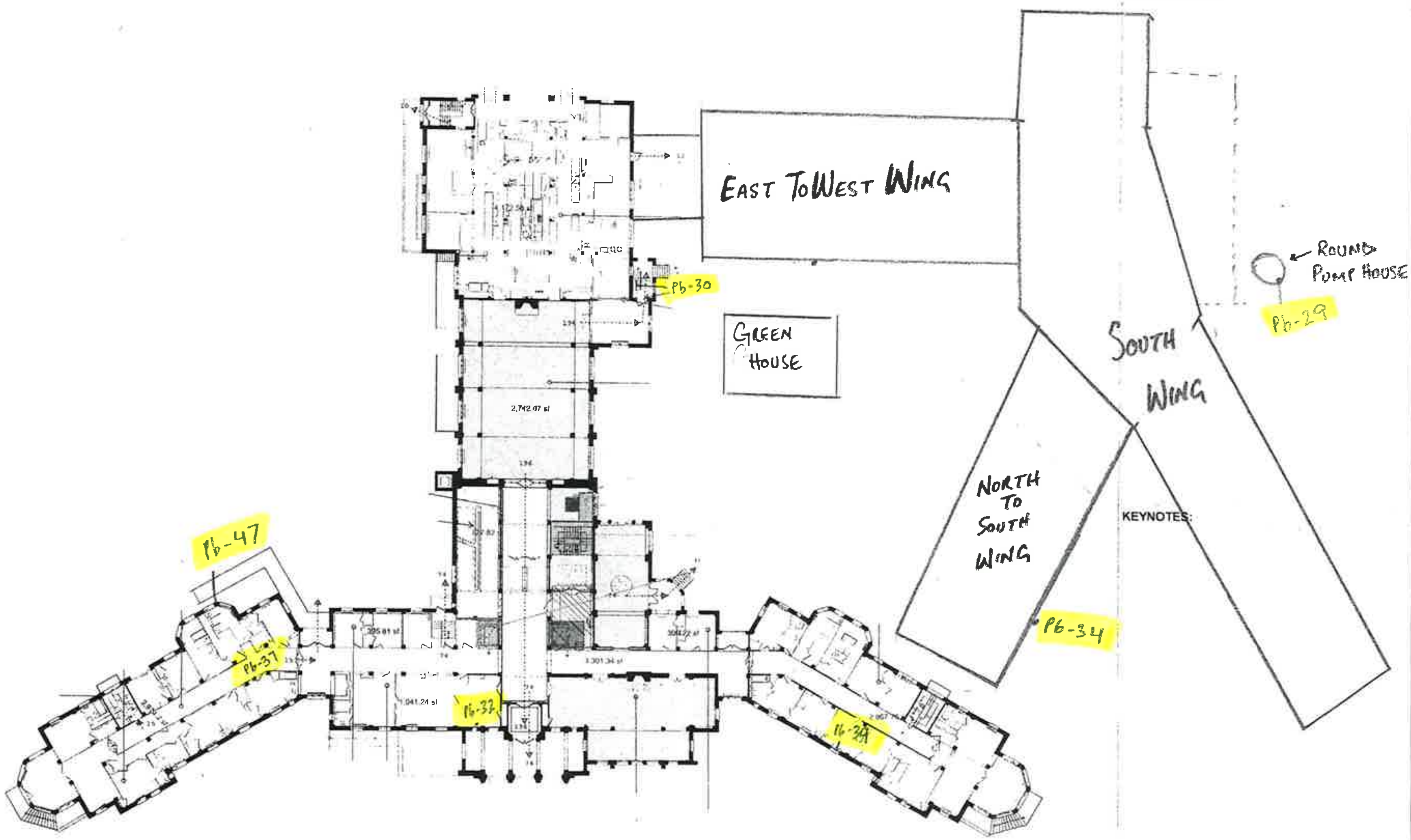


(NOT TO SCALE)

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

NVL PROJECT # 2019-0870

SHEET NOTES:



KEYNOTES:

LEVEL 01 - FLOOR PLAN

JACKSON | MAIN ARCHITECTURE

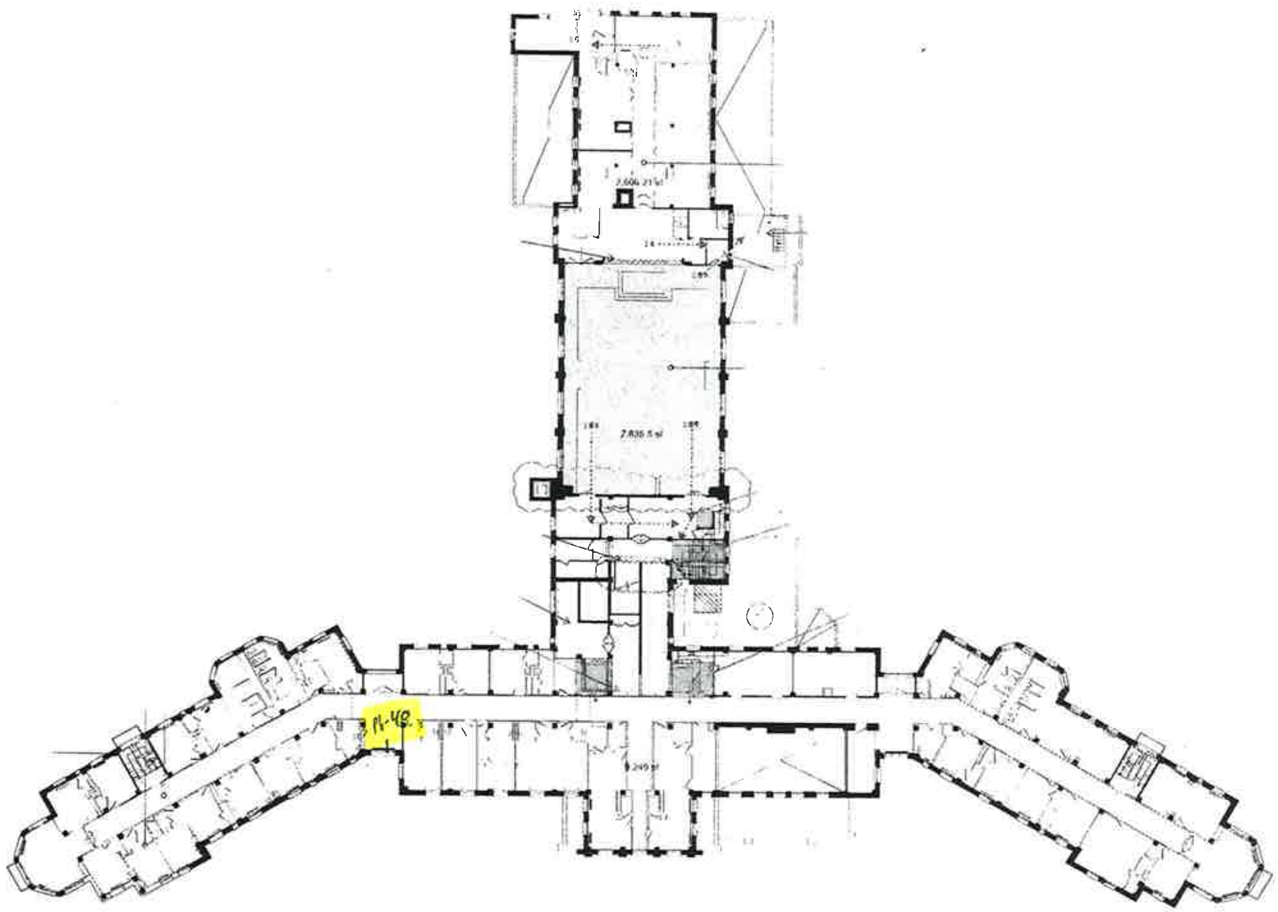
NAME
918 SOUTH HORTON ST.
SUITE 1000
SEATTLE, WA 98134

LANDMARK
23660 MARINE VIEW DR S
DESMOINES, WA

FLOOR PLAN - LEVEL 01

A2.01

NWL PROJECT # 2019-0870



LEVEL 02 - FLOOR PLAN

SHEET NOTES:

KEYNOTES:

JM
JACKSON | MAIN
ARCHITECTURE

NAME
918 SOUTH HORTON ST.
SUITE 1000
SEATTLE, WA 98134

LANDMARK
23660 MARINE VIEW DR S
DESMOINES, WA

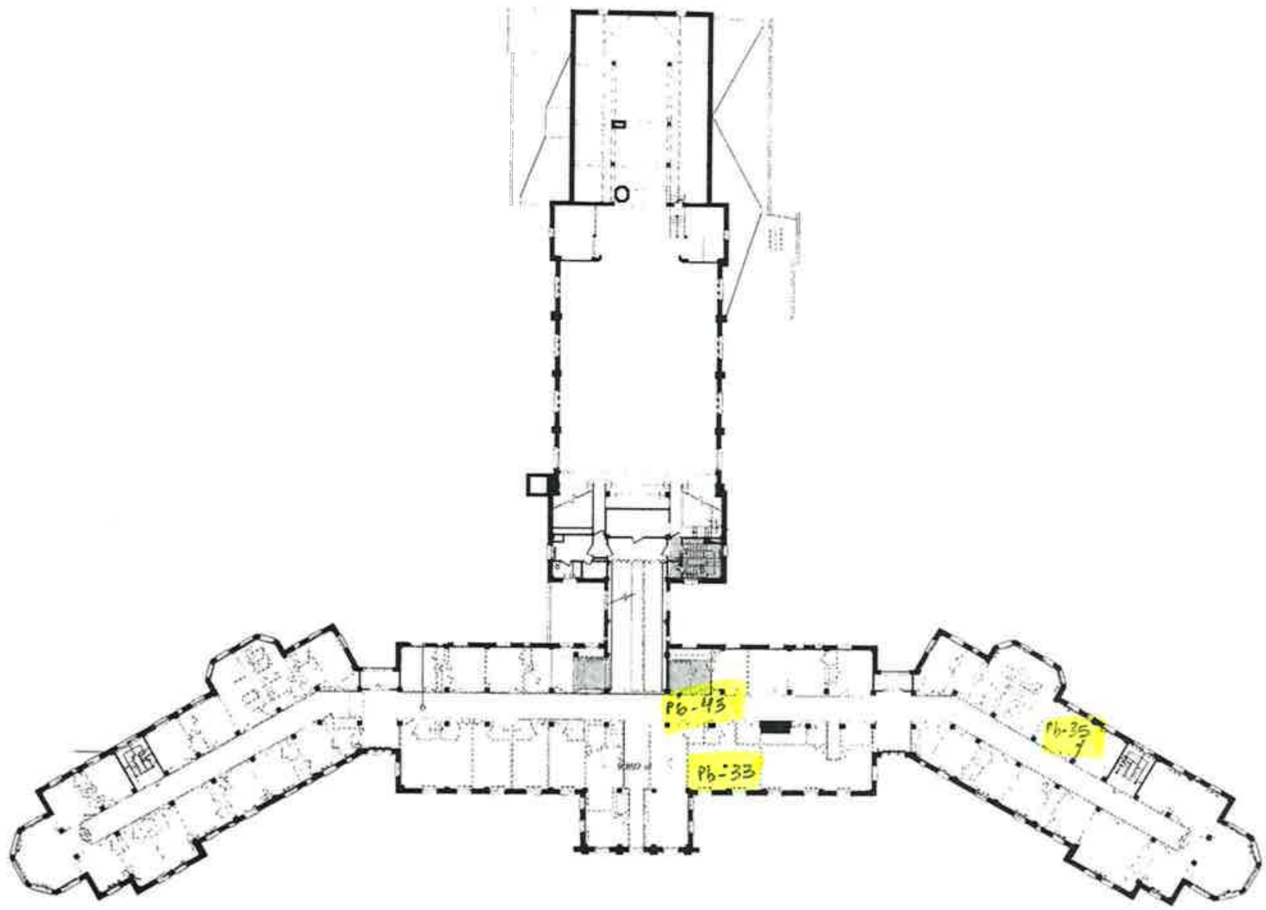
PROJECT NO.	17193
PROJECT MGR	DSG
DRAWN BY	EJH
CHECKED BY	ACR

FLOOR PLAN - LEVEL 02

A2.02

NVL PROJECT # 2019-0870

Page 8 of 11



LEVEL 03 - FLOOR PLAN

SHEET NOTES:

KEYNOTES:

JM
JACKSON | MAIN
ARCHITECTURE

NAME
918 SOUTH HORTON ST.
SUITE 1000
SEATTLE, WA 98134

LANDMARK
23660 MARINE VIEW DR S
DESMOINES, WA

DATE	NO.	DESCRIPTION

PROJECT NO.	17.153
PROJECT MGR.	DSG
DRAWN BY	EJH
CHECKED BY	AOR

FLOOR PLAN - LEVEL 03

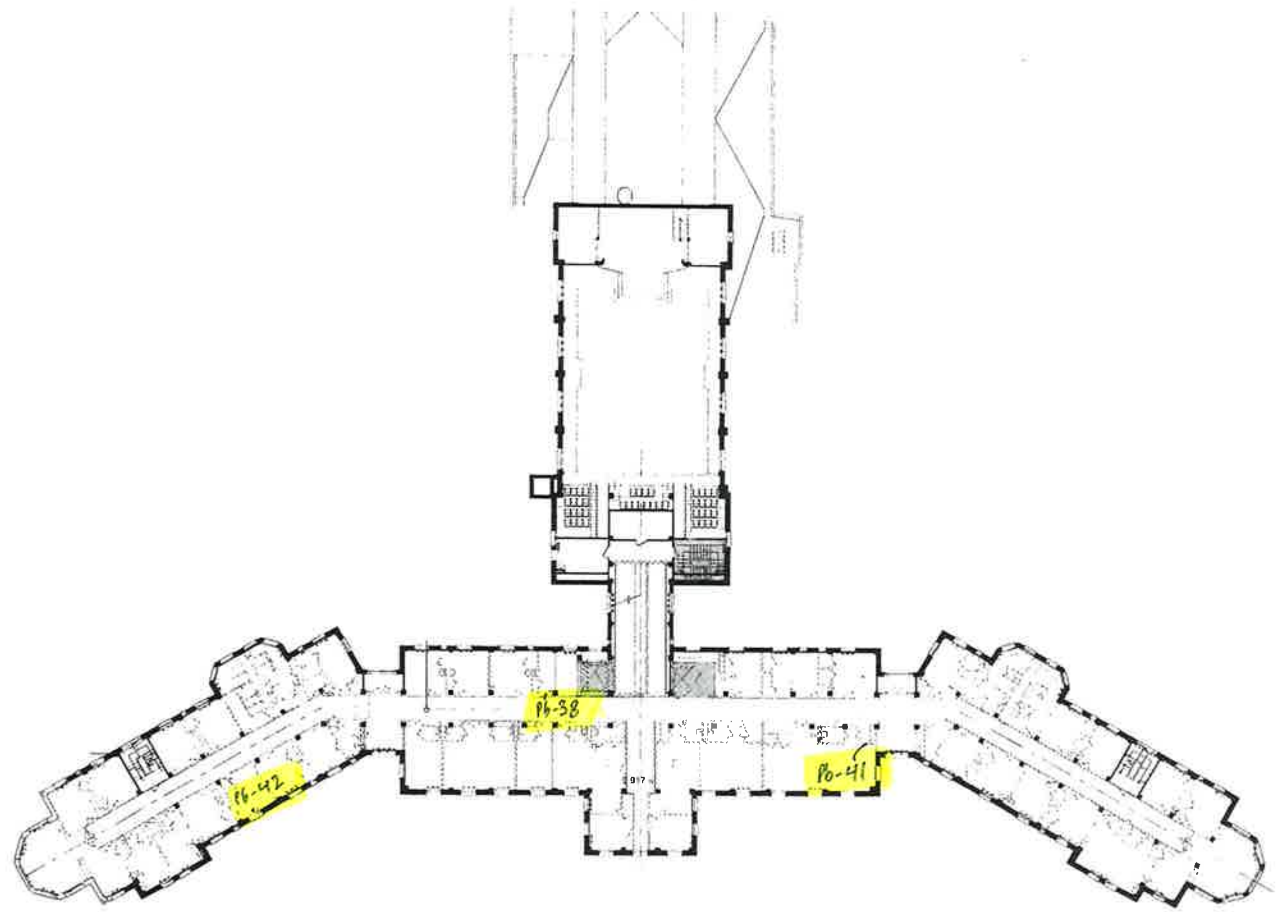
A2.03

NVL PROJECT #2019-0870

Page 9 of 11

SHEET NOTES:

KEYNOTES:



LEVEL 04 - FLOOR PLAN

JACKSON | MAIN ARCHITECTURE

NAME
918 SOUTH HORTON ST.
SUITE 1000
SEATTLE, WA 98134

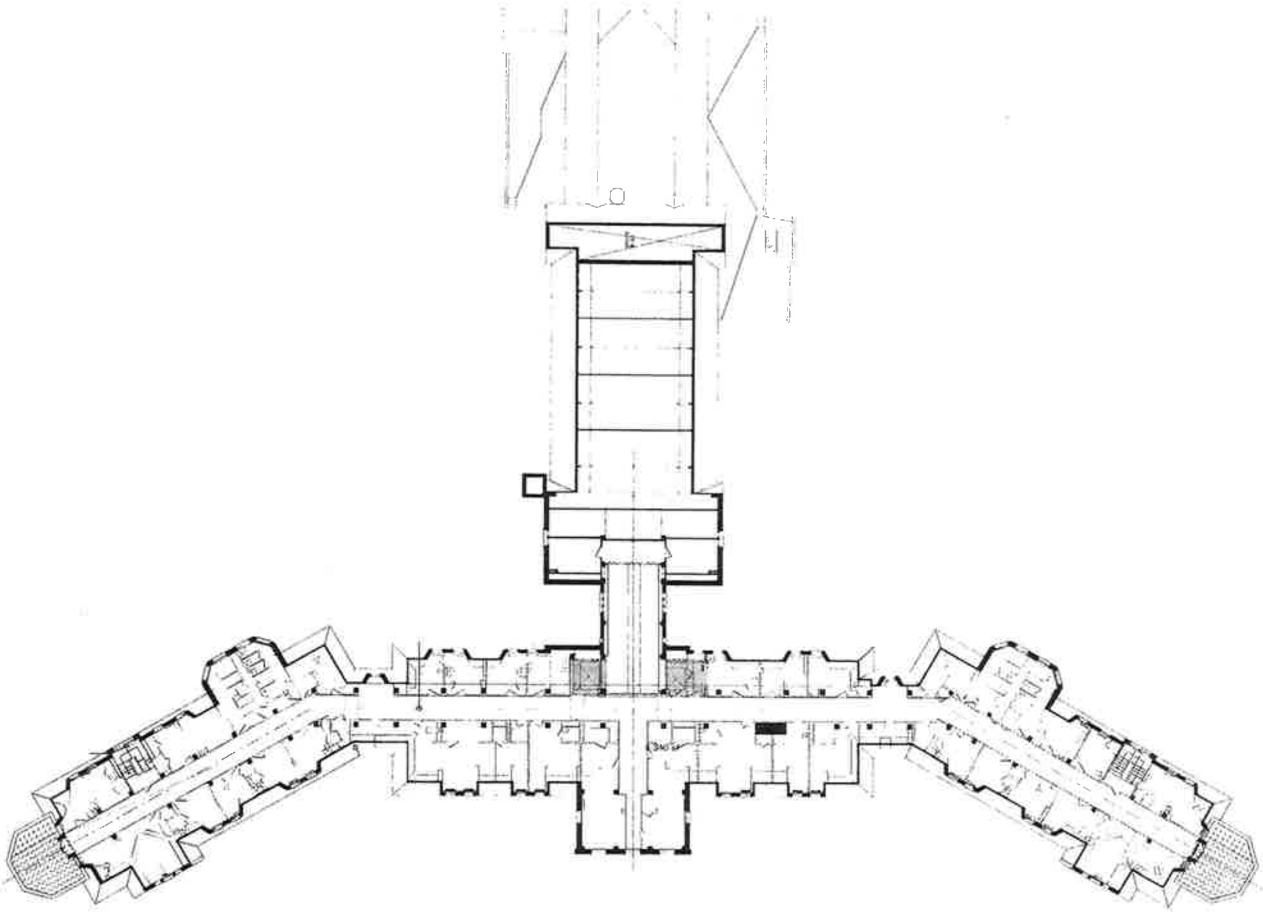
LANDMARK
23660 MARINE VIEW DR S
DESMOINES, WA

PROJECT NO	17183
PROJECT MGR	DSG
DRAWN BY	EJH
CHECKED BY	ADR

FLOOR PLAN - LEVEL 04

A2.04

NVL PROJECT #2019-0870



LEVEL 05 - FLOOR PLAN

SHEET NOTES:

KEYNOTES:

JACKSON | MAIN
ARCHITECTURE

NAME
918 SOUTH HORTON ST.
SUITE 1000
SEATTLE, WA 98134

LANDMARK
23660 MARINE VIEW DR S
DESMOINES, WA

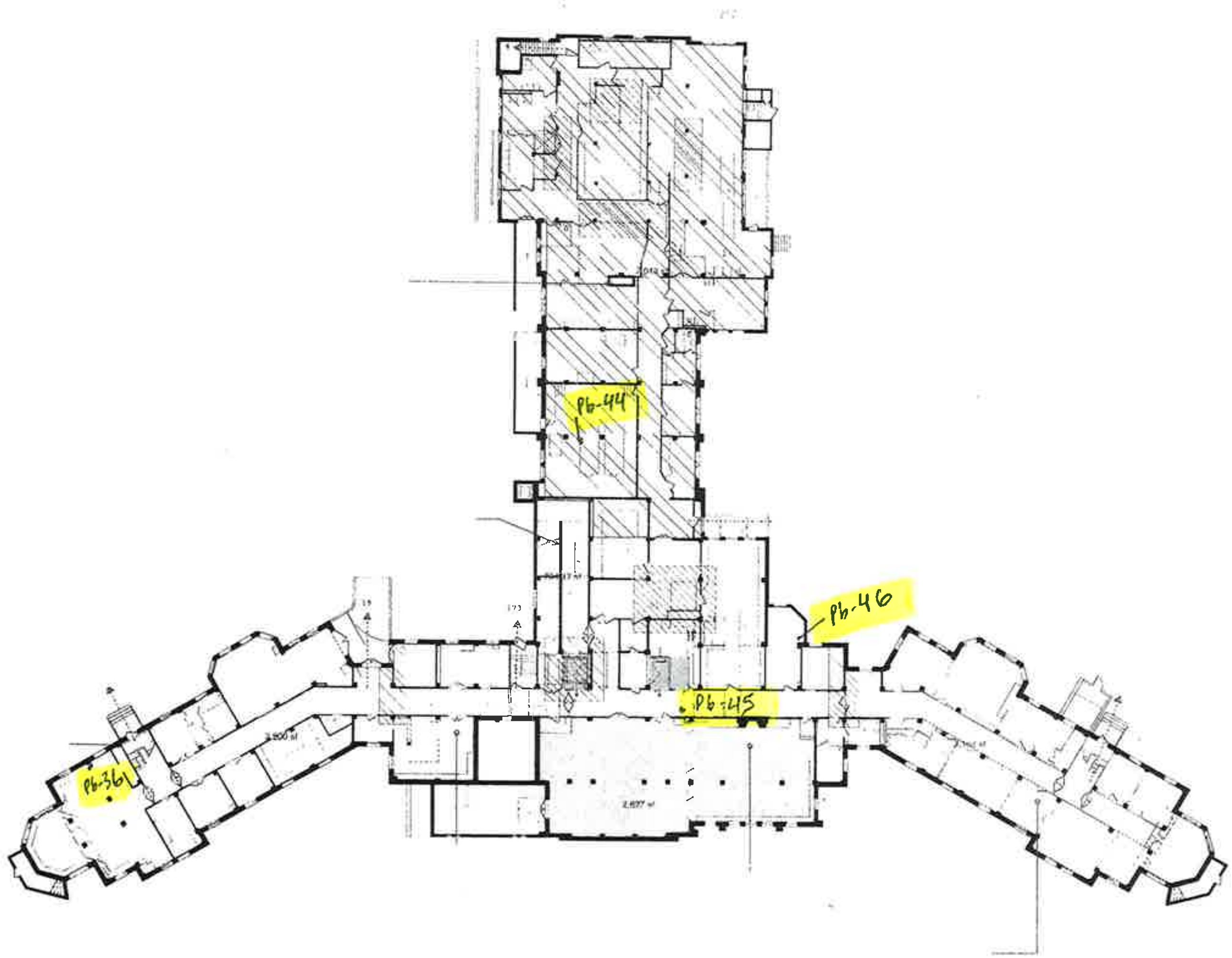
PROJECT NO.	17193
PROJECT MGR	Designer
DRAWN BY	EJH
CHECKED BY	Checker

FLOOR PLAN - LEVEL 05

A2.05

NVL PROJECT #2019-0870

Page 11 of 11



LEVEL 00 - BASEMENT

SHEET NOTES:

KEYNOTES:

JACKSON | MAIN ARCHITECTURE

NAME
918 SOUTH HORTON ST.
SUITE 1000
SEATTLE, WA 98134

LANDMARK
23660 MARINE VIEW DR S
DESMOINES, WA

PROJECT NO.	17193
PROJECT MGR	DSG
DRAWN BY	EJH
CHECKED BY	AQR

FLOOR PLAN - BASEMENT

A2.00

Appendix B

Laboratory Analysis Results

November 7, 2019

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

Jason Lindahl
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, WA 98103

RE: Metals Analysis; NVL Batch # 1923502.00

Dear Mr. Lindahl,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Yasuyuki Hida, Laboratory Analyst

Enc.: Sample results

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 101861

Analysis Report

Total Lead (Pb)

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Attention: Mr. Jason Lindahl
Project Location: 23660 Marine View Dr S Des Moines, WA 98198

Batch #: 1923502.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 2019-0870
Date Received: 11/5/2019
Samples Received: 20
Samples Analyzed: 20

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
19128427	2019-0870-Pb-1	0.2242	45	< 45	< 0.0045
19128428	2019-0870-Pb-2	0.2187	46	< 46	< 0.0046
19128429	2019-0870-Pb-3	0.3100	32	< 32	< 0.0032
19128430	2019-0870-Pb-4	0.1896	53	< 53	< 0.0053
19128431	2019-0870-Pb-5	0.2208	45	< 45	< 0.0045
19128432	2019-0870-Pb-6	0.1966	51	79	0.0079
19128433	2019-0870-Pb-7	0.1905	52	< 52	< 0.0052
19128434	2019-0870-Pb-8	0.2441	41	140000	14
19128435	2019-0870-Pb-9	0.2096	48	85	0.0085
19128436	2019-0870-Pb-10	0.2088	48	< 48	< 0.0048
19128437	2019-0870-Pb-11	0.2163	46	< 46	< 0.0046
19128438	2019-0870-Pb-12	0.2007	50	990	0.099
19128439	2019-0870-Pb-13	0.1891	53	39000	3.9
19128440	2019-0870-Pb-14	0.2009	50	< 50	< 0.0050
19128441	2019-0870-Pb-15	0.1925	52	270	0.027
19128442	2019-0870-Pb-16	0.2173	46	390	0.039
19128443	2019-0870-Pb-17	0.2164	46	680	0.068
19128444	2019-0870-Pb-18	0.1863	54	< 54	< 0.0054
19128445	2019-0870-Pb-19	0.2107	47	450	0.045
19128446	2019-0870-Pb-20	0.2277	44	< 44	< 0.0044

Sampled by: Client
Analyzed by: Shalini Patel
Reviewed by: Yasuyuki Hida

Date Analyzed: 11/06/2019
Date Issued: 11/07/2019

Yasuyuki Hida
Yasuyuki Hida, Laboratory Analyst

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

RL = Reporting Limit
'<' = Below the reporting Limit

Bench Run No: 2019-1106-12

FAA-02

LEAD LABORATORY SERVICES

NVL

Company NVL Field Services Division
Address 4708 Aurora Ave. N.
Seattle, WA 98103
Project Manager Mr. Jason Lindahl
Phone (206) 547-0100
Cell (763) 286-3494

NVL Batch Number **1923502.00**
TAT 2 Days **AH** No
Rush TAT
Due Date 11/7/2019 **Time** 2:50 PM
Email jason.l@nvllabs.com
Fax (206) 634-1936

Project Name/Number: 2019-0870 **Project Location:** 23660 Marine View Dr S Des Moines, WA 98198

Subcategory Flame AA (FAA)
Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 20 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	19128427	2019-0870-Pb-1		A
2	19128428	2019-0870-Pb-2		A
3	19128429	2019-0870-Pb-3		A
4	19128430	2019-0870-Pb-4		A
5	19128431	2019-0870-Pb-5		A
6	19128432	2019-0870-Pb-6		A
7	19128433	2019-0870-Pb-7		A
8	19128434	2019-0870-Pb-8		A
9	19128435	2019-0870-Pb-9		A
10	19128436	2019-0870-Pb-10		A
11	19128437	2019-0870-Pb-11		A
12	19128438	2019-0870-Pb-12		A
13	19128439	2019-0870-Pb-13		A
14	19128440	2019-0870-Pb-14		A
15	19128441	2019-0870-Pb-15		A
16	19128442	2019-0870-Pb-16		A
17	19128443	2019-0870-Pb-17		A
18	19128444	2019-0870-Pb-18		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	11/5/19	1450
Analyzed by	Shalini Patel		NVL	11/6/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 11/5/2019
Time: 2:53 PM
Entered By: Kelly AuVu

LEAD LABORATORY SERVICES

NVL

Company	NVL Field Services Division	**NVL Batch Number**	**1923502.00**
Address	4708 Aurora Ave. N. Seattle, WA 98103	**TAT**	2 Days **AH** No
		Rush TAT	
Project Manager	Mr. Jason Lindahl	**Due Date**	11/7/2019 **Time** 2:50 PM
Phone	(206) 547-0100	**Email**	jason.l@nvllabs.com
Cell	(763) 286-3494	**Fax**	(206) 634-1936

Project Name/Number: 2019-0870 **Project Location:** 23660 Marine View Dr S Des Moines, WA 98198

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 20 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	19128445	2019-0870-Pb-19		A
20	19128446	2019-0870-Pb-20		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	11/5/19	1450
Analyzed by	Shalini Patel		NVL	11/6/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 11/5/2019
Time: 2:53 PM
Entered By: Kelly AuVu

CHAIN of CUSTODY SAMPLE LOG

1923502

LABORATORY • MANAGEMENT • TRAINING

Client: NVL Laboratories Inc
Street: 4708 Aurora Ave N
Seattle, WA 98103
Project Manager: Syed Hasan
Project Location: 23660 Marine View Dr. S
Des Moines, WA 98198
Phone: (206) 233-9600 Fax:

NVL Batch Number:
Client Job Number: 2019-0870
Total Samples: 20
Turn Around Time: ☐ 1 Hr ☐ 2 Hrs ☐ 4 Hrs ☐ 6 Hrs ☐ 1 Day ☒ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days ☐ 10 Days
Please call for TAT less than 24 Hrs
Email address: bsnyder@tarragon.com
Cell: (214) 663-2868

☐ Asbestos Air: ☐ PCM (NIOSH 7400) ☐ TEM (NIOSH 7402) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ Other
☐ Asbestos Bulk: ☐ PLM (EPA/600/R-93/116) ☐ PLM (EPA Point Count) ☐ PLM (EPA Gravimetry) ☐ TEM BULK
☐ Mold/Fungus: ☐ Mold Air ☐ Mold Bulk ☐ Rotometer Calibration

METALS: ☒ Total Metals ☐ TCLP ☐ Cr 6
Det. Limit: ☒ FAA (ppm) ☐ ICP (ppm) ☐ GFAA (ppb)
Matrix: ☐ Air Filter ☐ Drinking water ☐ Dust/wipe (Area) ☐ Soil ☒ Paint Chips in % ☐ Paint Chips in cm
RCRA Metals: ☐ All 8 ☐ Arsenic (As) ☐ Barium (Ba) ☐ Cadmium (Cd) ☐ Chromium (Cr) ☒ Lead (Pb) ☐ Mercury (Hg)
Other Metals: ☐ All 3 ☐ Copper (Cu) ☐ Nickel (Ni) ☐ Zinc (Zn)

☐ Other Types of Analysis: ☐ Fiberglass ☐ Silica ☐ Nuisance Dust ☐ Respirable Dust ☐ Other (Specify) ____

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		2019-0870-Pb-1	2019-0870-Pb-16	
2		Pb-2	Pb-17	
3		Pb-3	Pb-18	
4		Pb-4	Pb-19	
5		Pb-5	Pb-20	
6		Pb-6		
7		Pb-7		
8		Pb-8		
9		Pb-9		
10		Pb-10		
11		Pb-11		
12		Pb-12		
13		Pb-13		
14		Pb-14		
15		Pb-15		

	Print Below	Sign Below	Company	Date	Time
Sampled by	Jason Lundahl	[signature]	NVL	11/5/19	9:00
Relinquished by	Jason Lundahl	[signature]	NVL	11/5/19	
Received by	Kelly Allen		NVL	11/5/19	1450
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.
Results report to

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

November 6, 2019

Jason Lindahl
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, WA 98103

RE: Metals Analysis; NVL Batch # 1923507.00

Dear Mr. Lindahl,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Yasuyuki Hida, Laboratory Analyst

Enc.: Sample results

ilac-MRA

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 101861

Analysis Report

Total Lead (Pb)

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Attention: Mr. Jason Lindahl
Project Location: 23660 Marine View Dr S Des Moines, WA 98198

Batch #: 1923507.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 2019-0870
Date Received: 11/5/2019
Samples Received: 20
Samples Analyzed: 20

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
19128459	2019-0870-Pb-21	0.2174	46	600	0.060
19128460	2019-0870-Pb-22	0.1853	54	84	0.0084
19128461	2019-0870-Pb-23	0.2277	44	780	0.078
19128462	2019-0870-Pb-24	0.1922	52	410	0.041
19128463	2019-0870-Pb-25	0.2173	46	590	0.059
19128464	2019-0870-Pb-26	0.2031	49	230	0.023
19128465	2019-0870-Pb-27	0.2311	43	<43	<0.0043
19128466	2019-0870-Pb-28	0.2227	45	110000	11
19128467	2019-0870-Pb-29	0.2155	46	17000	1.7
19128468	2019-0870-Pb-30	0.2330	43	82000	8.2
19128469	2019-0870-Pb-31	0.2252	44	14000	1.4
19128470	2019-0870-Pb-32	0.2193	46	4800	0.48
19128471	2019-0870-Pb-33	0.1920	52	560	0.056
19128472	2019-0870-Pb-34	0.1933	52	1700	0.17
19128473	2019-0870-Pb-35	0.2080	48	<48	<0.0048
19128474	2019-0870-Pb-36	0.2122	47	<47	<0.0047
19128475	2019-0870-Pb-37	0.2074	48	19000	1.9
19128476	2019-0870-Pb-38	0.2158	46	8500	0.85
19128477	2019-0870-Pb-39	0.1946	51	35000	3.5
19128478	2019-0870-Pb-40	0.2067	48	6200	0.62

Sampled by: Client
Analyzed by: Shalini Patel — Date Analyzed: 11/06/2019
Reviewed by: Yasuyuki Hida — Date Issued: 11/06/2019

Yasuyuki Hida, Laboratory Analyst

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2019-1106-11

FAA-02

LEAD LABORATORY SERVICES

NVL

Company	NVL Field Services Division	**NVL Batch Number**	**1923507.00**
Address	4708 Aurora Ave. N. Seattle, WA 98103	**TAT**	2 Days **AH** No
		Rush TAT	
Project Manager	Mr. Jason Lindahl	**Due Date**	11/7/2019 **Time** 2:50 PM
Phone	(206) 547-0100	**Email**	jason.l@nvllabs.com
Cell	(763) 286-3494	**Fax**	(206) 634-1936

Project Name/Number: 2019-0870 **Project Location:** 23660 Marine View Dr S Des Moines, WA 98198

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 20 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	19128459	2019-0870-Pb-21		A
2	19128460	2019-0870-Pb-22		A
3	19128461	2019-0870-Pb-23		A
4	19128462	2019-0870-Pb-24		A
5	19128463	2019-0870-Pb-25		A
6	19128464	2019-0870-Pb-26		A
7	19128465	2019-0870-Pb-27		A
8	19128466	2019-0870-Pb-28		A
9	19128467	2019-0870-Pb-29		A
10	19128468	2019-0870-Pb-30		A
11	19128469	2019-0870-Pb-31		A
12	19128470	2019-0870-Pb-32		A
13	19128471	2019-0870-Pb-33		A
14	19128472	2019-0870-Pb-34		A
15	19128473	2019-0870-Pb-35		A
16	19128474	2019-0870-Pb-36		A
17	19128475	2019-0870-Pb-37		A
18	19128476	2019-0870-Pb-38		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	11/5/19	1450
Analyzed by	Shalini Patel		NVL	11/6/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 11/5/2019
Time: 3:15 PM
Entered By: Kelly AuVu

LEAD LABORATORY SERVICES

NVL

Company	NVL Field Services Division	**NVL Batch Number**	**1923507.00**
Address	4708 Aurora Ave. N. Seattle, WA 98103	**TAT**	2 Days **AH** No
		Rush TAT	
Project Manager	Mr. Jason Lindahl	**Due Date**	11/7/2019 **Time** 2:50 PM
Phone	(206) 547-0100	**Email**	jason.l@nvllabs.com
Cell	(763) 286-3494	**Fax**	(206) 634-1936

Project Name/Number: 2019-0870 **Project Location:** 23660 Marine View Dr S Des Moines, WA 98198

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 20 Rush Samples

	Lab ID	Sample ID	Description	A/R
19	19128477	2019-0870-Pb-39		A
20	19128478	2019-0870-Pb-40		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	11/5/19	1450
Analyzed by	Shalini Patel		NVL	11/6/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 11/5/2019
Time: 3:15 PM
Entered By: Kelly AuVu

CHAIN of CUSTODY SAMPLE LOG

1923507

Client	NVL Laboratories Inc	**NVL Batch Number**	
Street	4708 Aurora Ave N Seattle, WA 98103	**Client Job Number**	2019-0870
		Total Samples	20
Project Manager	Syed Hasan	**Turn Around Time**	☐ 1 Hr ☐ 6 Hrs ☐ 3 Days ☐ 10 Days ☐ 2 Hrs ☐ 1 Day ☐ 4 Days ☐ 4 Hrs ☒ 2 Days ☐ 5 Days
Project Location	23660 Marine View Dr. S Des Moines, WA 98198		Please call for TAT less than 24 Hrs
		Email address	bsnyder@tarragon.com
Phone:	(206) 233-9600 **Fax:**	**Cell**	(214) 663-2868

☐ **Asbestos Air** ☐ PCM (NIOSH 7400) ☐ TEM (NIOSH 7402) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ Other

☐ **Asbestos Bulk** ☐ PLM (EPA/600/R-93/116) ☐ PLM (EPA Point Count) ☐ PLM (EPA Gravimetry) ☐ TEM BULK

☐ **Mold/Fungus** ☐ Mold Air ☐ Mold Bulk ☐ **Rotometer Calibration**

METALS	Det. Limit	Matrix		RCRA Metals		Other Metals
☒ Total Metals	☒ FAA (ppm)	☐ Air Filter	☐ Soil	☐ Arsenic (As)	☐ All 8 ☐ Chromium (Cr)	☐ All 3 ☐ Copper (Cu)
☐ TCLP	☐ ICP (ppm)	☐ Drinking water	☒ Paint Chips in %	☐ Barium (Ba)	☒ Lead (Pb)	☐ Nickel (Ni)
☐ Cr 6	☐ GFAA (ppb)	☐ Dust/wipe (Area)	☐ Paint Chips in cm	☐ Cadmium (Cd)	☐ Mercury (Hg)	☐ Zinc (Zn)

☐ **Other Types of Analysis** ☐ Fiberglass ☐ Nuisance Dust ☐ Other (Specify) ☐ Silica ☐ Respirable Dust

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		2019-0870-Pb-21	2019-0870-Pb-36	
2		Pb-22	Pb-37	
3		Pb-23	Pb-38	
4		Pb-24	Pb-39	
5		Pb-25	Pb-40	
6		Pb-26		
7		Pb-27		
8		Pb-28		
9		Pb-29		
10		Pb-30		
11		Pb-31		
12		Pb-32		
13		Pb-33		
14		Pb-34		
15		Pb-35		

	Print Below	Sign Below	Company	Date	Time
Sampled by	Jason Lindahl	[signature]	NVL	11/5/19	9:00
Relinquished by	Jason Lindahl	[signature]	NVL	11/5/19	
Received by	KellyAllen	[signature]	NVL	11/5/19	1450
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

Results report to

November 6, 2019

Jason Lindahl
NVL Field Services Division
4708 Aurora Ave. N.
Seattle, WA 98103

RE: Metals Analysis; NVL Batch # 1923501.00

Dear Mr. Lindahl,

Enclosed please find the test results for samples submitted to our laboratory for analysis. Preparation of these samples was conducted following protocol outlined in EPA Method SW 846 -3051 unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with U.S. EPA, NIOSH, OSHA and other ASTM methods.

For matrix materials submitted as paint, dust wipe, soil or TCLP samples, analysis for the presence of total metals is conducted using published U.S. EPA Methods. Paint and soil results are usually expressed in mg/Kg which is equivalent to parts per million (ppm). Lead (Pb) in paint is usually expressed in mg/Kg (ppm) , Percent (%) or mg/cm^2 by area. Dust wipe sample results are usually expressed in ug/wipe and ug/ft^2. TCLP samples are reported in mg/L (ppm). For air filter samples, analyses are conducted using NIOSH and OSHA Methods. Results are expressed in ug/filter and ug/m^3. Other matrix materials are analyzed accordingly using published methods or specified by client. The reported test results pertain only to items tested and are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more details.

This report is considered highly confidential and will not be released without your approval. Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. if you need further assistance please feel free to call us at 206-547-0100 or 1-888-NVLLABS.

Sincerely,

Yasuyuki Hida, Laboratory Analyst

Enc.: Sample results

ilac-MRA
AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 101861

Analysis Report

Total Lead (Pb)

Client: NVL Field Services Division
Address: 4708 Aurora Ave. N.
Seattle, WA 98103

Attention: Mr. Jason Lindahl
Project Location: 23660 Marine View Dr. S Des Moines, WA 98198

NVL

Batch #: 1923501.00
Matrix: Paint
Method: EPA 3051/7000B
Client Project #: 2019-0870
Date Received: 11/5/2019
Samples Received: 7
Samples Analyzed: 7

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
19128420	2019-0870-Pb-41	0.2113	47	130000	13
19128421	2019-0870-Pb-42	0.1929	52	58	0.0058
19128422	2019-0870-Pb-43	0.1788	56	2000	0.20
19128423	2019-0870-Pb-44	0.2008	50	< 50	<0.0050
19128424	2019-0870-Pb-45	0.2474	40	740	0.074
19128425	2019-0870-Pb-46	0.1942	51	< 51	<0.0051
19128426	2019-0870-Pb-47	0.2098	48	150	0.015

Sampled by: Client
Analyzed by: Shalini Patel — Date Analyzed: 11/06/2019
Reviewed by: Yasuyuki Hida — Date Issued: 11/06/2019

Yasuyuki Hida
Yasuyuki Hida, Laboratory Analyst

mg/ Kg =Milligrams per kilogram
Percent = Milligrams per kilogram / 10000
RL = Reporting Limit
'<' = Below the reporting Limit
Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2019-1106-06

FAA-02

LEAD LABORATORY SERVICES

NVL

Company	NVL Field Services Division	**NVL Batch Number**	**1923501.00**
Address	4708 Aurora Ave. N. Seattle, WA 98103	**TAT**	2 Days **AH** No
		Rush TAT	
Project Manager	Mr. Jason Lindahl	**Due Date**	11/7/2019 **Time** 2:50 PM
Phone	(206) 547-0100	**Email**	jason.l@nvllabs.com
Cell	(763) 286-3494	**Fax**	(206) 634-1936

Project Name/Number: 2019-0870 **Project Location:** 23660 Marine View Dr. S Des Moines, WA 98198

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

Total Number of Samples 7

Rush Samples

	Lab ID	Sample ID	Description	A/R
1	19128420	2019-0870-Pb-41		A
2	19128421	2019-0870-Pb-42		A
3	19128422	2019-0870-Pb-43		A
4	19128423	2019-0870-Pb-44		A
5	19128424	2019-0870-Pb-45		A
6	19128425	2019-0870-Pb-46		A
7	19128426	2019-0870-Pb-47		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	11/5/19	1450
Analyzed by	Shalini Patel		NVL	11/6/19	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 11/5/2019
Time: 2:51 PM
Entered By: Emily Schubert

CHAIN of CUSTODY
SAMPLE LOG

1923501

Client	NVL Laboratories Inc
Street	4708 Aurora Ave N Seattle, WA 98103
Project Manager	Syed Hasan
Project Location	23660 Marine View Dr. S Des Moines, WA 98198
Phone:	(206) 233-9600 **Fax:**
NVL Batch Number	
Client Job Number	2019-0870
Total Samples	7
Turn Around Time	☐ 1 Hr ☐ 2 Hrs ☐ 4 Hrs ☐ 6 Hrs ☐ 1 Day ☒ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days ☐ 10 Days
	Please call for TAT less than 24 Hrs
Email address	bsnyder@tarragon.com
Cell	(214) 663-2868

☐ **Asbestos Air** ☐ PCM (NIOSH 7400) ☐ TEM (NIOSH 7402) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ Other

☐ **Asbestos Bulk** ☐ PLM (EPA/600/R-93/116) ☐ PLM (EPA Point Count) ☐ PLM (EPA Gravimetry) ☐ TEM BULK

☐ **Mold/Fungus** ☐ Mold Air ☐ Mold Bulk ☐ **Rotometer Calibration**

METALS	Det. Limit	Matrix		RCRA Metals	☐ All 8	Other Metals ☐ All 3
☒ Total Metals	☒ FAA (ppm)	☐ Air Filter	☐ Soil	☐ Arsenic (As)	☐ Chromium (Cr)	☐ Copper (Cu)
☐ TCLP	☐ ICP (ppm)	☐ Drinking water	☒ Paint Chips in %	☐ Barium (Ba)	☒ Lead (Pb)	☐ Nickel (Ni)
☐ Cr 6	☐ GFAA (ppb)	☐ Dust/wipe (Area)	☐ Paint Chips in cm	☐ Cadmium (Cd)	☐ Mercury (Hg)	☐ Zinc (Zn)

☐ **Other Types of Analysis** ☐ Fiberglass ☐ Nuisance Dust ☐ Other (Specify) ______ ☐ Silica ☐ Respirable Dust

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments	A/R
1		2019-0870-Pb-41		
2		Pb-42		
3		Pb-43		
4		Pb 44		
5		Pb 45		
6		Pb-46		
7		Pb-47		
8				
9				
10				
11				
12				
13				
14				
15				

	Print Below	Sign Below	Company	Date	Time
Sampled by	Jason Lindell	[signature]	NVL	11/5/19	9:00
Relinquished by	Jason Lindell	[signature]	NVL	11/5/19	
Received by	[illegible]	[signature]	[illegible]	11/5	1450
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

Results report to

Appendix C

Inspector's Certifications & Laboratory Qualification

ilac-MRA

AIHA Laboratory Accreditation Programs, LLC

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

NVL Laboratories, Inc.

4708 Aurora Avenue N., Seattle, WA 98103

Laboratory ID: 101861

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, *General Requirements for the Compeience of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: June 01, 2021
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: June 01, 2021
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: June 01, 2021
☐	**FOOD**	Accreditation Expires:
✓	**UNIQUE SCOPES**	Accreditation Expires: June 01, 2021

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Beth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17 – 09/11/2018

Date Issued: 03/29/2019

STATE OF WASHINGTON

Department of Commerce

Lead-Based Paint Abatement Program

Jason Lindahl

Has fulfilled the certification requirements of
WAC 365-230
and has been certified to conduct lead-based
paint activities as a
Inspector

Certification #	Issuance Date	Expiration Date
7145	03/20/2018	03/20/2021

STATE OF WASHINGTON

Department of Commerce

Lead-Based Paint Abatement Program

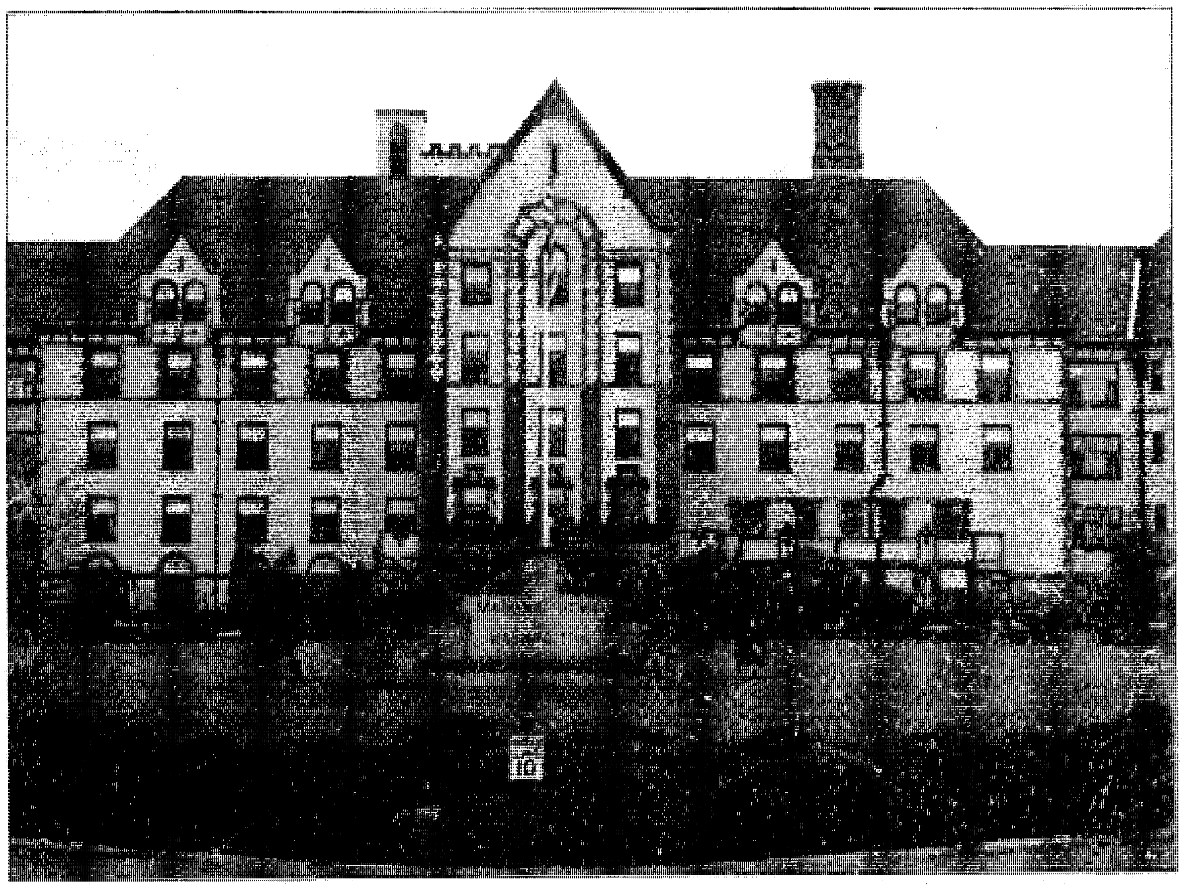
Tanveer E Khan

Has fulfilled the certification requirements of
WAC 365-230
and has been certified to conduct lead-based paint activities as a
Risk Assessor New

Certification #	Issuance Date	Expiration Date
6110	01/13/2017	01/13/2020

Asbestos and Lead Survey Report
Masonic Retirement Center of Washington
Des Moines, Washington

March 13, 2003



CONTENTS — SECTION

C o n s u l t i n g
T r a i n i n g
L a b o r a t o r y

March 5, 2003

Mr. David Steele
Masonic Retirement Center of Washington
23660 Marine View Drive South
Des Moines, Washington 98198-7394

RE: Asbestos and Lead Survey Report, Masonic Retirement Center

Dear Mr. Steele:

Prezant Associates, Incorporated (Prezant) is pleased to present the enclosed asbestos and lead survey report for the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

If you have any questions regarding this report please feel free to contact Dana Durand at (206) 281-8858

Sincerely,

Lloyd H T

Lloyd Tangunan
Staff Technician
Prezant Associates, Inc.

Enclosures:

- Asbestos and Lead Survey Report
- Laboratory Results
- Field Notes
- Certifications

RGA ENVIRONMENTAL

Prezant Associates, Inc.
330 6th Avenue North
Suite #200
Seattle, WA 98109

Voice 206.281.8858
Fax 206.281.8922
www.prezant.com

Asbestos and Lead Survey Report
Masonic Retirement Center of Washington
Des Moines, Washington

March 13, 2003

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Section 1 - Introduction

On January 16, 17, and 20, 2003, Chet Newell and Lloyd Tangunan conducted an inspection for suspect asbestos-containing building materials and lead-containing coatings at the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington. Additional sampling was conducted on February 24, 2003 by Lloyd Tangunan for suspect asbestos-containing building materials that were not apparent during previous inspections. Mr. Newell and Mr. Tangunan are both Environmental Protection Agency (EPA) Accredited Building Inspectors. Mr. Tangunan is a certified Lead Inspector & Risk Assessor. Copies of their certifications are attached. Samples were taken of building materials suspected to contain asbestos (vinyl floor sheeting, gypsum wall board, etc) and lead (paint). The samples were analyzed for the presence of asbestos. Please see Table 2 for an inventory of sampled building materials. Potential lead-containing coatings were analyzed using a Niton XRF instrument. Sample locations are indicated on attached site drawings.

Section 2 - Executive Summary

Asbestos

Please see Table 1 for a summary of asbestos-containing materials found at the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

TABLE 1 - Summary of Asbestos-Containing Materials found at the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

Material Description	Location	Asbestos Content	Approximate Quantity	Estimated Removal Cost
Gypsum wallboard with mudded seams X	Interior walls between the individual rooms	Gypsum wallboard: No asbestos detected Mudded seams: 2% Chrysotile Wallboard composite: <1% Chrysotile	576 square feet	Not estimated due to contractor preference of removal
Corrugated paper pipe insulation	Attic and basement corridor	4-10% Chrysotile	1,400 linear feet	$14,000
Clear Sealant on Multi-stoned flooring (Terrazzo)	5th Floor by north side patio	5% Chrysotile	5 square feet	$100.00
Sheet vinyl flooring, orange and white speckle pattern and mastic	Health center throughout patient rooms	Vinyl: No asbestos detected Paper Backing: 35% Chrysotile Mastic: No asbestos detected	9,000 square feet	$27,000.00
Sheet vinyl flooring, orange, tan, and off-white speckle pattern and mastic	Health center kitchen dining area	Vinyl: No asbestos detected Paper Backing: 35% Chrysotile Mastic: No asbestos detected	1,000 square feet	$3,000.00
Sheet vinyl flooring, dark orange speckle pattern and mastic	Health center tub bath room	Vinyl: No asbestos detected Paper Backing: 35% Chrysotile Mastic: No asbestos detected	50 square feet	$150.00
Elevator brake shoes	Inside elevator shafts	Assumed (unable to sample without damaging equipment)	12 sets	Not estimated due to contractor preference of removal
			Removal Estimate	$44,275.00

The total removal estimate of asbestos-containing materials at the building is $ 44,275.00 The estimated costs do not include consultant services, sales tax, permits, or any other additional cost, which the owner may incur during the project. The cost estimates are based on market conditions that exist in the State of Washington at this time. Prices may vary with market fluctuations. Prezant Associates recommends verification of all quantities and removal costs by a certified abatement contractor.

Lead

The painted surfaces at the Masonic Retirement Center contained detectable levels of lead. The presence of lead in coatings raises concerns about worker and environmental protection. Special precautions will need to be taken to renovate or demolish this property. The recommendations are addressed in Section 3, Regulatory Compliance. Please see the attached XRF Sampling Results for an inventory of the sampled paints.

Section 3 - Regulatory Compliance

Asbestos

The intent of the asbestos survey is to comply with governing asbestos regulations required by the State of Washington and Puget Sound Clean Air Agency (PSCAA). Currently, the State of Washington requires a written "good faith inspection" for identification of asbestos-containing materials prior to any remodeling or demolition work. During demolition and construction work, it is the responsibility of the owner and the contractors to make this limited survey document available to all concerned parties who may be handling the building materials.

In addition, PSCAA requires that a copy of the limited asbestos survey be made available on-site for inspection by a PSCAA Control Officer during construction and demolition work. The limited survey is required to be performed in accordance with 40 CFR 763.86. These federal standards require inspections to be conducted by an EPA Accredited Building Inspector with analysis to be provided by an asbestos laboratory certified by the National Bureau of Standards. The requirements are described in Article 1 and Article 4 of PSCAA's Asbestos Control Standards. All survey work was conducted in compliance with the above mentioned standards.

Lead

When lead is discovered in a paint coating, worker protection and environmental protection requirements apply to all construction activities that may disturb these coatings. The issues surrounding the demolition of materials that have lead-containing coatings include worker exposure, public health, and waste characterization.

Worker Exposure to Lead

WAC 296-155-176, Lead, applies to all construction work where an employee may be occupationally exposed to lead. Construction work includes activities such as demolition or salvage, removal or encapsulation, and renovation of materials that contain lead. When a worker may be exposed to lead, the employer must take the following actions according to WAC 296-155-176:

1. Perform an exposure assessment for each operation where the employee may be exposed to lead at or above 30 micrograms per cubic meter ($\mu g/m^3$) averaged over an 8-hour period. The exposure assessment consists of personal air monitoring to determine representative lead exposure levels for the work being performed;

2. Provide and require use, during the exposure assessment of half-mask air-purifying respirators equipped with high efficiency particulate air (HEPA) filters and disposable clothing;

3. Provide a designated change area which allows for separate storage areas for work and street clothing to prevent cross contamination;

4. Provide hand washing facilities to allow employees to wash their hands and faces;

5. Provide biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels; and

6. Train employees in hazard communication, safety, and the limitations, proper use, and maintenance of respirators.

In addition to the protective equipment and hygiene requirements, the employer must attempt to reduce the levels of airborne lead through the use of engineering controls such as ventilation and wet methods.

Public Health

The owner should ensure that the general public will not have access to the site during demolition activities. In addition, controlling visible emissions (dust) will decrease the airborne concentration of lead, thus decreasing the airborne exposure levels of the general public and potential contamination of surrounding areas from dust migration.

If the building is to be reoccupied, following a final clean up of the work area (wet wiping and/or HEPA vacuuming to remove visible dust and debris), surface dust sampling (clearance sampling) of the work area is recommended. Clearance recommendations have been established by the US Department of Housing and Urban Development's Publication, "Guidelines for the Evaluation and Control of Lead-Based Paint in Housing (June 1995)". The regulations have been updated in March 2001. The recommended clearance levels are:

Floors	40 micrograms per square foot
Window Sills	250 micrograms per square foot
Window Wells	400 micrograms per square foot

Section 4 - Sampling Plan and Laboratory Analysis

Asbestos

Objectives

The objectives of the limited asbestos survey were to determine the quantity and location of building materials (vinyl floor sheeting, gypsum wall board, etc.) that may contain asbestos.

Asbestos Sampling Plan Protocol

This survey was conducted using protocols adapted from the Asbestos Hazard Emergency Response Act (AHERA). The protocol is as follows:

1. Group materials into homogeneous sampling areas.
2. Quantify each homogeneous sampling area and collect samples from each area using the "3-5-7" criteria for surfacing material to determine the number of samples needed. Quantify and collect a minimum of three samples of each thermal system insulation. (The number of samples collected of miscellaneous materials was determined by the inspector.)
3. Samples of each material were taken to the substrate, ensuring that all components of the material were included.
4. Sampling was performed by a Certified Building Inspector, and the use of proper protective equipment and procedures was followed.

Asbestos Sampling Procedure

1. Spread the plastic drop cloth (if needed) and set up other equipment, e.g., ladder.
2. Put on protective equipment (respirator and protective clothing if needed).
3. Label sample container with its identification number and record number. Record sample location and type of material sampled on a sampling data form.
4. Moisten area where sample is to be extracted (spray the immediate area with water).
5. Extract sample using a clean knife, drill capsule, or cork boring tool to cut out or scrape off approximately one tablespoon of the material. Penetrate all layers of material.
6. Place sample in a container and tightly seal it.
7. Wipe the exterior of the container with a wet wipe to remove any material that may have adhered to it during sampling.
8. Clean tools with wet wipes and wet mop or vacuum area with HEPA vacuum to clean all debris.
9. Discard protective clothing, wet wipes and rags, cartridge filters, and drop cloth in a labeled plastic waste bag.

Asbestos Laboratory Analysis

The bulk samples are analyzed in our laboratory using polarized light microscopy (PLM) with dispersion staining in accordance with US EPA method 600/R-93/116 as specified in 40 CFR Chapter I (7-1-93 edition) Part 763, Subpart F, Appendix A, pages 499-504. Polarizing light microscopy quantifies asbestos concentrations at between 100% and 1% detection levels. Levels below 1% can only be stated as "trace."

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled L-1 for layer one and L-2 for layer two, etc.) and a total percentage for the entire sample. The asbestos concentration in the sample is determined by visual estimation.
For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61).

Lead

Objectives

The objectives of the lead sampling were to determine locations of coatings that are lead containing and the percentage of lead in these coatings.

Lead Sampling Procedure

All visible, painted surfaces were analyzed for lead content using a Niton XL-309 Lead Paint Spectrum Analyzer. This instrument uses x-ray fluorescence to look through all layers of paint and measure the lead content in milligrams lead per square centimeter of surface area. Per OSHA standards, materials with any detectable levels of lead are considered lead-containing.

Section 5 - Survey Results

Asbestos

TABLE 2 - Inventory of Sampled Building Materials in the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

Sample ID	Material Description	Location	Asbestos Content	Friability
001, 002, 005, 006, 017 through 020, 028 through 031, 035 through 038, 041 through 044	Plaster	Throughout	No asbestos detected	Friable
003, 004, 021, 022, 032, 033, and 061	Gypsum wallboard with mudded seams	Interior walls between the individual rooms	Gypsum wallboard: No asbestos detected Mudded seams: 2% Chrysotile Wallboard composite: <1% Chrysotile	Friable
007 through 009	4" Corrugated paper pipe insulation with black sealant	Attic	4% Chrysotile	Friable
010 through 012	Repair patch material on 4" pipe insulation, white	Attic	No asbestos detected	Friable
013 through 015	Blown in insulation	Attic	No asbestos detected	Friable
016	Mortar	Elevator encasing	No asbestos detected	Friable
023 and 024	Suspended ceiling panels, small pinholes and large fissure pattern	4th floor men's bathroom, 5th floor women's bathroom	No asbestos detected	Friable
25	Clear Sealant on Multi-stoned flooring (Terrazzo)	5th floor by north side patio	5% Chrysotile	Non-friable
026 027,039, 040 and 62 through 65	Multi-stoned flooring (Terrazzo)	Throughout	No asbestos detected	Non-friable
034	Suspended ceiling panels, small pinholes and large fissure pattern	3rd floor men's bathroom	No asbestos detected	Friable
045	Suspended ceiling panels, small pinholes and large fissure pattern	2nd floor women's bathroom	No asbestos detected	Friable
046 through 051	3" Corrugated paper pipe insulation	Basement corridor	9-10% Chrysotile	Friable
052 through 054	Suspended ceiling panels, small pinholes and large fissure pattern	Basement room 26 and basement women's bathroom	No asbestos detected	Friable
055	Sheet vinyl flooring, yellow and white with mastic	Basement room 26	No asbestos detected	Friable
056	Sheet vinyl flooring, gray and white with mastic	Basement in front of women's bathroom	No asbestos detected	Friable
057	Gray cove base with mastic	Basement in front of women's bathroom	No asbestos detected	Non-friable
058 through 060	Block pipe insulation	Boiler room	No asbestos detected	Friable
066	Elevator motor gasket	Elevator room in attic	No asbestos detected	Friable
067	HVAC duct vibration cloth	Attic	No asbestos detected	Non-friable
068	Black tar on red clay roof tiles	Roof of original building	No asbestos detected	Non-friable

TABLE 2 (cont.) - Inventory of Sampled Building Materials in the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

Sample ID	Material Description	Location	Asbestos Content	Friability
069 through 072	4" Fiberglass pipe insulation with canvas cover	Throughout building	No asbestos detected	Friable
073	Tan carpet mastic	Throughout building	No asbestos detected	Non-friable
074 through 076	Ceiling tiles(stapled), 12" x 12" spline with white paint	Auditorium	No asbestos detected	Friable
077	3½" x 3½" white ceramic tile with grout and mastic	Kitchen area	No asbestos detected	Non-friable
078	6" x 6" red ceramic tile with grout	Kitchen area	No asbestos detected	Non-friable
H001 through H003	Ceiling tiles (stapled), 12"x12" large fissure pattern	Health center dining area and hallway	No asbestos detected	Friable
H004 through H006	Ceiling panels (stapled), 2'x4' small pinhole pattern	Health center kitchen	No asbestos detected	Friable
H007 through H009	Ceiling tiles (stapled), 12"x12" small pinhole pattern	Health center kitchen	No asbestos detected	Friable
H010 through H012	Gypsum wallboard with mudded seams	Health center	No asbestos detected	Friable
H013	Sheet vinyl flooring, dark brown marble pattern with mastic	Health center dining area	No asbestos detected	Friable
H014	Sheet vinyl flooring, white, brown, and tan speckle pattern with mastic	Health center dining area	No asbestos detected	Friable
H015	Sheet vinyl flooring, brown speckle pattern with mastic	Health center dining area	No asbestos detected	Friable
H016	Sheet vinyl flooring, orange and white speckle pattern with mastic	Health center throughout patient rooms	Vinyl: No asbestos detected Paper Backing: 35% Chrysotile Mastic: No asbestos detected	Friable
H017	12"x12" floor tile, gray with black speckle pattern with mastic	Health center employee lounge	No asbestos detected	Non-friable
H018	Sheet vinyl flooring, orange, tan, and off-white speckle pattern with mastic	Health center kitchen dining area	Vinyl: No asbestos detected Paper Backing: 35% Chrysotile Mastic: No asbestos detected	Friable
H019	Gray cove base with yellow mastic	Health center	No asbestos detected	Non-friable
H020	Maroon cove base with yellow mastic	Health center hall outside admin office	No asbestos detected	Non-friable
H021	Green cove base with yellow mastic	Health center dining area	No asbestos detected	Non-friable
H022 through H024	Ceiling panels, 2'x2'	Health center bottom floor	No asbestos detected	Friable
H025	Sheet vinyl flooring, pink with white speckle pattern with mastic	Health center dining area	No asbestos detected	Friable
H026	Ceramic tiles with red, gray, and white grout	Health center physical therapy pool area floor	No asbestos detected	Non-friable
H027	3½" x 3½" ceramic tile with grout	Health center physical therapy pool area walls	No asbestos detected	Non-friable
H028	Tan carpet mastic with white floor leveling compound	Health center 300 room series hallway, rooms 312 and 313	No asbestos detected	Friable

TABLE 2 (cont.) - Inventory of Sampled Building Materials in the Masonic Retirement Center located at 23660 Marine View Drive South in Des Moines, Washington.

Sample ID	Material Description	Location	Asbestos Content	Friability
H029	1" x 1" ceramic tile with grout and mastic	Health center 300 room series bathrooms	No asbestos detected	Non-friable
H030	3½" x 3½" ceramic tile with grout	Health center 300 room series bathrooms	No asbestos detected	Non-friable
H031	Sheet vinyl flooring, dark orange speckle pattern with mastic	Health center tub bath room	Vinyl: No asbestos detected Backing: 35% Chrysotile Mastic: No asbestos detected	Friable
H032	1" x 1" ceramic tile with grout and mastic	Health center tub bath room	No asbestos detected	Non-friable
H033	Gray granular cap sheet with insulation and vapor barrier	Health center roof	No asbestos detected	Non-friable
H034	3-tab shingle with vapor barrier	Health center roof	No asbestos detected	Non-friable
H035	3-tab shingle with texture pattern and vapor barrier	Health center roof	No asbestos detected	Non-friable
H036 through H042	Exterior stucco	Health center exterior walls and eaves of building	No asbestos detected	Non-friable
H043	Black roof mastic	Health center roof	No asbestos detected	Non-friable

Lead

Based on the worker regulations detailed in WAC 296-155-176 (Lead in Construction), painted surfaces sampled in the Masonic Retirement Center contained detectable levels of lead and are considered lead containing. It should be noted that WISHA interpretation of a lead containing paint is a paint with any detectable quantity of lead by an appropriate sampling method. This differs from the HUD definition of a lead based paint, which is 1.0 mg/cm², or 5,000 ppm. The Niton XRF unit utilized in this project is programmed to determine positive and negative results based on the HUD definition. It should be noted that the attached table had been edited to display positive and negative results based on the WISHA interpretation.

Section 6 - Conclusions and Recommendations

Asbestos

Extreme caution should be used during renovation or demolition to minimize disturbance if additional materials are uncovered. In the event that additional suspect material(s) are discovered, the material(s) should be sampled by an EPA accredited inspector and analyzed to determine if it contains asbestos prior to disturbance.

Asbestos-containing materials are required to be removed and disposed of in accordance with Washington State Regulations prior to any demolition, renovation, or remodeling that would disturb these materials. Washington State Department of Labor and Industries and PSCAA require that the abatement be performed using Certified Asbestos Workers under the direct on-site supervision of a Certified Asbestos Supervisor. The only exemption is for resident owners performing removal of asbestos-containing materials other than furnace interiors and direct applied mudded asbestos insulation.

Prezant Associates recommends that a Certified Asbestos Project Designer design any asbestos abatement project to ensure that the project is completed according to regulation standards.

Lead

Based on the lead-containing coating results, special precautions to protect workers from lead need to be taken to renovate or demolish the Masonic Retirement Center. Workers disturbing lead-containing coatings are covered under the lead standard (WAC 296-155-176) until shown they are not being exposed above the action limit of 30 $\mu g/m^3$ or the permissible exposure limit of 50 $\mu g/m^3$. The requirements of this standard include, but are not limited to, air monitoring, respiratory protection, medical surveillance, lead work plan, warning signs, and wash stations.

Prezant recommends that an initial exposure assessment be performed per WAC 296-155-176 in order to determine if airborne lead levels meet regulatory standards.

Section 7 - Limits of Survey

Asbestos and lead surveys are non-comprehensive by nature and subject to many limitations including those presented below. Our assessment has considered risks pertaining to asbestos and lead only in the Masonic Retirement Center, and is limited to only those locations and materials sampled. This survey was not designed to identify all potential concerns nor to eliminate all risks associated with renovation or demolition.

Other risks were not evaluated with this limited survey. Risks such as 1) toxic and hazardous substances in (or in contact with) soil or ground water; 2) risks associated with structural, electrical, or mechanical working of the building; 3) risks associated with radon gas, slope stability, building settlement, moisture, or site drainage and flooding have not been evaluated during this limited survey. No warranty, expressed or implied, is made.

Prezant Associates, Inc. performed this limited survey in accordance with the generally accepted standards of care that exist in the industrial hygiene profession in Washington State at the time of this study.

This limited survey is not intended for use as plans and specifications or as a bid for removal of asbestos or lead.

Appendix A:
Field Notes

Prezant

Project: Musonic home

Description:

Notes:

Page ____ of ____

Job # ____

Date: 1-17-03

Made By: C. Newell

Suspect Asbestos-Containing Materials List

Sample(s)	Material #	Description	Location(s)	Quantity	Friability
Plaster	035	Plaster From wall	Rm 213 2nd Floor		yes
	036	" "	Tub room 2nd Floor		
	037	Plaster From Ceiling	Utility Room 2nd Floor		
	038	" "	Room 205 2nd Floor		
[redacted] Misc.	039	[redacted] Multi Stoned Flooring	2nd Floor South end		No
	040	"	1st Floor North end		
Plaster	041	Plaster From wall North end	Northend 1st Floor		yes
	042	" " "	" "		
	043	Plaster From Ceiling	Utility room Southend 1st Floor		
	044	"	" North end 1st Floor		
Ceiling panels	045	Ceiling Panel Large Fiscures Small pinholes	Womens Bathroom 2nd Floor		yes
Aircell	046	Small pipe run East to west	Basement corridor		yes
	047	Large pipe run North to South	"		
	048	Small pipe run East to west	" "		
	049	Large Pipe run North to South	" "		
	050	Medium pipe run North to South	" "		
	051	" "	" "		
Ceiling panels	052	Large Fiscures Small pinholes	Room 26 Basement		
	053	"	Ladys Bathroom Basement		
	054	" "	Room 26 Basement		
Sheet vynal	055	Yellow & white w/ mastic	Room 26 Basement		NO
	056	Gray & White w/ mastic	infront of Ladies B-room, Basement "		NO
Cove Base	057	Gray Cove Base w/ mastic			NO
Mag Block	058	Green Tank Central TSI white mag block	Central Boiler room		yes
	059	" " East wall "	East "		
	060	" " South wall " "	South " "		
GWB	061	GWB	Above Door Rm 26 Basement		yes
	062	Grey terazzo (lg stone)	424		N
	063	" "	5th floor N. hallway		
	064	" "	2nd floor Ramp		
	065	Grey terazzo patch	6th floor N. hall		

Prezant

Project: Masonic home (Des Moines)

Description: huge Mansion new retirement home

Notes:

Page ___ of ___

Job # ___

Date 1-16-03

Made By C. Newell

Suspect Asbestos-Containing Materials List

Sample(s)	Material #	Description	Location(s)	Quantity	Friability
Plaster	001	Plaster from wall in RM 509	South wall Rm 509		yes
Plaster	002	Plaster from wall in RM 511	North wall Rm 511		yes
GWB	003	GWB w/ paint & paper	Above door Rm 511		yes
↓	004	GWB	Above door Rm 507		yes
Plaster	005	Plaster from Ceiling	Ceiling Rm 515		yes
Plaster	006	Plaster from Ceiling	Ceiling Rm 506		yes
Air Cell	007	Black (air cell) pipe insulation	Attic		yes
↓	008	↓	↓		↓
	009				
repair patch	010	White repair material	Attic		yes
↓	011	↓	↓		↓
	012				
insulation	013	Blown in insulation	Attic		yes
↓	014	↓	↓		↓
	015				
Mortar	016	Mortar from Elevator encasing	Attic		yes
Plaster	017	Plaster from wall	West wall RM 423		yes
↓	018	Plaster from Ceiling	Ceiling 4th Floor linen closet		yes
	019	Plaster from wall w/ wall paper	Wall (chapel) 4th Floor	Rm 425	yes
	020	Plaster from Ceiling	Ceiling (Chapel) 4th Floor	" "	yes
GWB	021	GWB	above door 425		yes
GWB	021	GWB w/ paint	above door 4th utility rm		yes
Ceiling panels	023	small pinholes large fissures Ceiling panels "	4th Floor Mens B-room		yes
↓	024	"	5th Floor Womens B-Room 501		yes
Flooring	025	Multi stoned Flooring	5th Floor North end		No
↓	026	" "	4th Floor South end		No
	027	"	3rd Floor South end		No
Plaster	028	Plaster from Wall "	Kitchen 3rd Floor East wall		yes
↓	029	"	Room 326 South wall		yes
	030	Plaster from Ceiling "	Utility Rm 3rd Floor		yes
	031	"	Linen Rm C on 3rd Floor		yes
GWB	032	GWB	3rd Floor Mens B-room		yes
GWB	033	GWB	3rd Floor Kitchen		yes
Ceiling panels	034	Ceiling panels small pinholes large fissures "	3rd Floor Mens B-room		yes
↓	035		3rd Floor Womens B-Room		yes

Homog Mat Sheet.xls

Prezant

Project: Masonic home (health Center)

Description: one Story, built in 60's,

Notes:

Page ____ of ____

Job # ____

Date 1-17-03

Made By C. Newell

Suspect Asbestos-Containing Materials List

Sample(s)	Material #	Description	Location(s)	Quantity	Friability
Ceiling tiles	001	12X12 large Fiscure	Dining Area by Front desk		yes
	002	" "	hall way infront of Rm 213		
	003	" "	hall way infront of Admin office		
Ceiling Panels	004	2X4 Small Pinholes	Kitchen		
	005	" "	" "		
	006	" "	" "		
Ceiling tiles	007	12X12 small Pinholes	Kitchen		
	008	" "	" "		
	009	" "	" "		
GWB	010	Wall samples	Dining area near front desk		
	011	" "	Wall in front of Front desk		
	012	" "	Wall near room 301		
Sheet Vynal	013	Dark brown Marble	Dining area near front desk		NO
	014	White, brown, Tan, speckles	" "		
	015	Brown speckles	"		
	016	Orange, White Speckles	Room 203		
12x12 Tile	017	12x12 Gray with Black Specks Floor tile	employee lounge		NO
Sheet vynal	018	orange, Tan, off white Speckles.	Kitchen dining area		
Cove base	019	Gray Cove base yellow Mastic			
	020	Maroon Cove base " "	hall outside admin office		
	021	Green Cove base "	dining area across from Rm 7		
2X2 Ceiling	022	2X2 Ceiling panels Bottom Floor	West end Hall way bottom floor		
	023		Central Hall bottom Floor		
	024		Dining area		
Sheet Vynal	025	Sheet vynal pink w/ White Speckals	" "		

Red 6x6 Cer Tile

Bl 1"x1" " "

Homog Mat Sheet.xls

Suspect Asbestos-Containing Materials List

Prezant

Project MASONIC HOME OF WASHINGTON Job #

Project # Made By L TANGUAY Page 1 of 2

Sample #	Material Description	Location(s)	Fri	Quantity
66	ELEVATOR MOTOR GASKET	ATTIC ELEVATOR ROOM	Y	5 SF
67	HVAC DUCT VIBRATION CLOTH	ATTIC	N	40 SF
68	BLACK TAR ON RED CLAY ROOF TILES	ATTIC	N	50 SF
69	FIBERGLASS PIPE INSULATION WITH CANVAS COVER	THROUGHOUT BLDG.	Y	1,500 SF
70				
71				
72				
73	TAN CARPET MASTIC	RM 202 & 203 HALLWAYS TO DIFFERENT FLOORS	N	3,800 SF
74	12X12 SPLINE CEILING TILE W/ WHITE PAINT	AUDITORIUM	Y	2,500 SF
75				
76				
77	3½X3½ WHITE CERAMIC TILE WITH GROUT & MASTIC	KITCHEN AREA	N	3,000 SF
78	6X6 RED CERAMIC TILE W/GROUT	KITCHEN AREA	N	2,500 SF

Prezant Assoc., Inc. 330 6th Ave. N. Suite 200 Seattle, WA 98109 Voice: (206) 281-8858 Fax: (206) 281-8922 www.prezant.com

Suspect Asbestos-Containing Materials List

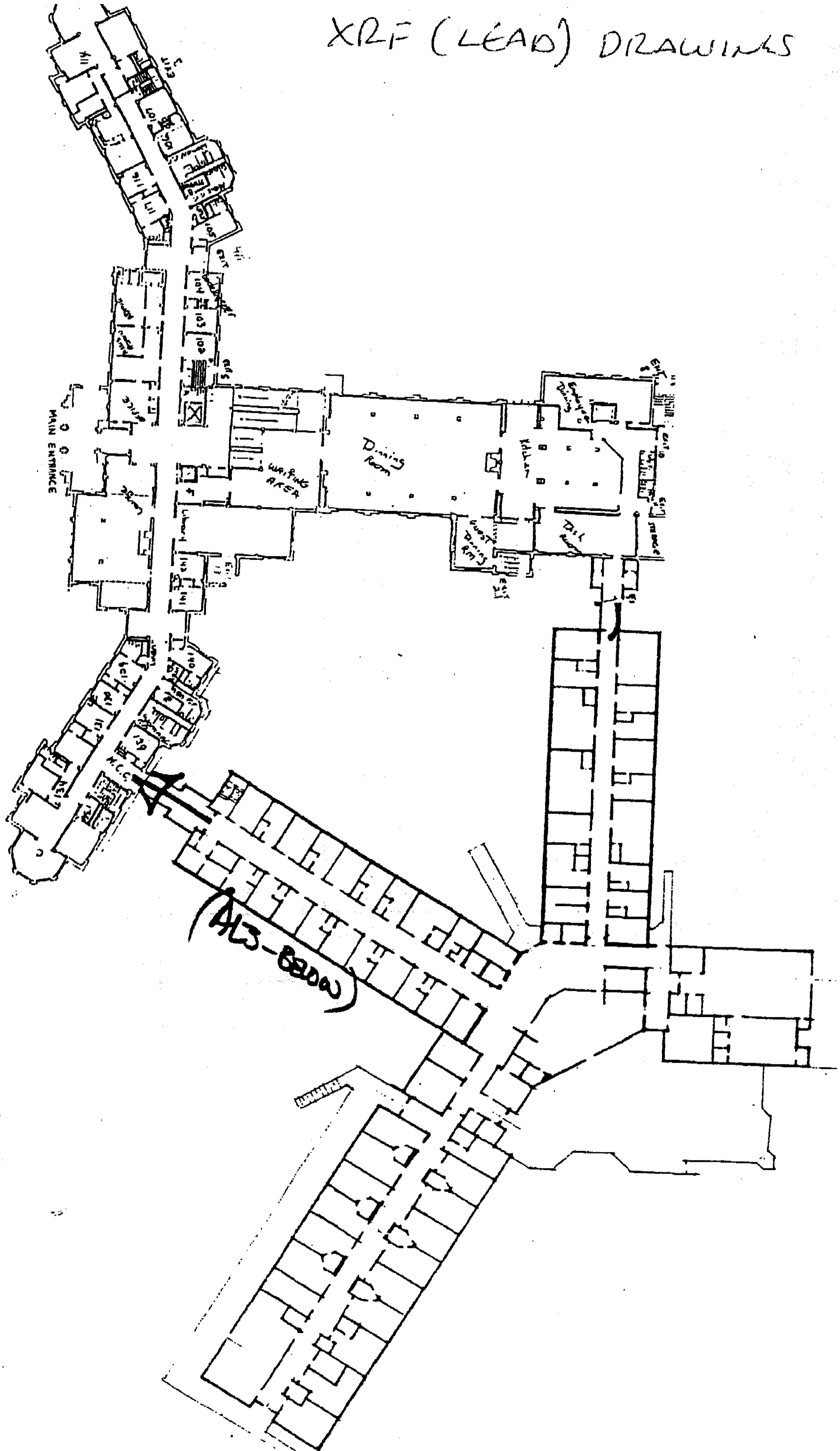
Prezant

Project MASONIC HOME OF WASHINGTON Job #

Project # Made By L TANGUAY Page 2 of 2

Sample #	Material Description	Location(s)	Fri	Quantity
H026	CERAMIC TILE WITH RED, GRAY & WHITE GROUT	PHYSICAL THERAPY - POOL AREA FLOOR	N	675 SF
H027	3½ x 3½ CERAMIC TILE WITH GROUT	PHYSICAL THERAPY - POOL AREA WALLS	N	816 SF
H028	TAN CARPET MASTIC WITH WHITE FILLER COMPOUND	300 SERIES HALLWAY RM 312, 313	N	7,000 SF
H029	1" x 1" CERAMIC TILE w/ GROUT + MASTIC	300 SERIES BATHROOMS	N	100 SF
H030	3½" x 3½ CERAMIC TILE w/ GROUT	300 SERIES BATHROOMS	N	270 SF
H031	VSF DIE DRAWLE SPECKLES w/ PAPER BACKING + MASTIC	BATH ROOM - TUB AREA	Y	50 SF
H032	1" x 1" CERAMIC TILE WITH GROUT + MASTIC	BATH ROOM - TUB AREA	N	225 SF
H033	GRAY GRANULAR CAP SHEET w/ INSULATION + VAPOR BARRIER	ROOF	N	3,500 SF
H034	3-TAB SHINGLES w/ VAPOR BARRIER	ROOF	N	13,550 SF
H035	3-TAB SHINGLES w/ TEXTURE w/ VAPOR BARRIER	ROOF	N	10,352 SF
H036	EXTERIOR STUCCO	EXTERIOR WALLS + EAVES	Y	17,000 SF
H037				
H038				
H039				
H040				
H041				
H042				
H043	BLACK MASTIC	ROOF	N	50 SF

XRF (LEAD) DRAWINGS

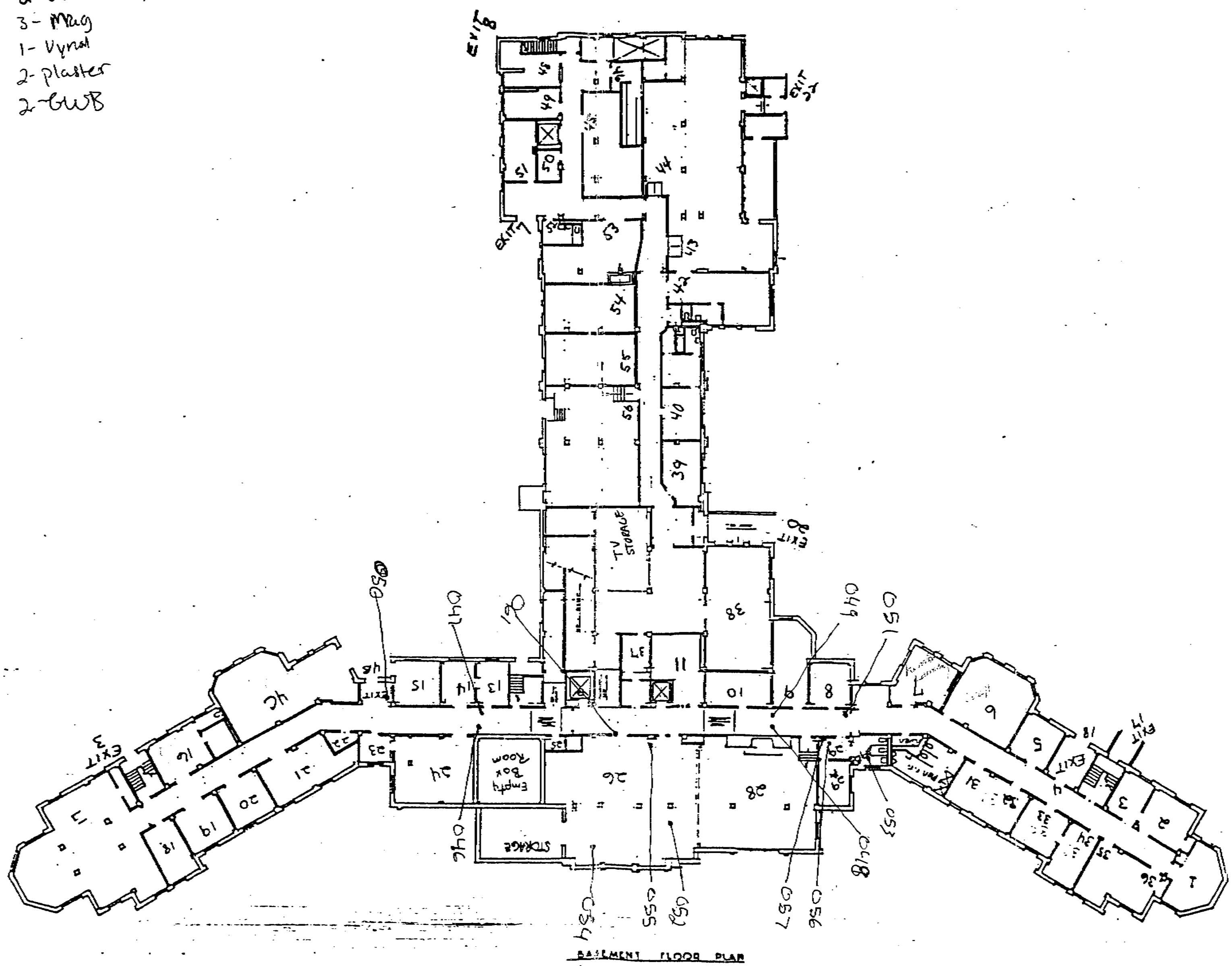


ASONIC HOME OF WASHINGT

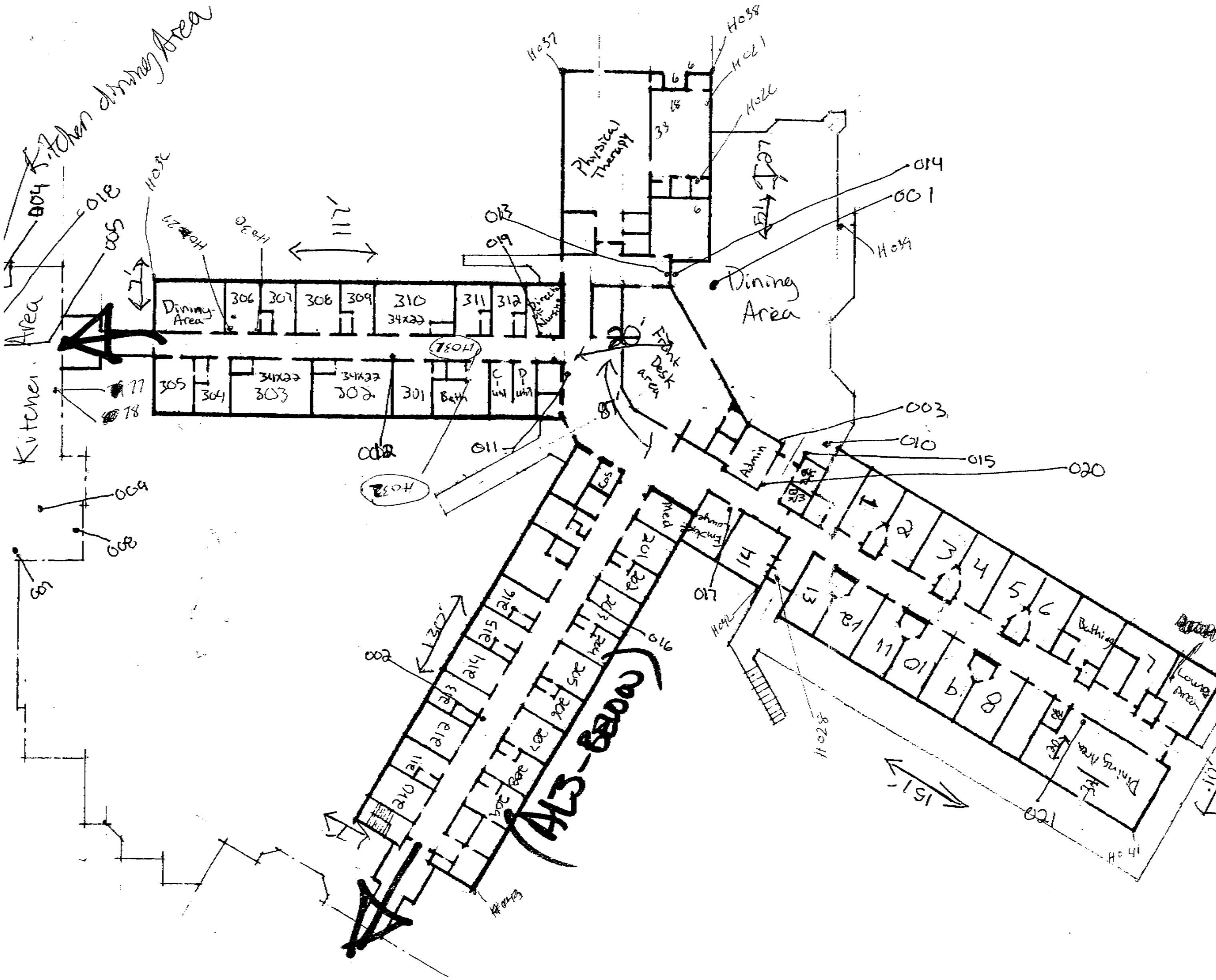
MASONIC HOME

HEALTH CARE FACILI

6 - Ceiling
~~2~~ - aircell L) ~~2-8~~)
3 - Mag
1 - Vynal
2 - plaster
2 - GWB



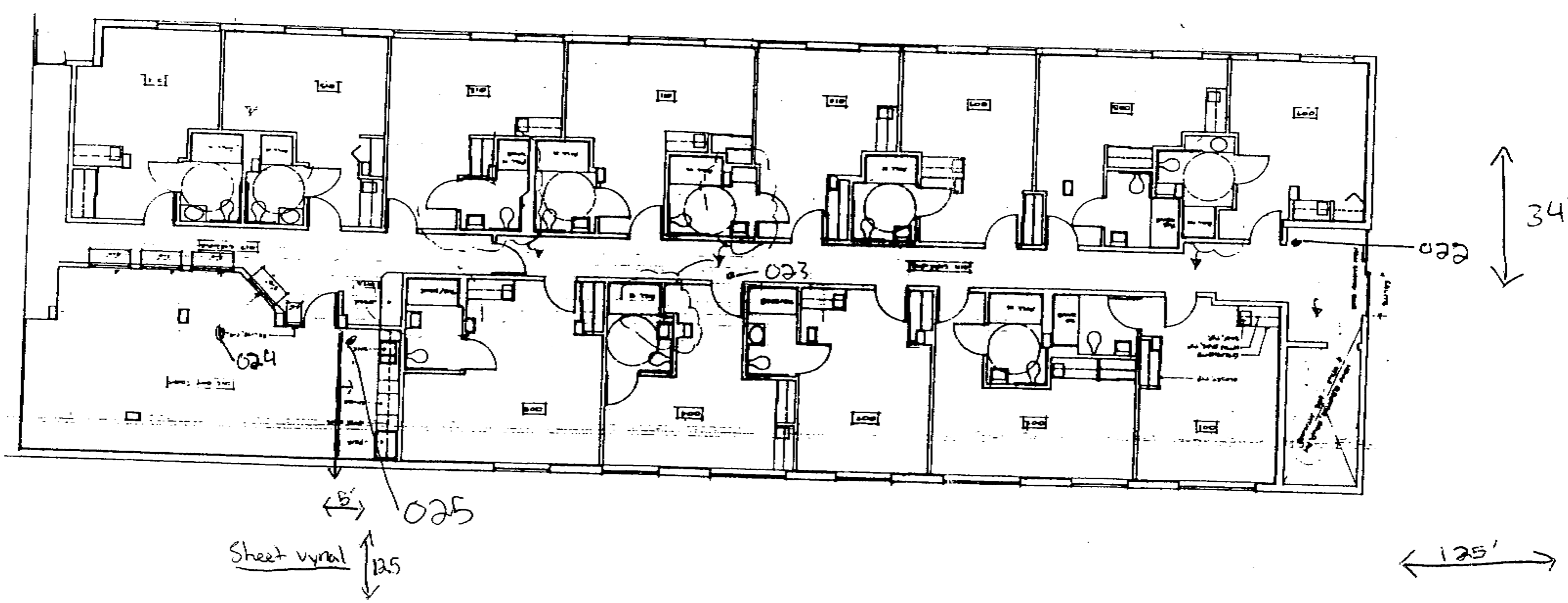
MASONIC HOME OF WASHINGTON



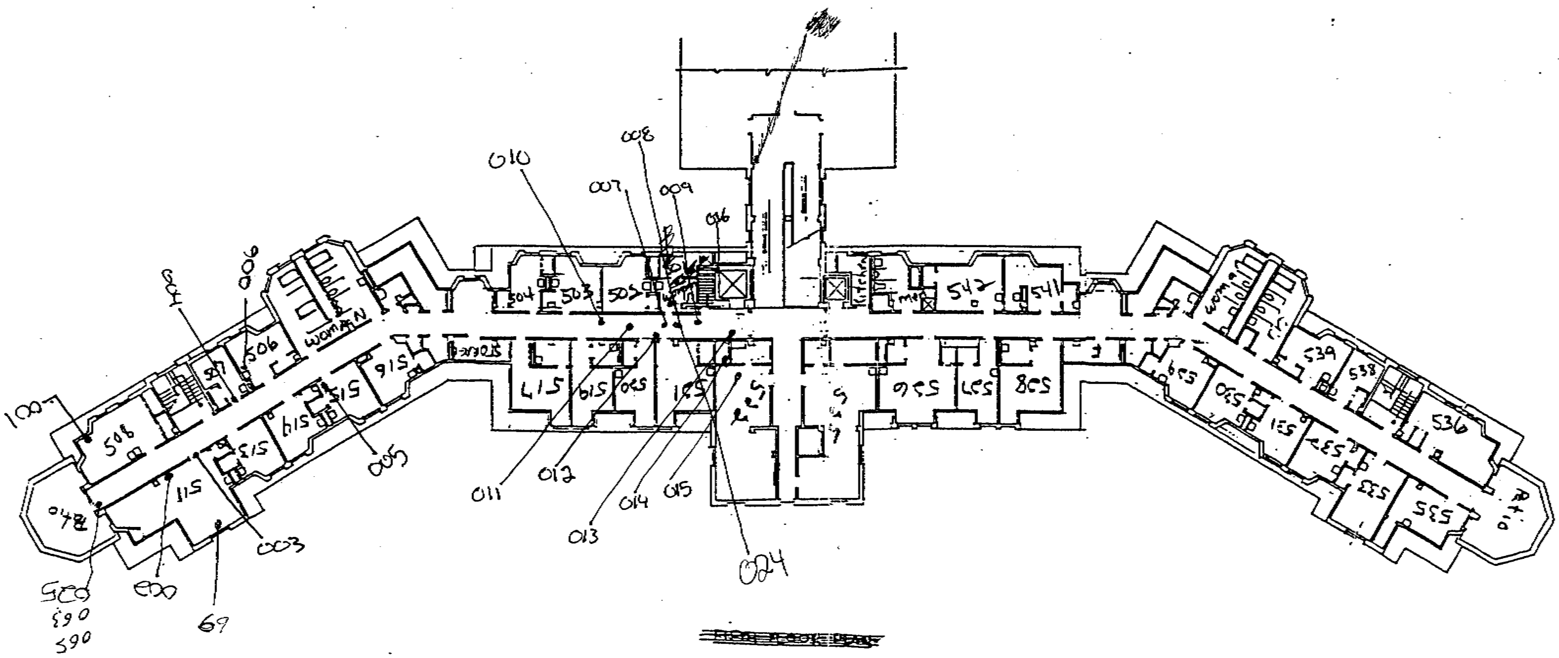
MASONIC HOME

HEALTH CARE FACILITY

AL-3

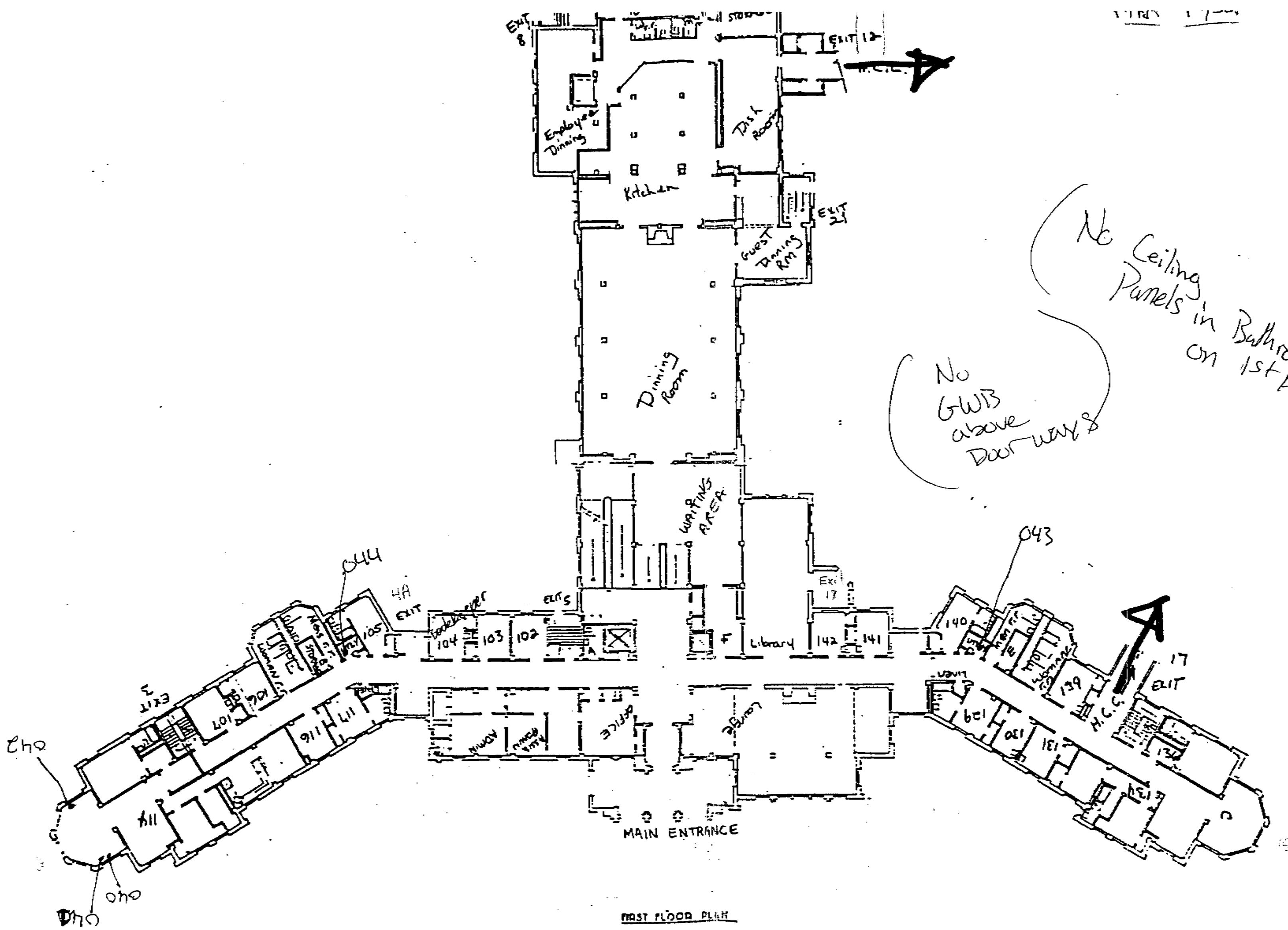


2X2 Ceiling Tile Throughout.



MASONIC HOME OF WASHINGTON

ARCHITECTS KLAASSEN/DALKE, AIA



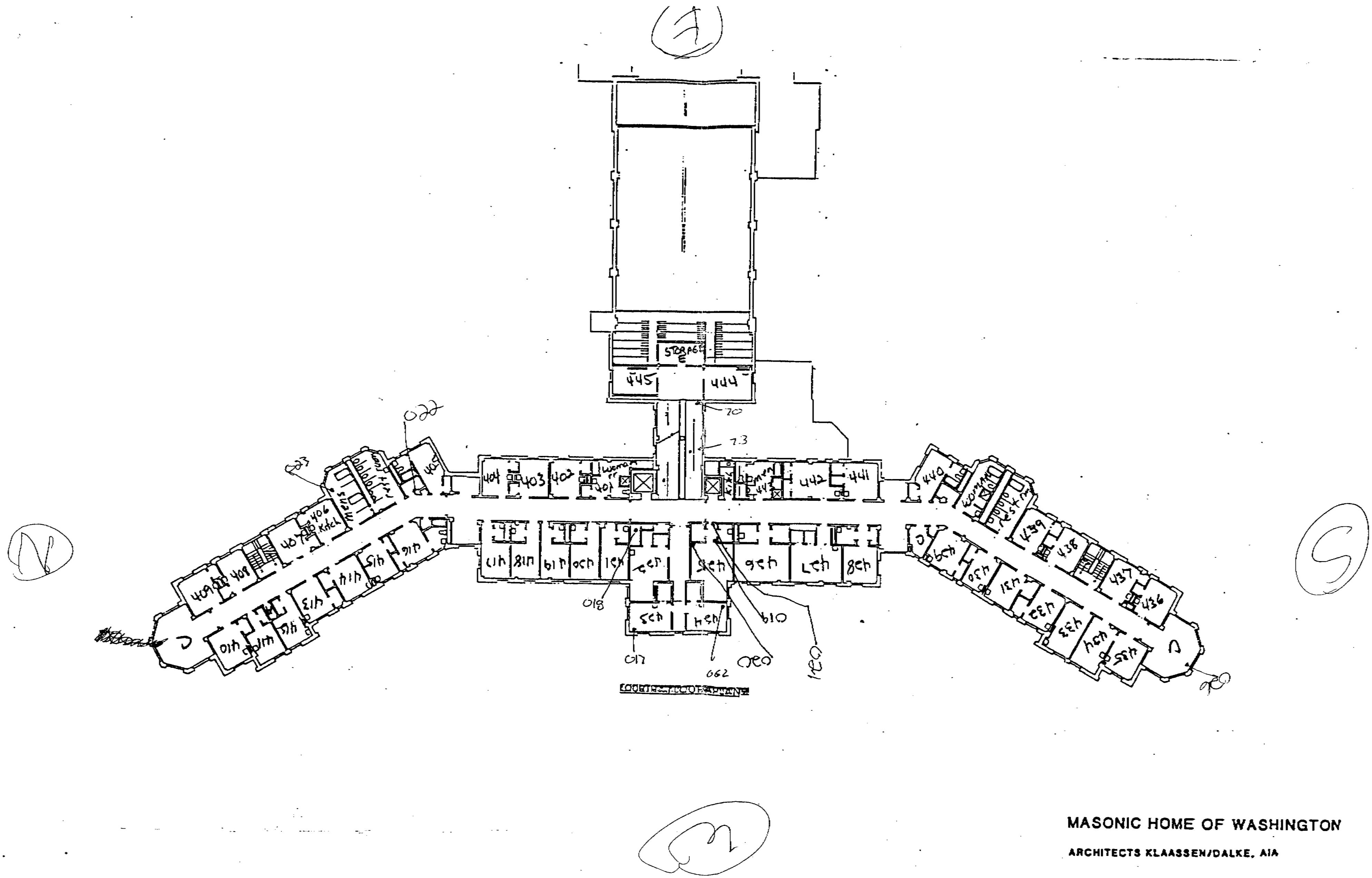
No Ceiling Panels in Bathrooms on 1st Floor

No GWB above Doorways

FIRST FLOOR PLAN

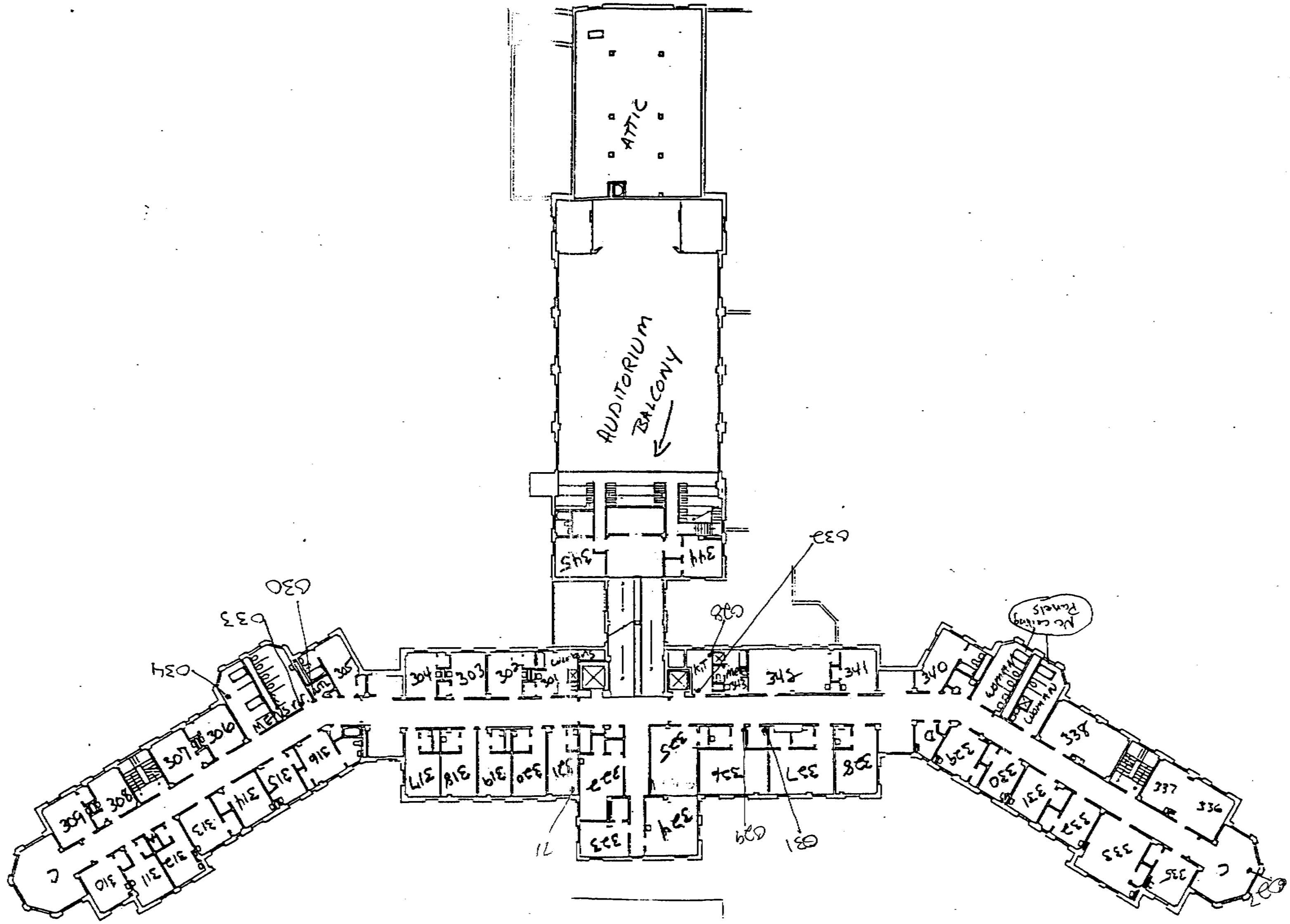
MASONIC HOME OF WASHINGTON

ARCHITECTS KLAASSEN/DALKE, AIA



MASONIC HOME OF WASHINGTON

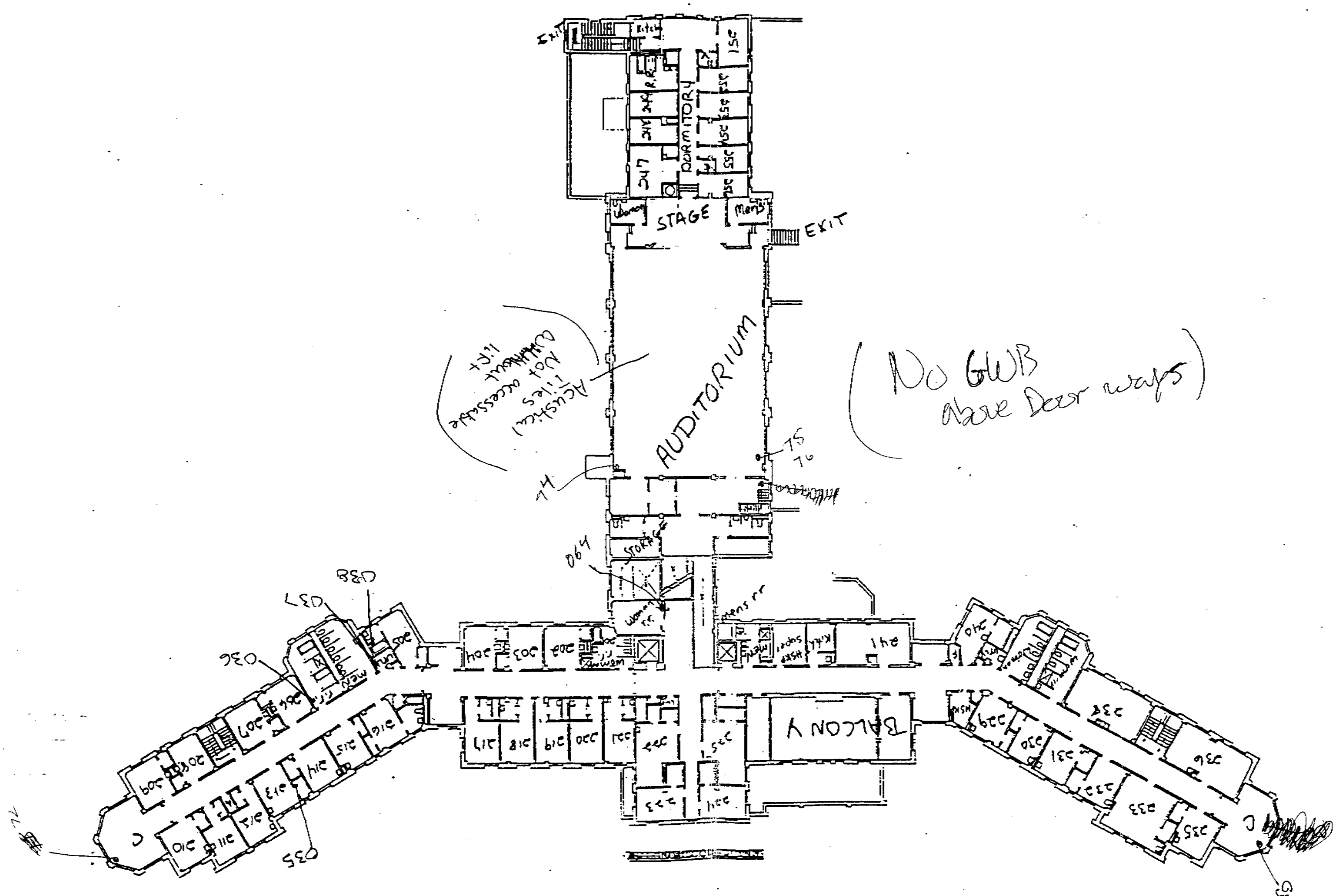
ARCHITECTS KLAASSEN/DALKE, AIA



THIRD FLOOR PLAN

MASONIC HOME OF WASHINGTON

ARCHITECTS KLAASSEN/DALKE, AIA



MASONIC HOME OF WASHINGTON

ARCHITECTS KLAASSEN/DALKE, AIA

B

16 - WHITE
47 - WHITE
17 - WHITE
18 - WHITE
19 - WHITE
20 - WHITE
21 WHITE
22 WHITE
23 WHITE
24 WHITE
25 - [illegible] WHITE

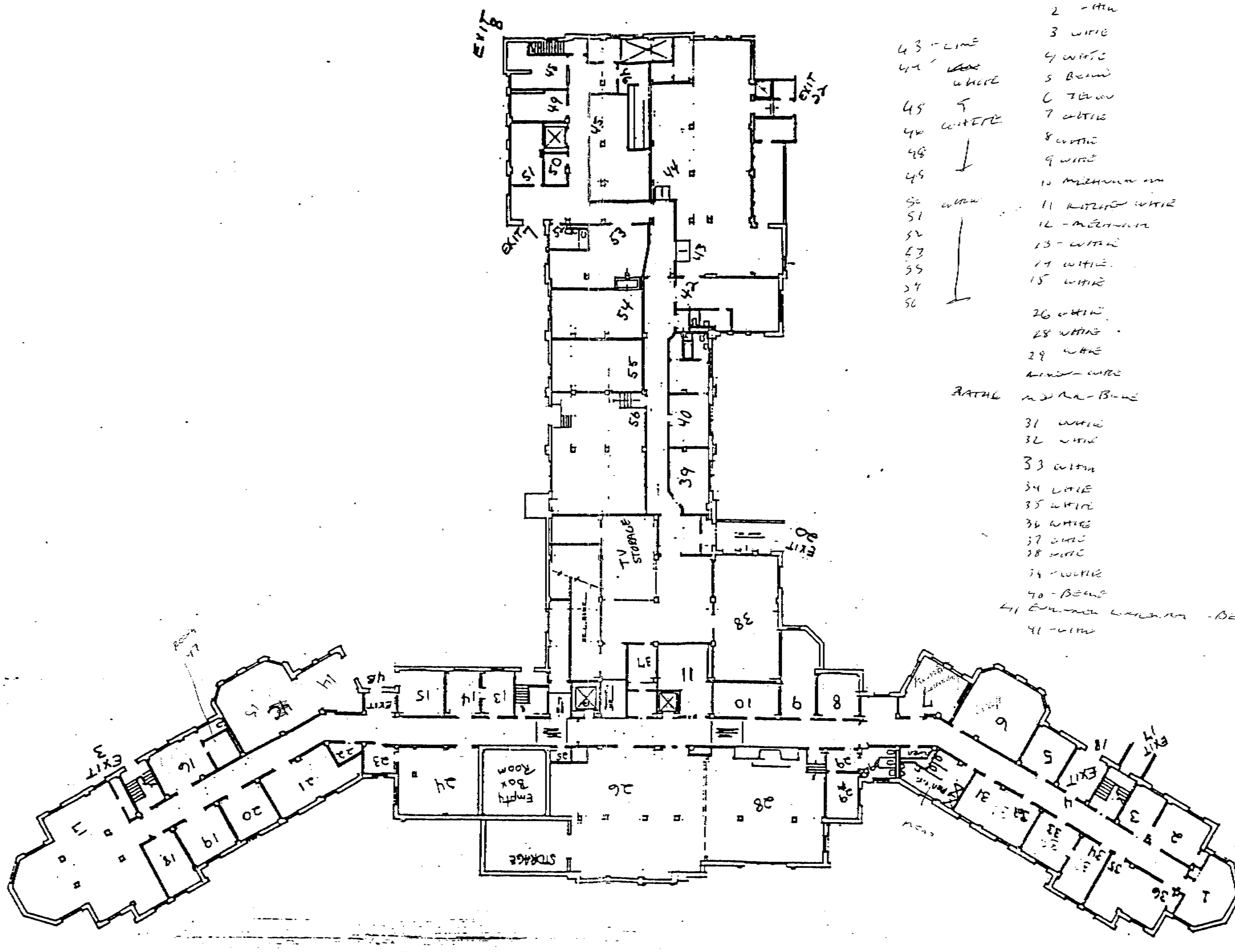
43 - LIME
44 - WHITE
45
46 WHITE
48
49
50 WHITE
51
52
53
55
54
56

HALL - [illegible] / BEIGE
RM 1 - WHITE
2 - [illegible]
3 WHITE
4 WHITE
5 BEIGE
6 YELLOW
7 WHITE
8 WHITE
9 WHITE
10 [illegible]
11 [illegible] WHITE
12 - [illegible]
13 - WHITE
14 WHITE
15 WHITE
26 WHITE
28 WHITE
29 WHITE
[illegible] - WHITE
BATHE [illegible] - BEIGE
31 WHITE
32 WHITE
33 WHITE
34 WHITE
35 WHITE
36 WHITE
37 WHITE
38 WHITE
39 - WHITE
40 - BEIGE
41 [illegible] - BEIGE
41 - WHITE

A

C

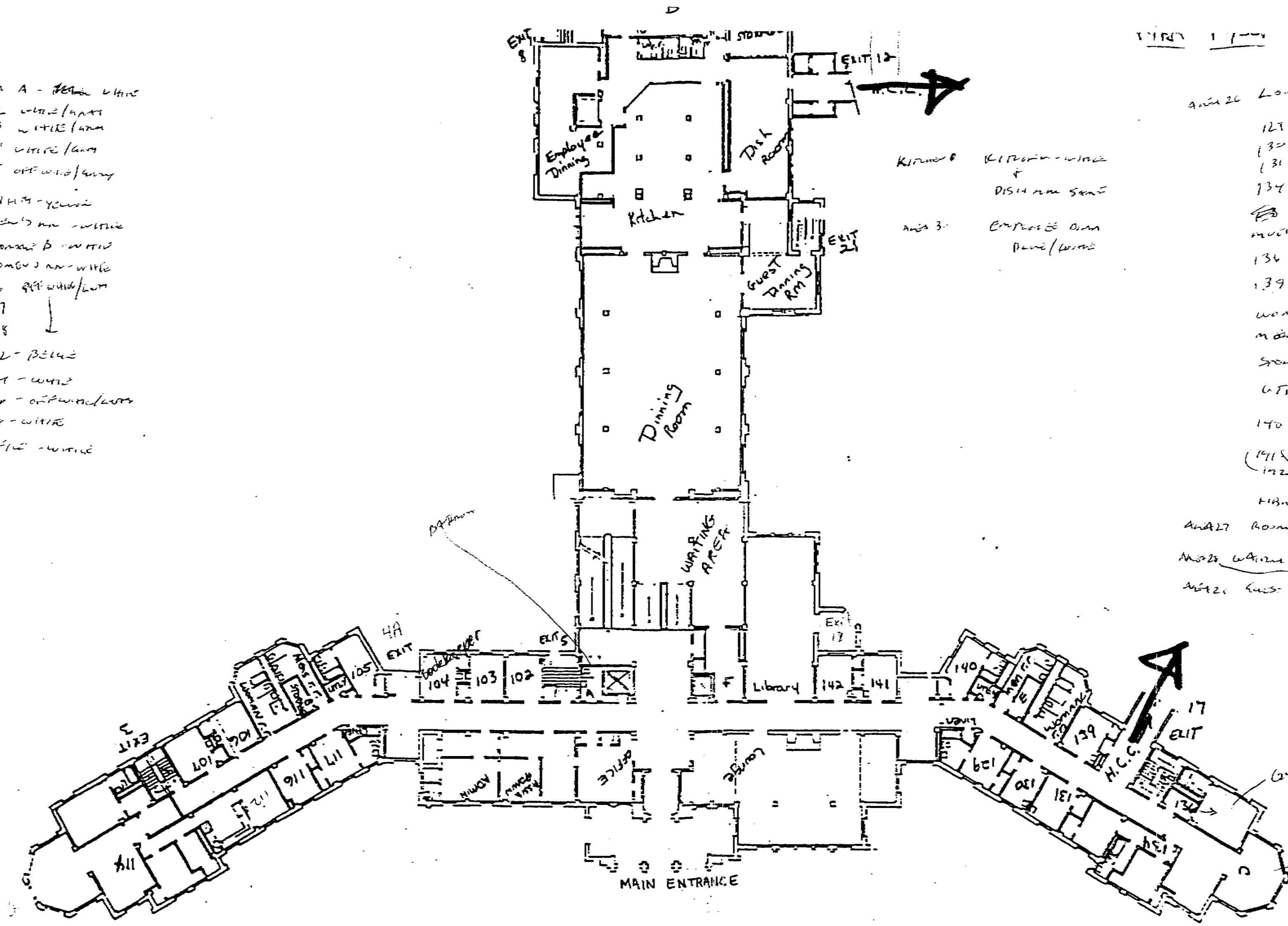
N ←



BASEMENT FLOOR PLAN

Rm A - ~~Yellow~~ white
102 white/gray
103 white/gray
104 white/gray
105 off white/gray

Area 24 Utility - Yellow
Bathrm 5 Men's rm - white
Storage B - white
Women's rm - white
106 off white/gray
107
108
112 - Beige
114 - white
116 - off white/gray
118 - white
Area 25 Office - white



FIRST FLOOR PLAN

D

Area 26 Lounge
129 - white
130 white
131 white
134 - Beauty Salon - white
~~[illegible]~~
Museum
136 - off white/gray
139 off white/gray
Womens white
Mens - white
Storage E - Yellow
Utility - Yellow
140 - off white/gray
(141, 142) Beige (Library Sign)
Library - white
Area 27 Room F - white
Area 28 Waiting + Dining rm - white + gray
Area 2_ Guest Dinn rm - white

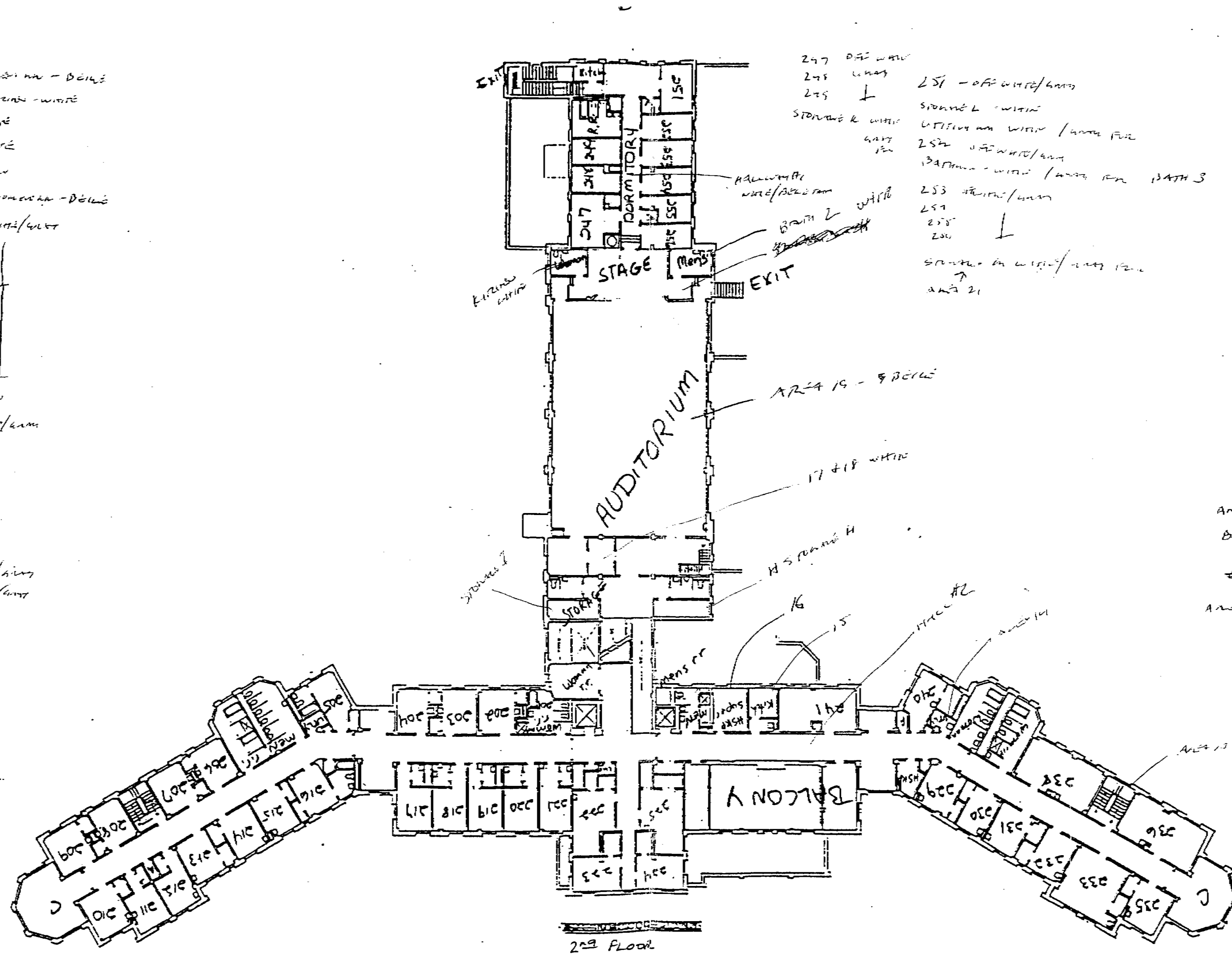
N ←

MASONIC HOME OF WASHINGTON
ARCHITECTS KLAASSEN/DALKE, AIA

201 - women's rm - beige
202-203 - kitchen - white
204 - white
205 - white
Area 11 utility - yellow
Area 12 tub room/women's rm - beige
206 off white/gray
207
208
209
210
211
212
213
Linen A - yellow
214 off white/gray
215
216
217
218
219
220
221
222
Linen B
223 - off white/gray
A 224 off white/gray
225
Linen B - yellow
Area 12 Balcony
Linen D - yellow
229 off white/gray
230
231

247 off white/gray
248 gray
249
Storage K white
251 - off white/gray
Storage L - white
Utility rm white / gray fur
252 off white/gray
Bathroom - white / gray fur Bath 3
253 white/gray
254
255
256
Storage rm white/gray fur
Area 21

231 off white/gray
232
233
234
235
236
Storage - blue fur
238 off white/gray
Women's & men's rm white
Utility E - yellow
240 - off white/gray
Utility F - yellow
241 - off white/gray
Area 15 kitchen - white
Rm G - off white/gray
Men's - beige
Area 8 Storage rm H beige
Bath 1 → men's + women's yellow
Storage I
Area 2 Stage
C



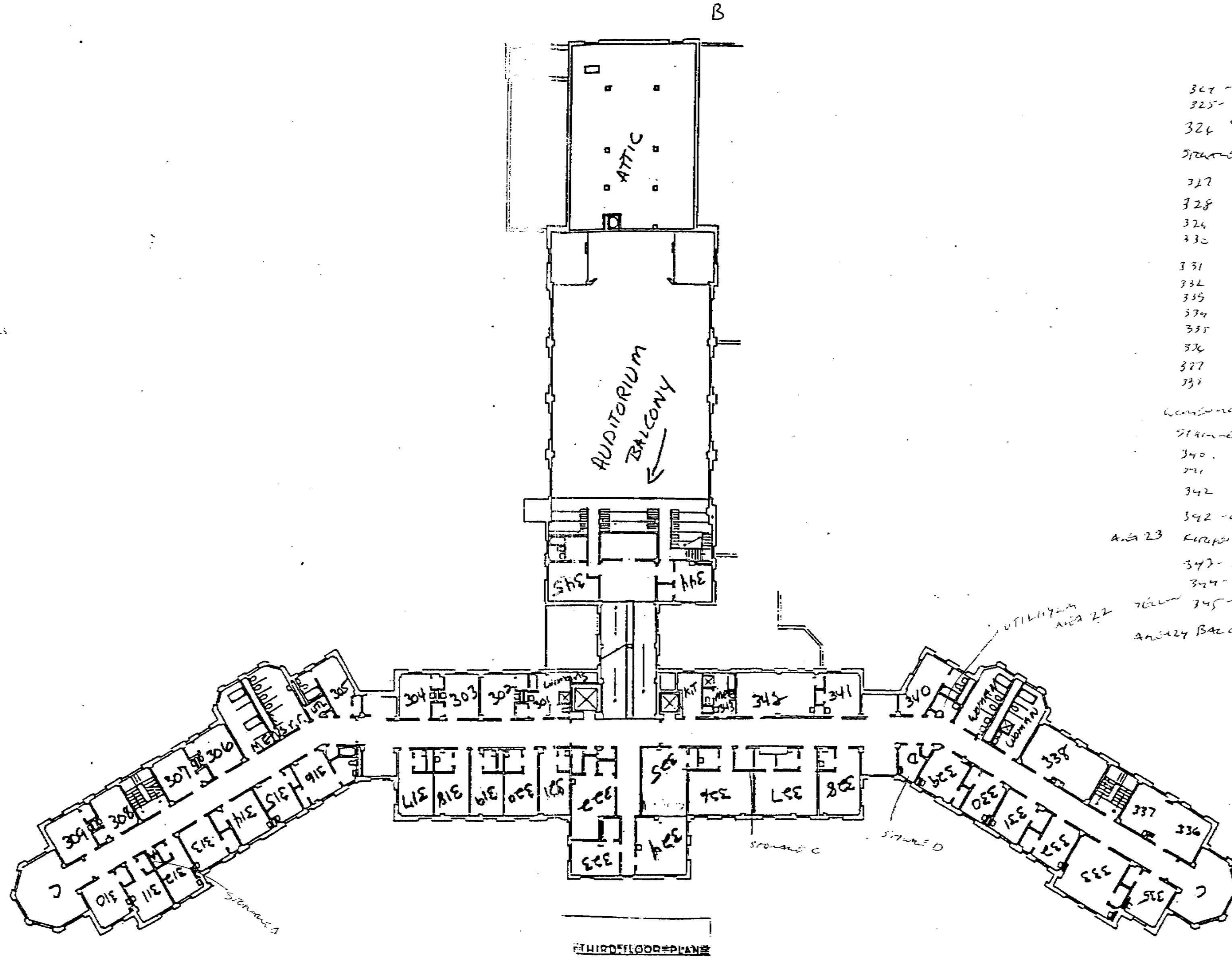
D

N ←

MASONIC HOME OF WASHINGTON

ARCHITECTS KLAASSEN/DALKE, AIA

301 - Beige
302 - Off white/Gray
303 - Beige
304 - Off white/Gray
305 - Off white/Gray
Utility - Yellow - Area 10
Men's RR - White/Beige
306
307 Off white/Gray
308
Stairwell - Blue Room/White walls
309 Off white/Gray
Room C
310 - Off white/Gray
Storage A - Yellow
311 - Off white/Gray
312
Off white/Gray
315
316
A
317 Off Gray
318
319
320
321
Storage B - Yellow
322
323 Off white/Gray



324 - White
325 - White
326 Off White/Gray
Storage CLKD - Yellow
327 Off white/Gray
328
329
330
331
332
333
334
335
336
337
338
Workroom White
Stairwell Blue Rm
340 - Off white/Gray
341
342
342 - White
Area 23 Kitchen - Beige
343 - Beige
344 - Beige
Utility Area 22 Yellow
345 - White
Ancillary Balcony

C

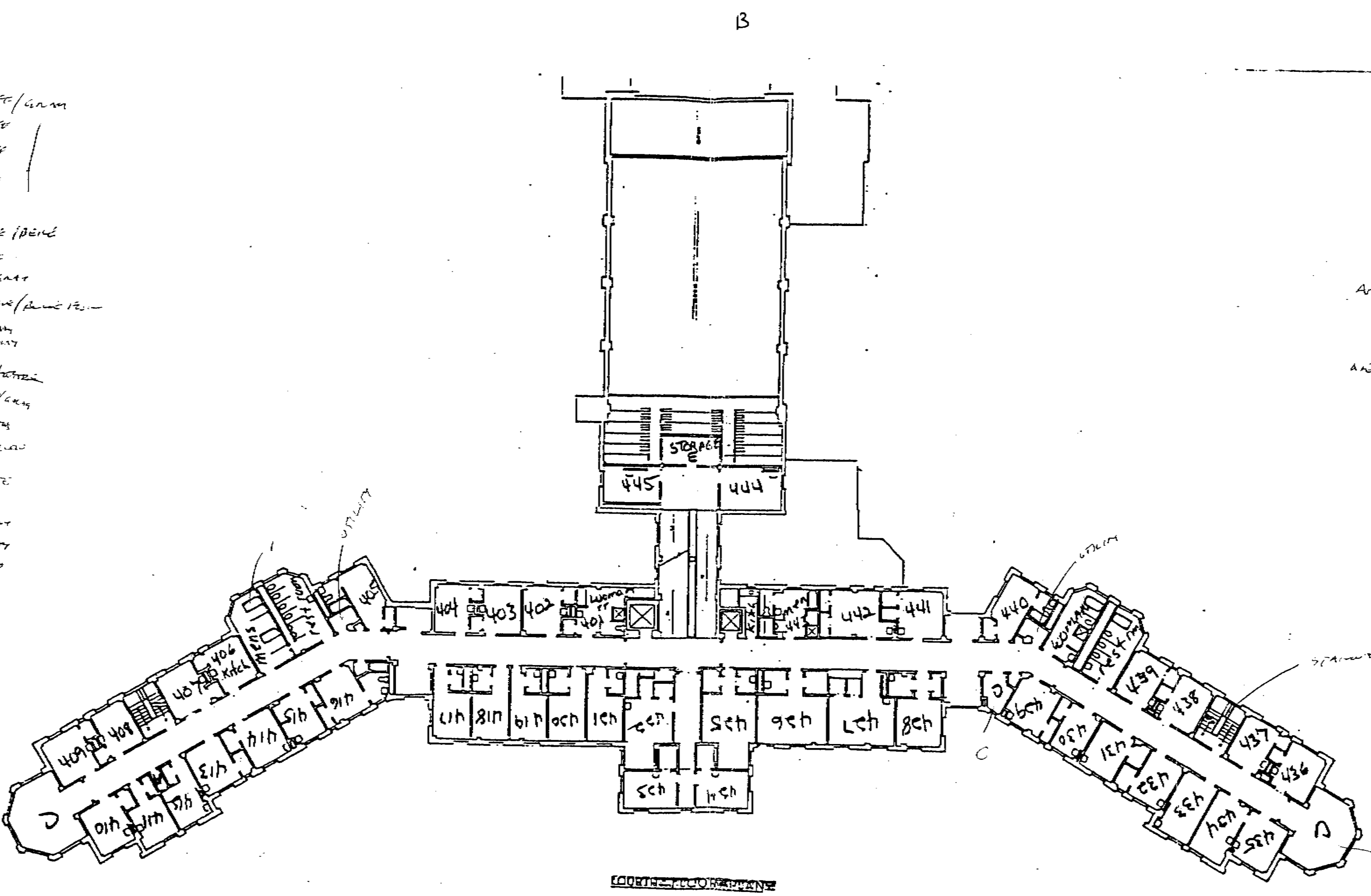
D

MASONIC HOME OF WASHINGTON

N ←

ARCHITECTS KLAASSEN/DALKE, AIA

401 - white
402 - white off/gray
403 - white off
404 - white off
405 - white off
Area 6 utility - yellow
Area 7 mens rm - white/beige
406 - white off
407 - white off/gray
Stairway white/beige
408 - off white/gray
409 off white/gray
Room C beige/
410 - off white/gray
411 - off white/gray
Terrace A - yellow
412 - ~~off~~ white
413 off white
414 off white/gray
415 off white/gray
416 off white/gray
417 off white/gray
418 off white/gray
419 off white/gray
A 420
421
Area B - yellow
422 off white/gray
423
424
425 - chapel
426 off white/gray
427
428
Area C white



429 - off white/gray
430
431
432
433
434
435
436 off white/gray
437 off white/gray
Area 5 Stairway 2
438 off white/gray
439
Area 4 utility - yellow
womens rm white
440 - white
441 - off white/gray
442 - off white/gray
443 - mens rm - beige
Library - white
Hallway - beige/

FOURTH FLOOR PLAN

MASONIC HOME OF WASHINGTON

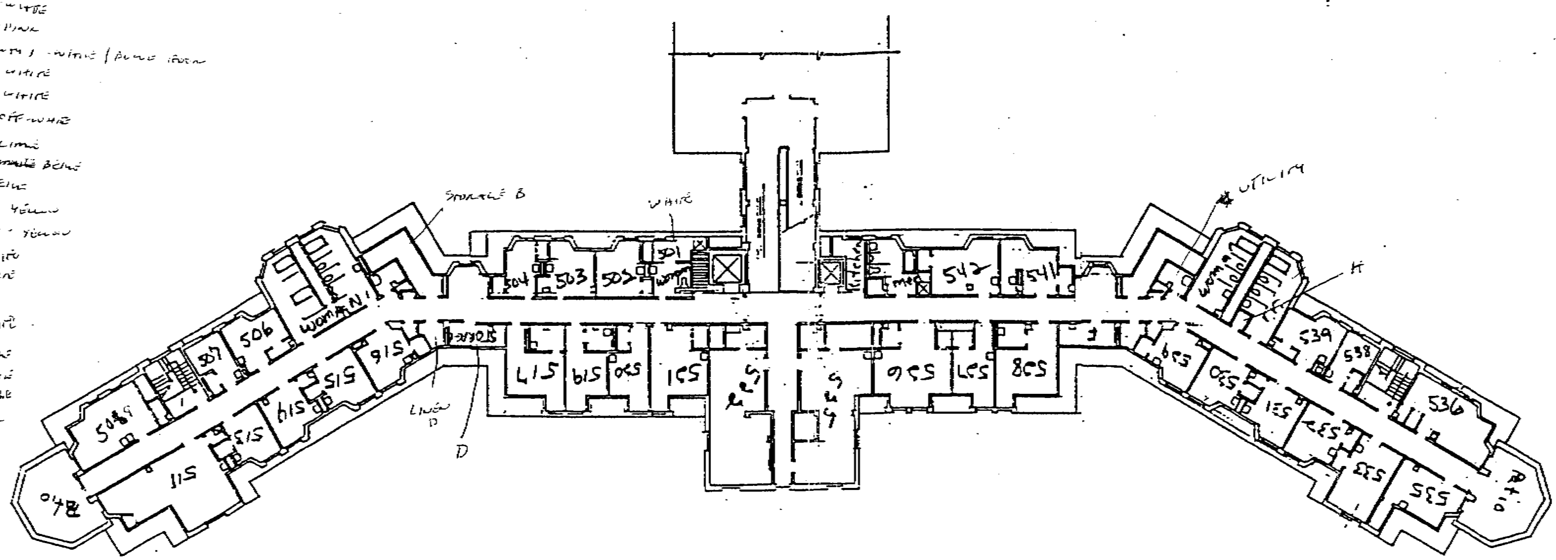
ARCHITECTS KLAASSEN/DALKE, AIA

N ←

501 - WHITE HALLWAY 1
502 - WHITE
503 -
504 -
AREA 1 STORAGE B - YELLOW
AREA 2 UTILITY RM 1 - ~~BEIGE~~ YELLOW
BATH 1 WOMEN BATH WHITE
506 - WHITE
507 - PINK
AREA 3 STAIRWAY 1 - WHITE / BEIGE TRIM
508 - WHITE
511 - WHITE
513 - OFF-WHITE
514 - LIME
515 - ~~WHITE~~ BEIGE
516 - BEIGE
AREA 4 LINEN D - YELLOW
AREA 5 STORAGE D - YELLOW
517 WHITE
519 - WHITE
520 →
521 - WHITE
522 - LIME
525 - WHITE
526 - BEIGE
527 - PINK

B

A



C

D

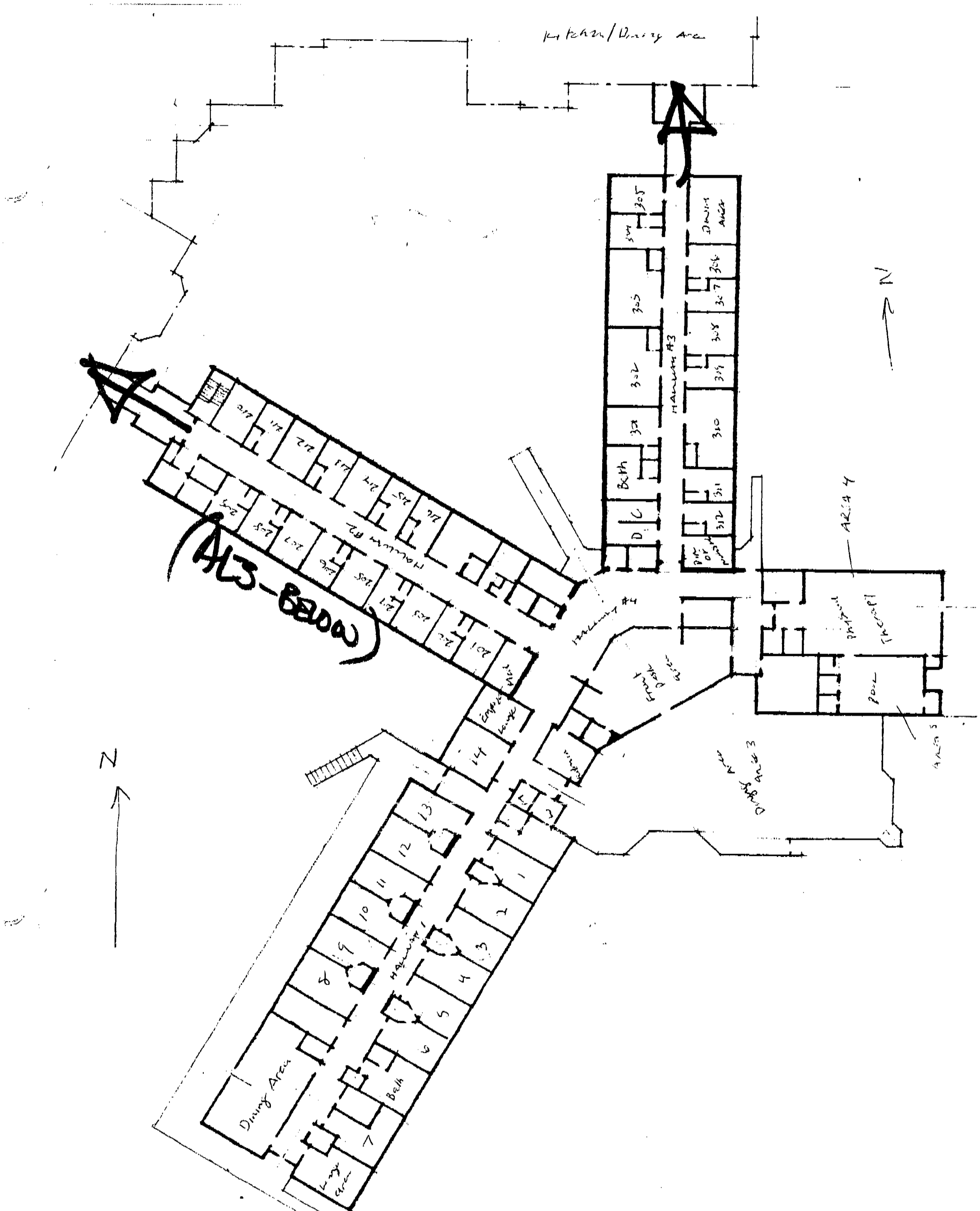
528 - WHITE
STORAGE F - LIME
LINEN G YELLOW
529 - LIME
530 - 532 - LIME
533 PINK
535 - BEIGE
536 - WHITE
538 - BEIGE
539 - ~~WHITE~~ BEIGE
WOMEN RM - WHITE
STORAGE H - YELLOW
UTILITY - LIME
STORAGE I - YELLOW

541 - BEIGE
542 BEIGE
543 - BEIGE
KITCHEN WHITE

N ←

MASONIC HOME OF WASHINGTON

ARCHITECTS KLAASSEN/DALKE, AIA



MASONIC HOME

HEALTH CARE FACILITY

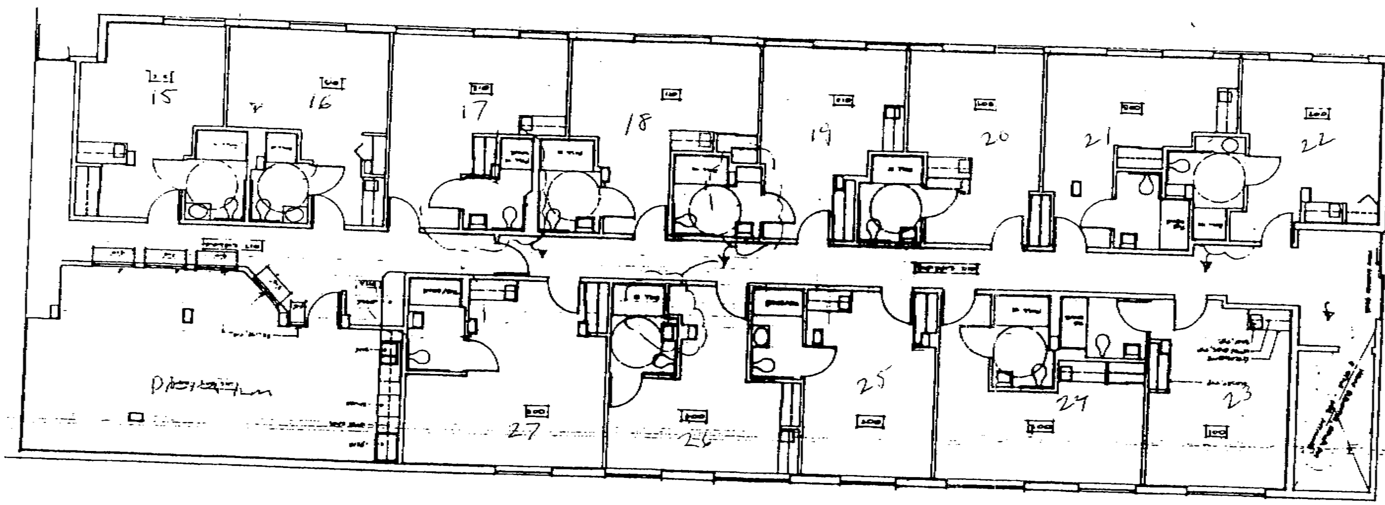
LEVEL B

AREA 1 Dining rm

AL-3

D

N



A

B

N

Appendix B:
Laboratory Results

Sample Log
Chain of Custody

Prezant Laboratory Services 1 of 2

INTERNAL

Client: DAVID STEELE
Company: MASONIC Retirement Center
Client Address: 23660 MARINE VIEW DR S.
DES MOINES, WA 98198 - 7394
City State Zip
Phone #: (206) 878-8434
2nd or Cell #:
Fax #: (206) 878-9116
e-mail Address:

PAI Batch #: 03-0500
Prezant Job #: M318-0002
Client Job #:
Number of Samples: 20 of 31

TYPE OF ANALYSIS		
ASBESTOS:	**METALS:**	
___ PCM (air)	___ Paint	___ Soil
X PLM (bulk)	___ Wipe	___ Air
___ Pt. Count (bulk)	___ TCLP	___ Water
MOLD: P&K ___ 100 ___ 101 ___ 102 ___ 105 ___ 117		
Other Method:		

Project Manager: DANA DURAND

Project Location: 23660 MARINE VIEW DR S
DES MOINES, WA

Turn Around Time (other):		
2 hour / 4 hour	Same Day	One Day
Two Day	(3-5 days)	10 days
Price per Sample: 15.30		

Condition: X Good ___ Damaged ___ Severe Damage

#	Client Sample ID	PAI Laboratory ID	Comments	#	Client Sample ID	PAI Laboratory ID	Comments
1	66	03002264		11	76	03002274	
2	67	2265		12	77	2275	
3	68	2266		13	78	2276	
4	69	2267		14	H026	2277	
5	70	2268		15	H027	2278	
6	71	2269		16	H028	2279	
7	72	2270		17	H029	2280	
8	73	2271		18	H030	2281	
9	74	2272		19	H031	2282	
10	75	2273		20	H032	2283	

	Signature	Date	Time
Sampled by: L TANGUAN	[signature]	2/24/03	1700
Relinquished by: L TANGUAN	[signature]	2/26/03	0800
Received by:			
Relinquished by:			
Received for Laboratory by:	[signature]	2/26/2003	1300
Analyzed by:	Kleitrice Hanson	3/4/2003	1425
Preliminary Results Reported to P.M. by:	Kleitrice Hanson	3/4/2003	1739
Final Report to P.M. by:	Kleitrice Hanson	3/5/2003	0831

Special Instructions: Due 3/5/03

Sample Log
Chain of Custody

Prezant Laboratory Services

INTERNAL

Client:	DAVID STEELE	**PAI Batch #:**	03-0500
Company:	MASONIC Retirement Center	**Prezant Job #:**	M318-0002
Client Address:	23660 MARINE VIEW DR S	**Client Job #:**	
	DES MOINES, WA 98198-7394 (City / State / Zip)	**Number of Samples:**	11 of 31
		Page:	2 of 2

#	Client Sample ID	PAI Laboratory ID	Comments	#	Client Sample ID	PAI Laboratory ID	Comments
21	H033	03002284					
22	H034	2285					
23	H035	2286					
24	H036	2287					
25	H037	2288					
26	H038	2289					
27	H039	2290					
28	H040	2291					
29	H041	2292					
30	H042	2293					
31	H043	2294					

	Signature	Date	Time
Sampled by: L TANHUAN	[illegible]	2/24/03	1700
Relinquished by: L TANHUAN	[illegible]	2/26/03	0800
Received by:			
Relinquished by:			
Received for Laboratory by:	[illegible]	2/26/2003	1300
Analyzed by:	Dietrie Hanson	3/4/2003	1425
Preliminary Results Reported to P.M. by:	Dietrie Hanson	3/4/2003	1739
Final Report to P.M. by:	Dietrie Hanson	3/5/2003	0831

Special Instructions: Due 3/5/03

NVLAP

NVLAP LAB CODE 200613-0

Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000952	M318-0002
Client Sample Number:	**002**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Mineral Wool	10% Mineral Filler and Binder
	35% Cellulose	

Comments:
This is ceiling tile material.

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000953	M318-0002
Client Sample Number:	**003**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-2 Pale green and white crystalline powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Talc	2% Filler and Binder
	2% Cellulose	

Comments:

L-3 Pale yellowish tan fibrous tape-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Cellulose	4% Filler and Binder

Comments:

L-4 White crystalline powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
2% Chrysotile	96% Talc	
	2% Cellulose	

Comments:
This wallboard system contains <1% chrysotile asbestos overall.

L-5 Brown fibrous papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Cellulose	1% Filler and Binder

Comments:

L-6 White powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	12% Cellulose	88% Talc Filler and Binder

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

NVLAP LAB CODE 200613-0

Prezant
330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000954	M318-0002
Client Sample Number:	**004**	*Masonic Retirement Center*

L-1 Pale pink paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Brown fibrous papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Cellulose	1% Filler and Binder

Comments:

L-3 Pale pinkish white powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	75% Talc	15% Mineral Filler and Binder
	10% Cellulose	

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000955	M318-0002
Client Sample Number:	**005**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-2 White powdery material on pale yellow powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		95% Clay Filler and Binder
		5% Mineral Fragments

Comments:

L-3 White and gray granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	2% Cellulose	75% Sand
		23% Mineral Filler and Binder

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000956	**M318-0002**
Client Sample Number:	**006**	***Masonic Retirement Center***

L-1 Off-white paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale yellowish white crystalline powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	4% Cellulose	86% Calcite Filler and Binder
		10% Talc Filler and Binder

Comments:

Sampled By:	Chet Newell			Deitrie Hanson	
Received By:	John McCaslin	1/27/2003			
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

NVLAP

NVLAP LAB CODE 200613-0

Prezant

330 6th Ave. North Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-3 White and gray powdery granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		75% Sand
		15% Talc Filler and Binder
		10% Mineral Fragments

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000957	M318-0002
Client Sample Number:	**007**	*Masonic Retirement Center*

L-1 White and tan opaque thin plastic-like brittle material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Plastic Particles

Comments:

L-2 Dark brown fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	85% Cotton	
	10% Hair	
	5% Cellulose	

Comments:

L-3 Dark brown fibrous woven mesh-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	100% Cotton	

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

NVLAP LAB CODE 200613-0

Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-4 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	80% Cotton	5% Filler and Binder
	15% Cellulose	

Comments:

L-5 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	80% Cotton	5% Filler and Binder
	15% Cellulose	

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000958	**M318-0002**
Client Sample Number:	**008**	***Masonic Retirement Center***

L-1 Dull black asphaltic material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
4% Chrysotile		94% Asphalt Filler and Binder
		2% Mineral Particles

Comments:

L-2 Dark brown fibrous woven mesh-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Cotton	4% Asphalt Filler and Binder

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

NVLAP

NVLAP LAB CODE 200613-0

Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-3 Dark brown thick fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	80%	Cotton	5%	Filler and Binder
	15%	Cellulose		

Comments:

L-4 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	90%	Cotton	3%	Filler and Binder
	7%	Cellulose		

Comments:

L-5 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	90%	Cotton	3%	Filler and Binder
	7%	Cellulose		

Comments:

L-6 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	90%	Cotton	3%	Filler and Binder
	7%	Cellulose		

Comments:

L-7 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	90%	Cotton	3%	Filler and Binder
	7%	Cellulose		

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000959	M318-0002
Client Sample Number:	**009**	*Masonic Retirement Center*

L-1 Pale brown brittle powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Mineral Fragments
		10% Filler and Binder

Comments:
This bulk sample does not contain the top layer of asphaltic tar that contains chrysotile asbestos like sample 008.

L-2 Dark brown woven mesh-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cotton	2% Filler and Binder

Comments:

L-3 Dark brown fibrous thick material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Cotton	
	10% Cellulose	

Comments:

L-4 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Cotton	3% Filler and Binder
	7% Cellulose	

Comments:

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-5 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Cotton	3% Filler and Binder
	7% Cellulose	

Comments:

L-6 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Cotton	3% Filler and Binder
	7% Cellulose	

Comments:

L-7 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Cotton	3% Filler and Binder
	7% Cellulose	

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000960	M318-0002
Client Sample Number:	**010**	*Masonic Retirement Center*

L-1 White opaque rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Rubber Particles
		10% Calcite Filler and Binder

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Beige straight fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Glass Fiber	2% Filler and Binder

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000961	**M318-0002**
Client Sample Number:	**011**	***Masonic Retirement Center***

L-1 Off-white brittle paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Beige straight fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	95% Glass Fiber	3% Mineral Fragments
		2% Miscellaneous Particles

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000962	**M318-0002**
Client Sample Number:	**012**	***Masonic Retirement Center***

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 Off-white opaque rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Rubber Particles
		4% Mineral Fragments

Comments:

L-2 Beige straight woven fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	95% Glass Fiber	3% Mineral Fragments
		2% Miscellaneous Particles

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000963	M318-0002
Client Sample Number:	**013**	***Masonic Retirement Center***

Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Mineral Wool	3% Mineral Particles
	1% Cellulose	

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000964	M318-0002
Client Sample Number:	**014**	***Masonic Retirement Center***

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Gray fibrous material with brown wooden chips

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Mineral Wool	3% Sand
	5% Cellulose	2% Mineral Particles

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000965	M318-0002
Client Sample Number:	**015**	*Masonic Retirement Center*

Gray fibrous material with sandy debris

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	95% Mineral Wool	4% Sand
		1% Mineral Fragments

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000966	M318-0002
Client Sample Number:	**016**	*Masonic Retirement Center*

Pale gray and white powdery sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		65% Sand
		30% Talc Filler and Binder
		5% Mineral Fragments

Comments:

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003			
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000967	M318-0002
Client Sample Number:	**017**	*Masonic Retirement Center*

L-1 Pale bluish gray hard tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		85%	Mineral Filler and Binder
		15%	Clay Filler and Binder

Comments:
This tile was tested numerous times and no asbestos fibers or indicator minerals were detected.

L-2 Yellow resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Resin and Binder
		4%	Filler and Binder

Comments:

L-3 Off-white hard compacted powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Talc Filler and Binder
		4%	Mineral Fragments

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000968	M318-0002
Client Sample Number:	**018**	*Masonic Retirement Center*

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Pale gray and white hard granular mortar-like material

Asbestos Fibrous Components: No Asbestos Detected

Non-Asbestos Fibrous Components:

Non-Fibrous Components:
85% Sand
15% Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000969	M318-0002
Client Sample Number:	**019**	*Masonic Retirement Center*

L-1 White and pale yellow textured pliable opaque rubbery material

Asbestos Fibrous Components: No Asbestos Detected

Non-Asbestos Fibrous Components:

Non-Fibrous Components:
95% Rubber Particles
5% Mineral Fragments

Comments:

L-2 White woven fiber bundles

Asbestos Fibrous Components: No Asbestos Detected

Non-Asbestos Fibrous Components:
95% Cotton

Non-Fibrous Components:
5% Filler and Binder

Comments:

L-3 Pale yellow and pink powdery material

Asbestos Fibrous Components: No Asbestos Detected

Non-Asbestos Fibrous Components:

Non-Fibrous Components:
92% Clay Filler and Binder
8% Mineral Fragments

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000970	M318-0002
Client Sample Number:	**020**	*Masonic Retirement Center*

White paint chips and gray sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Sand
		7% Mineral Fragments
		3% Talc Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000971	M318-0002
Client Sample Number:	**021**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale pinkish white powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	65% Cellulose	30% Talc Filler and Binder
		5% Filler and Binder

Comments:

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000972	M318-0002
Client Sample Number:	**022**	*Masonic Retirement Center*

L-1 Pale yellow paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White crystalline powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		95% Calcite Filler and Binder
		3% Mineral Filler and Binder
		2% Vermiculite

Comments:

L-3 Pale yellowish white fibrous tape-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Cellulose	4% Filler and Binder

Comments:

L-4 Pale yellowish white fibrous tape-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Cellulose	4% Filler and Binder

Comments:
There are two layers of wall tape in this sample.

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000973	M318-0002
Client Sample Number:	**023**	***Masonic Retirement Center***

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Cellulose	15% Perlite
	35% Mineral Wool	5% Filler and Binder

Comments:
This is ceiling tile material.

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000974	M318-0002
Client Sample Number:	**024**	***Masonic Retirement Center***

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Pale gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Cellulose	15% Perlite
	35% Mineral Wool	5% Filler and Binder

Comments:
This is ceiling tile material.

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000975	**M318-0002**
Client Sample Number:	**025**	***Masonic Retirement Center***

L-1 Lustrous gray thin resinous material with white glossy fibers

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
5% **Chrysotile**		90% Resin and Binder
		5% Rubber Particles

Comments:

L-2 Gray hard rocky material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Mineral Filler and Binder
		10% Rocks
		5% Diatoms

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000976	**M318-0002**
Client Sample Number:	**026**	***Masonic Retirement Center***

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Gray and white rocky granular material

Asbestos Fibrous Components:
No Asbestos Detected

Non-Asbestos Fibrous Components:

Non-Fibrous Components:

80%	Rocks
15%	Sand
5%	Filler and Binder

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000977	**M318-0002**
Client Sample Number:	**027**	***Masonic Retirement Center***

Dark gray hard material with white, pink, and green rocks

Asbestos Fibrous Components:
No Asbestos Detected

Non-Asbestos Fibrous Components:

Non-Fibrous Components:

80%	Rocks
15%	Sand
5%	Filler and Binder

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000978	**M318-0002**
Client Sample Number:	**028**	***Masonic Retirement Center***

L-1 Off-white paint

Asbestos Fibrous Components:
No Asbestos Detected

Non-Asbestos Fibrous Components:

Non-Fibrous Components:

100%	Paint

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Yellow fine powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Mineral Filler and Binder
		4%	Mineral Fragments

Comments:

L-3 White powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		95%	Talc Filler and Binder
		5%	Mineral Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000979	M318-0002
Client Sample Number:	**029**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Paint

Comments:

L-2 Pale green powdery material on beige powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		85%	Clay Filler and Binder
		15%	Talc Filler and Binder

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000980	M318-0002
Client Sample Number:	**030**	*Masonic Retirement Center*

L-1 Yellow paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		98% Talc Filler and Binder
		2% Mineral Particles

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000981	M318-0002
Client Sample Number:	**031**	*Masonic Retirement Center*

L-1 Pale yellow paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White fine powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Talc Filler and Binder

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Bulk Asbestos Fiber Analysis

L-3 White and gray powdery sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Talc Filler and Binder
		15% Sand
		5% Mineral Fragments

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000982	M318-0002
Client Sample Number:	**032**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale yellowish tan fibrous tape-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	97% Cellulose	3% Filler and Binder

Comments:

L-3 Pale pinkish white fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	15% Cellulose	80% Talc Filler and Binder
		5% Mineral Fragments

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000983	M318-0002
Client Sample Number:	**033**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Yellow fine powdery material on pink fine powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	2% Talc	98% Clay Filler and Binder

Comments:

L-3 Pale yellowish white fibrous tape-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	97% Cellulose	3% Filler and Binder

Comments:

L-4 Brown fibrous papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Cellulose	1% Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000984	M318-0002
Client Sample Number:	**034**	*Masonic Retirement Center*

Sampled By:	Chet Newell			*Deitrie Hanson*	
Received By:	John McCaslin	1/27/2003			
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Cellulose	15% Perlite
	35% Mineral Wool	5% Filler and Binder

Comments:
This is acoustic ceiling tile material.

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000985	M318-0002
Client Sample Number:	**035**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale green powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Clay Filler and Binder
		3% Mineral Fragments
		1% Talc Filler and Binder

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-3 Pale gray sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		97% Sand
		3% Talc Filler and Binder

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000986	**M318-0002**
Client Sample Number:	**036**	***Masonic Retirement Center***

L-1 Yellow paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	3% Cellulose	95% Talc Filler and Binder
		2% Sand

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000987	**M318-0002**
Client Sample Number:	**037**	***Masonic Retirement Center***

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 Beige paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White powdery granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Talc Filler and Binder
		10% Sand
		5% Mineral Fragments

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000988	**M318-0002**
Client Sample Number:	**038**	***Masonic Retirement Center***

L-1 Beige paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pink fine powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	4% Talc	96% Clay Filler and Binder

Comments:

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-3 White powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Talc Filler and Binder
		4%	Sand

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000989	M318-0002
Client Sample Number:	**039**	***Masonic Retirement Center***

Gray hard granular material with white and green lustrous rocks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Rocks
		15%	Sand
		5%	Mineral Filler and Binder

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000990	M318-0002
Client Sample Number:	**040**	***Masonic Retirement Center***

Gray hard granular material with white and pale green lustrous rocks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Rocks
		15%	Sand
		5%	Mineral Filler and Binder

Comments:

Sampled By:	Chet Newell			Deitrie Hanson	
Received By:	John McCaslin	1/27/2003			
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000991	M318-0002
Client Sample Number:	**041**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale green fine powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		98% Clay Filler and Binder
		2% Talc Filler and Binder

Comments:

L-3 White and pale gray powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Talc Filler and Binder
		10% Sand
		5% Mineral Fragments

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000992	M318-0002
Client Sample Number:	**042**	*Masonic Retirement Center*

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale gray and white powdery sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Sand
		15% Talc Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000993	M318-0002
Client Sample Number:	**043**	*Masonic Retirement Center*

L-1 Yellow paint chips

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White powdery material with gray flecks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Talc Filler and Binder
		15% Sand

Comments:

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000994	M318-0002
Client Sample Number:	**044**	*Masonic Retirement Center*

L-1 Yellow paint chips

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 White powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Talc Filler and Binder
		7% Sand
		3% Mineral Fragments

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000995	M318-0002
Client Sample Number:	**045**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Pale tan fibrous material with white flecks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Cellulose	15% Perlite
	35% Mineral Wool	5% Filler and Binder

Comments:
The white flecks are perlite balls.

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000996	M318-0002
Client Sample Number:	**046**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale tan fibrous woven fabric-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cotton	2% Filler and Binder

Comments:

L-3 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Bulk Asbestos Fiber Analysis

L-4 White powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
9% Chrysotile		80% Talc Filler and Binder
		6% Sand
		5% Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000997	M318-0002
Client Sample Number:	**047**	*Masonic Retirement Center*

L-1 White paint on off-white powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Clay Filler and Binder
		17% Paint
		3% Filler and Binder

Comments:

L-2 Pale tan woven fabric-like mesh material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cotton	2% Filler and Binder

Comments:

L-3 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:
This layer is like felt.

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Reviewed By:	George McCaslin	1/30/2003			

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Bulk Asbestos Fiber Analysis

L-4 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-5 White opaque brittle mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Resin and Binder
		10% Mineral Fragments

Comments:

L-6 White and gray paint chips

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03000998	M318-0002
Client Sample Number:	**048**	*Masonic Retirement Center*

L-1 White and tan paint on off-white powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Paint
		15% Clay Filler and Binder

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Pale tan fibrous woven fabric-like mesh material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cotton	2% Mineral Fragments

Comments:

L-3 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-4 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-5 White opaque brittle mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Resin and Binder
		7% Mineral Fragments
		3% Filler and Binder

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03000999	M318-0002
Client Sample Number:	**049**	*Masonic Retirement Center*

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
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Bulk Asbestos Fiber Analysis

L-1 White paint on off-white powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		75% Paint
		25% Clay Filler and Binder

Comments:

L-2 Pale tan fibrous woven fabric-like mesh material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cotton	2% Filler and Binder

Comments:

L-3 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-4 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-5 Gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Bulk Asbestos Fiber Analysis

L-6 White opaque brittle mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Resin and Binder
		4% Mineral Fragments

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001000	M318-0002
Client Sample Number:	**050**	***Masonic Retirement Center***

L-1 White paint on off-white powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Paint
		15% Clay Filler and Binder
		5% Talc Filler and Binder

Comments:

L-2 Pale tan fibrous woven fabric-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	97% Cotton	3% Filler and Binder

Comments:

L-3 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
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Bulk Asbestos Fiber Analysis

L-4 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-5 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-6 Pale grayish white fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
10% Chrysotile	45% Cotton	30% Talc Filler and Binder
	8% Cellulose	7% Mineral Particles

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001001	**M318-0002**
Client Sample Number:	**051**	***Masonic Retirement Center***

L-1 White paint on off-white powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Paint
		15% Clay Filler and Binder
		5% Filler and Binder

Comments:

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	Deitrie Hanson
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Pale tan fibrous woven fabric-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Cotton	10% Filler and Binder

Comments:

L-3 White fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
10% Chrysotile	2% Cellulose	80% Talc Filler and Binder
		8% Sand

Comments:

L-4 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-5 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cotton	10% Filler and Binder
	35% Synthetic	

Comments:

L-6 White opaque brittle mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Resin and Binder
		7% Mineral Fragments
		3% Filler and Binder

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03001002	M318-0002
Client Sample Number:	**052**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Dark gray fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Mineral Wool	
	1% Cellulose	

Comments:

Batch Number:	03-0223	Masonic Retirement Center
Lab Sample Number:	03001003	M318-0002
Client Sample Number:	**053**	*Masonic Retirement Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By:	Chet Newell		Deitrie Hanson		
Received By:	John McCaslin	1/27/2003			
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Tan fibrous material with white flecks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cellulose	10% Perlite
	35% Mineral Wool	

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001004	**M318-0002**
Client Sample Number:	**054**	***Masonic Retirement Center***

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Cellulose	10% Filler and Binder
	35% Mineral Wool	

Comments:
This is ceiling tile material.

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001005	**M318-0002**
Client Sample Number:	**055**	***Masonic Retirement Center***

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	

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Bulk Asbestos Fiber Analysis

L-1 Toupe shiny opaque sheet vinyl tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Plastic Particles
		10% Filler and Binder

Comments:

L-2 Bright orange rubbery foamy backing

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Rubber Particles

Comments:

L-3 Dull gray paint on dark gray paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001006	M318-0002
Client Sample Number:	**056**	*Masonic Retirement Center*

L-1 Pale gray and white mosaic opaque sheet vinyl tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		95% Plastic Particles
		5% Filler and Binder

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

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Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Off-white fibrous backing

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Cellulose	10% Filler and Binder
	40% Polyurethane	
	5% Glass Fiber	

Comments:

L-3 Yellow resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Resin and Binder
		4% Filler and Binder

Comments:

L-4 Gray paint on dark gray paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001007	**M318-0002**
Client Sample Number:	**057**	***Masonic Retirement Center***

L-1 Pale gray opaque rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Rubber Particles
		10% Mineral Fragments

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
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Bulk Asbestos Fiber Analysis

L-2 Tan opaque pliable mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Resin and Binder
		4% Mineral Fragments

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001008	**M318-0002**
Client Sample Number:	**058**	***Masonic Retirement Center***

White powdery material with golden brown flecks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Talc Filler and Binder
		3% Vermiculite
		1% Mineral Fragments

Comments:
There are flakes of vermiculite in this white talc powdery material.

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001009	**M318-0002**
Client Sample Number:	**059**	***Masonic Retirement Center***

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
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Bulk Asbestos Fiber Analysis

L-2 **Off-white powdery material with golden yellow fibers**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	70% Mineral Wool	25% Talc Filler and Binder
		5% Mineral Fragments

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001010	M318-0002
Client Sample Number:	**060**	***Masonic Retirement Center***

L-1 **Green dull paint**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 **White powdery fibrous material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	10% Cellulose	88% Talc Filler and Binder
		2% Mineral Fragments

Comments:

Batch Number:	03-0223	**Masonic Retirement Center**
Lab Sample Number:	03001011	M318-0002
Client Sample Number:	**061**	***Masonic Retirement Center***

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pale pink powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		95% Clay Filler and Binder
		5% Mineral Fragments

Comments:

L-3 White powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	12% Cellulose	85% Talc Filler and Binder
		3% Mineral Fragments

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Masonic Retirement Center
23660 Marine View Drive So.
Des Moines, WA 98198-

Project Location: Masonic Retirement Center
Des Moines, WA

PAI Batch Number: 03-0419
Client Job Number: M318-0002
Number of Samples: 4
Turn Around Time: 24 hour

Batch Number:	03-0419	**Masonic Retirement Center**
Lab Sample Number:	03001888	M318-0002
Client Sample Number:	**62**	***Masonic Retirement Center*** ***Des Moines, WA***

White and gray rocky sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Rocks
		15%	Sand
		5%	Mineral Fragments

Comments:

Batch Number:	03-0419	**Masonic Retirement Center**
Lab Sample Number:	03001889	M318-0002
Client Sample Number:	**63**	***Masonic Retirement Center*** ***Des Moines, WA***

White and gray hard rocky material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Rocks
		15%	Sand
		5%	Filler and Binder

Comments:

Sampled By: Dana Durand
Received By: John McCaslin 2/19/2003
Reviewed By: George McCaslin 2/19/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 2/19/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0419	Masonic Retirement Center
Lab Sample Number:	03001890	M318-0002
Client Sample Number:	**64**	*Masonic Retirement Center* *Des Moines, WA*

White and dark gray hard rocky granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Rocks
		15%	Sand
		5%	Filler and Binder

Comments:

Batch Number:	03-0419	Masonic Retirement Center
Lab Sample Number:	03001891	M318-0002
Client Sample Number:	**65**	*Masonic Retirement Center* *Des Moines, WA*

L-1 Transparent resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Resin and Binder

Comments:

L-2 Gray paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Paint

Comments:

Sampled By: Dana Durand
Received By: John McCaslin 2/19/2003
Reviewed By: George McCaslin 2/19/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 2/19/2003

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Bulk Asbestos Fiber Analysis

L-3 White powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	95%	Talc	3%	Mineral Particles
			2%	Filler and Binder

Comments:

Sampled By:	Dana Durand				
Received By:	John McCaslin	2/19/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	2/19/2003	Analyzed By:	Deitrie Hanson	2/19/2003

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Bulk Asbestos Fiber Analysis

Masonic Retirement Center		PAI Batch Number:	03-0500
23660 Marine View Drive So.		Client Job Number:	M318-0002
Des Moines, WA 98198-		Number of Samples:	31
Project Location:	Masonic Retirement Ceter	Turn Around Time:	5 day

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002264	M318-0002
Client Sample Number:	**66**	***Masonic Retirement Ceter***

L-1 Green paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Paint
		4% Asphalt Filler and Binder

Comments:

L-2 Orange hard wooden material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	95% Cellulose	3% Mineral Fragments
		2% Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002265	M318-0002
Client Sample Number:	**67**	***Masonic Retirement Ceter***

L-1 Black thin pliable shiny asphaltic rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Rubber Particles

Comments:

Sampled By:	Lloyd Tangunan		
Received By:	John McCaslin	2/26/2003	Deitrie Hanson
Reviewed By:	George McCaslin	3/4/2003	Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-2 Transparent wiry fibers

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	96% Polyurethane	4% Mineral Fragments

Comments:
These fiber bundles are polyester fibers.

L-3 Black thin pliable shiny asphaltic rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Rubber Particles

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002266	**M318-0002**
Client Sample Number:	**68**	*Masonic Retirement Ceter*

L-1 Black asphaltic granular material with white paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Asphalt Filler and Binder
		10% Mineral Fragments
		5% Paint

Comments:

L-2 Dull black asphaltic material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	2% Glass Fiber	96% Asphalt Filler and Binder
		2% Mineral Fragments

Comments:

Sampled By:	Lloyd Tangunan		
Received By:	John McCaslin	2/26/2003	Deitrie Hanson
Reviewed By:	George McCaslin	3/4/2003	Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0500	Masonic Retirement Center
Lab Sample Number:	03002267	M318-0002
Client Sample Number:	**69**	*Masonic Retirement Ceter*

L-1 Golden orange resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Resin and Binder
		10% Mineral Fragments

Comments:

L-2 Transparent woven straight fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	100% Glass Fiber	

Comments:

L-3 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-4 Golden orange fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	97% Glass Fiber	3% Filler and Binder

Comments:

Batch Number:	03-0500	Masonic Retirement Center
Lab Sample Number:	03002268	M318-0002
Client Sample Number:	**70**	*Masonic Retirement Ceter*

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 Golden orange resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		98% Resin and Binder
		2% Mineral Fragments

Comments:

L-2 Transparent woven straight fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Glass Fiber	2% Filler and Binder

Comments:

L-3 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-4 Dark golden orange fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	90% Glass Fiber	3% Filler and Binder
	7% Mineral Wool	

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002269	**M318-0002**
Client Sample Number:	**71**	***Masonic Retirement Ceter***

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 Golden resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		98% Resin and Binder
		2% Mineral Fragments

Comments:

L-2 Transparent woven straight fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	97% Glass Fiber	3% Filler and Binder

Comments:

L-3 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-4 Dull golden orange fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	95% Glass Fiber	2% Filler and Binder
	3% Mineral Wool	

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002270	**M318-0002**
Client Sample Number:	**72**	***Masonic Retirement Ceter***

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 Golden orange resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Resin and Binder
		4% Mineral Fragments

Comments:

L-2 Transparent woven straight fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Glass Fiber	2% Mineral Fragments

Comments:

L-3 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-4 Dull golden orange fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	95% Glass Fiber	2% Filler and Binder
	3% Mineral Wool	

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002271	M318-0002
Client Sample Number:	**73**	*Masonic Retirement Ceter*

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

Prezant

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OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

Dull thick pliable tan mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	3%	Synthetic	93%	Resin and Binder
	2%	Talc	1%	Mineral Fragments
	1%	Glass Fiber		

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002272	M318-0002
Client Sample Number:	**74**	***Masonic Retirement Ceter***

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected			100%	Paint

Comments:

L-2 Brown wooden splinter material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	99%	Cellulose	1%	Filler and Binder

Comments:
This is acoustic ceiling tile material.

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002273	M318-0002
Client Sample Number:	**75**	***Masonic Retirement Ceter***

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Brown wooden splinter material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Cellulose	1% Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002274	M318-0002
Client Sample Number:	**76**	***Masonic Retirement Ceter***

L-1 White paint on pale pink paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Brown fibrous wooden splinter material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cellulose	1% Filler and Binder
		1% Miscellaneous Particles

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002275	M318-0002
Client Sample Number:	**77**	***Masonic Retirement Ceter***

Sampled By:	Lloyd Tangunan			Deitrie Hanson	
Received By:	John McCaslin	2/26/2003			
Reviewed By:	George McCaslin	3/4/2003	Analyzed By:	Deitrie Hanson	3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 White opaque hard ceramic tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Clay Filler and Binder
		3%	Mineral Fragments
		1%	Filler and Binder

Comments:

L-2 Tan hard opaque mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		99%	Resin and Binder
		1%	Mineral Fragments

Comments:

L-3 White powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Talc Filler and Binder
		4%	Mineral Fragments

Comments:

L-4 Pale green paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		94%	Paint
		6%	Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002276	**M318-0002**
Client Sample Number:	**78**	***Masonic Retirement Ceter***

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 Dull red hard brick-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		99%	Clay Filler and Binder
		1%	Mineral Fragments

Comments:

L-2 Gray hard powdery sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Sand
		15%	Mineral Filler and Binder
		5%	Insect Parts

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002277	**M318-0002**
Client Sample Number:	**HO26**	***Masonic Retirement Ceter***

L-1 White opaque powdery crystalline material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		90%	Calcite Filler and Binder
		6%	Mineral Fragments
		4%	Filler and Binder

Comments:

L-2 Dull dark red hard granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Clay Filler and Binder
		4%	Mineral Fragments

Comments:

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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330 6th Ave. North, Suite 200 Seattle, WA 98109
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Bulk Asbestos Fiber Analysis

L-3 Reddish orange hard granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		95%	Clay Filler and Binder
		4%	Sand
		1%	Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002278	M318-0002
Client Sample Number:	**HO27**	*Masonic Retirement Ceter*

L-1 Pale dull pink brittle pottery glaze

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Miscellaneous Particles

Comments:
The miscellaneous particles are pottery glaze particles.

L-2 White hard ceramic tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		98%	Clay Filler and Binder
		2%	Mineral Fragments

Comments:

L-3 Dark gray granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		90%	Sand
		10%	Filler and Binder

Comments:

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-4 White and gray powdery sandy material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		75% Sand
		25% Talc Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002279	M318-0002
Client Sample Number:	**HO28**	*Masonic Retirement Ceter*

L-1 Tan opaque pliable mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	7% Synthetic	90% Resin and Binder
		3% Mineral Fragments

Comments:

L-2 White powdery crystalline material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	3% Cellulose	92% Talc Filler and Binder
		5% Sand

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002280	M318-0002
Client Sample Number:	**HO29**	*Masonic Retirement Ceter*

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 White opaque hard tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Rocks

Comments:
This tile is cut rock.

L-2 Dull tan pliable opaque material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		90%	Resin and Binder
		10%	Mineral Particles

Comments:

L-3 White paint on dark gray granular hard material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Sand
		15%	Mineral Filler and Binder
		5%	Paint

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002281	M318-0002
Client Sample Number:	**HO30**	*Masonic Retirement Ceter*

L-1 Pale pink brittle opaque glaze material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Miscellaneous Particles

Comments:

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

NVLAP LAB CODE 200613-0

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330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-2 White hard ceramic tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Clay Filler and Binder
		10% Mineral Fragments

Comments:

L-3 Dull pale tan opaque hard mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		95% Resin and Binder
		5% Talc Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002282	**M318-0002**
Client Sample Number:	**HO31**	***Masonic Retirement Ceter***

L-1 Dark orange and gray mosaic pliable sheet vinyl tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Plastic Particles
		20% Vinyl Filler and Binder

Comments:

L-2 Pale gray fibrous backing

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
35% Chrysotile	40% Cellulose	20% Filler and Binder
		5% Talc Filler and Binder

Comments:

Sampled By:	Lloyd Tangunan		
Received By:	John McCaslin	2/26/2003	Deitrie Hanson
Reviewed By:	George McCaslin	3/4/2003	Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-3 Dark tan opaque hard mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Resin and Binder
		10% Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002283	M318-0002
Client Sample Number:	**HO32**	*Masonic Retirement Ceter*

L-1 Pale pink hard tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Rocks

Comments:
This pink hard tile is cut rock.

L-2 Dark gray hard granular material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Sand
		10% Mineral Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002284	M318-0002
Client Sample Number:	**HO33**	*Masonic Retirement Ceter*

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

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Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 Black thick asphaltic material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	10% Glass Fiber	87% Asphalt Filler and Binder
		3% Mineral Particles

Comments:

L-2 Dull gray powdery material with golden flecks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	27% Wollastonite	70% Vermiculite
		3% Talc Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002285	**M318-0002**
Client Sample Number:	**HO34**	***Masonic Retirement Ceter***

L-1 Brown and tan painted rocks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		99% Rocks
		1% Paint

Comments:

L-2 Black asphaltic fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Asphalt Filler and Binder
		7% Mineral Granules
		3% Vermiculite

Comments:

Sampled By:	Lloyd Tangunan				
Received By:	John McCaslin	2/26/2003	Deitrie Hanson		
Reviewed By:	George McCaslin	3/4/2003	Analyzed By:	Deitrie Hanson	3/4/2003

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Bulk Asbestos Fiber Analysis

L-3 Black fibrous asphaltic papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	65% Cellulose	30% Asphalt Filler and Binder
		5% Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002286	M318-0002
Client Sample Number:	**HO35**	*Masonic Retirement Ceter*

L-1 Tan and brown painted rocks

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		99% Rocks
		1% Paint

Comments:

L-2 Black asphaltic fibrous thick material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	15% Cellulose	80% Asphalt Filler and Binder
		5% Mineral Granules

Comments:

L-3 Black fibrous asphaltic papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	65% Cellulose	30% Asphalt Filler and Binder
		5% Mineral Particles

Comments:

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0500	Masonic Retirement Center
Lab Sample Number:	03002287	M318-0002
Client Sample Number:	**HO36**	*Masonic Retirement Ceter*

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	5% Cellulose	65% Sand
		30% Filler and Binder

Comments:

Batch Number:	03-0500	Masonic Retirement Center
Lab Sample Number:	03002288	M318-0002
Client Sample Number:	**HO37**	*Masonic Retirement Ceter*

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By:	Lloyd Tangunan				
Received By:	John McCaslin	2/26/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	3/4/2003	Analyzed By:	Deitrie Hanson	3/4/2003

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Bulk Asbestos Fiber Analysis

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		70%	Sand
		25%	Filler and Binder
		5%	Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002289	M318-0002
Client Sample Number:	**HO38**	*Masonic Retirement Ceter*

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		100%	Paint

Comments:

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		70%	Sand
		25%	Filler and Binder
		5%	Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002290	M318-0002
Client Sample Number:	**HO39**	*Masonic Retirement Ceter*

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		65% Sand
		30% Filler and Binder
		5% Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002291	**M318-0002**
Client Sample Number:	**HO40**	***Masonic Retirement Ceter***

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	5% Cellulose	65% Sand
		30% Filler and Binder

Comments:

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002292	M318-0002
Client Sample Number:	**HO41**	***Masonic Retirement Ceter***

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	5% Cellulose	65% Sand
		30% Filler and Binder

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002293	M318-0002
Client Sample Number:	**HO42**	***Masonic Retirement Ceter***

L-1 Tan paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By:	Lloyd Tangunan	
Received By:	John McCaslin	2/26/2003
Reviewed By:	George McCaslin	3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

L-2 Pink and gray hard granular mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		65% Sand
		30% Filler and Binder
		5% Mineral Fragments

Comments:

Batch Number:	03-0500	**Masonic Retirement Center**
Lab Sample Number:	03002294	M318-0002
Client Sample Number:	**HO43**	***Masonic Retirement Ceter***

Dull black asphaltic fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	17% Cellulose	80% Asphalt Filler and Binder
		3% Mineral Particles

Comments:

Sampled By: Lloyd Tangunan
Received By: John McCaslin 2/26/2003
Reviewed By: George McCaslin 3/4/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 3/4/2003

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Bulk Asbestos Fiber Analysis

Masonic Retirement Center
23660 Marine View Drive So.
Des Moines, WA 98198-

Project Location: Masonic Retirement Center - Health Center

PAI Batch Number: 03-0222
Client Job Number: M318-0002
Number of Samples: 25
Turn Around Time: 5 day

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000926	M318-0002
Client Sample Number:	**H001**	*Masonic Retirement Center - Health Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:
The white paint was ashed by lighter flame and no asbestos fibers were detected.

L-2 Pale tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Mineral Wool	10% Filler and Binder
	30% Cellulose	5% Perlite

Comments:

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000927	M318-0002
Client Sample Number:	**H002**	*Masonic Retirement Center - Health Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 **Pale gray and white sandy material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		97% Sand
		3% Mineral Filler and Binder

Comments:

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000928	M318-0002
Client Sample Number:	**H003**	*Masonic Retirement Center - Health Center*

L-1 **White paint**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:
The white paint was ashed by lighter flame and no asbestos fibers were detected.

L-2 **Pale tan fibrous material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	55% Mineral Wool	10% Filler and Binder
	30% Cellulose	5% Mineral Fragments

Comments:
This is ceiling tile material.

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000929	M318-0002
Client Sample Number:	**H004**	*Masonic Retirement Center - Health Center*

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 **White thin opaque sheeting material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Plastic Particles
		10% Paint

Comments:

L-2 **Tan fibrous material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	60% Mineral Wool	3% Mineral Fragments
	37% Cellulose	

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000930	**M318-0002**
Client Sample Number:	**H005**	***Masonic Retirement Center - Health Center***

L-1 **White thin opaque sheeting material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Plastic Particles
		10% Paint

Comments:

L-2 **Tan fibrous material**

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	60% Mineral Wool	5% Mineral Fragments
	35% Cellulose	

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000931	M318-0002
Client Sample Number:	**H006**	*Masonic Retirement Center - Health Center*

L-1 White thin opaque sheeting material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Plastic Particles
		10% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	60% Mineral Wool	5% Mineral Fragments
	35% Cellulose	

Comments:

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000932	M318-0002
Client Sample Number:	**H007**	*Masonic Retirement Center - Health Center*

L-1 White thin opaque sheeting material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Plastic Particles
		10% Paint

Comments:

Sampled By:	Chet Newell	
Received By:	John McCaslin	1/27/2003
Reviewed By:	George McCaslin	1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	60%	Mineral Wool	5%	Mineral Fragments
	35%	Cellulose		

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000933	**M318-0002**
Client Sample Number:	**H008**	***Masonic Retirement Center - Health Center***

L-1 White thin opaque sheeting material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected			90%	Plastic Particles
			10%	Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	60%	Mineral Wool	5%	Mineral Fragments
	35%	Cellulose		

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000934	**M318-0002**
Client Sample Number:	**H009**	***Masonic Retirement Center - Health Center***

Sampled By:	Chet Newell			
Received By:	John McCaslin	1/27/2003		
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 White thin opaque sheeting material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Plastic Particles
		10% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	60% Mineral Wool	5% Mineral Fragments
	35% Cellulose	

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000935	M318-0002
Client Sample Number:	**H010**	***Masonic Retirement Center - Health Center***

L-1 Greenish blue rubbery material on white woven fiber bundles

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		95% Rubber Particles
		5% Mineral Particles

Comments:

L-2 Tan opaque resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		98% Resin and Binder
		2% Mineral Fragments

Comments:

Sampled By:	Chet Newell		Deitrie Hanson
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-3 Beige paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-4 Beige crystalline powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		92% Calcite Filler and Binder
		5% Mineral Fragments
		3% Vermiculite

Comments:

L-5 Pale tan fibrous tape-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	98% Cellulose	2% Filler and Binder

Comments:

L-6 Brown fibrous papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Cellulose	1% Filler and Binder

Comments:

L-7 White powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	10% Cellulose	86% Talc Filler and Binder
	4% Glass Fiber	

Comments:

Sampled By:	Chet Newell		Deitrie Hanson
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Beige paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-3 Brown fibrous papery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	99% Cellulose	1% Filler and Binder

Comments:

L-4 White powdery fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	10% Glass Fiber	90% Talc Filler and Binder

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000938	M318-0002
Client Sample Number:	**H013**	***Masonic Retirement Center - Health Center***

L-1 Toupe opaque thick rubbery sheet vinyl tile material with dark brown swirls

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Rubber Particles 15% Clay Filler and Binder

Comments:

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-2 Orange resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Resin and Binder
		4%	Mineral Fragments

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000939	M318-0002
Client Sample Number:	**H014**	***Masonic Retirement Center - Health Center***

L-1 Pale toupe opaque rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		90%	Rubber Particles
		10%	Calcite Filler and Binder

Comments:

L-2 Yellow resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		96%	Resin and Binder
		4%	Mineral Fragments

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000940	M318-0002
Client Sample Number:	**H015**	***Masonic Retirement Center - Health Center***

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson

Analyzed By: Deitrie Hanson 1/30/2003

Prezant

330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

L-1 Pale brown pliable opaque rubbery sheet vinyl tile material with dark brown swirls

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Rubber Particles
		15% Clay Filler and Binder

Comments:

L-2 Yellow resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	2% Synthetic	96% Resin and Binder
		2% Mineral Filler and Binder

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000941	**M318-0002**
Client Sample Number:	**H016**	***Masonic Retirement Center - Health Center***

L-1 Turquoise paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Yellow resinous mastic with fibers

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	10% Synthetic	90% Resin and Binder

Comments:

Sampled By:	Chet Newell		Deitrie Hanson
Received By:	John McCaslin	1/27/2003	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-3 Toupe opaque mosaic sheet vinyl tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		90% Vinyl Filler and Binder
		10% Clay Filler and Binder

Comments:

L-4 Pale grayish white fibrous backing

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
35% Chrysotile	45% Cellulose	15% Filler and Binder
		5% Mineral Fragments

Comments:

L-5 Dark yellow opaque resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Resin and Binder
		4% Mineral Fragments

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000942	**M318-0002**
Client Sample Number:	**H017**	***Masonic Retirement Center - Health Center***

White, tan, and brown sandy mortar-like material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		85% Sand
		13% Mineral Filler and Binder
		2% Mineral Fragments

Comments:
The white powdery material is lime filler.

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	Deitrie Hanson
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000943	M318-0002
Client Sample Number:	**H018**	***Masonic Retirement Center - Health Center***

L-1 Tan and toupe mosaic opaque sheet vinyl tile material

Asbestos Fibrous Components:		Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
	No Asbestos Detected			95%	Plastic Particles
				5%	Mineral Fragments

Comments:

L-2 Pale gray fibrous backing

Asbestos Fibrous Components:		Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
35%	**Chrysotile**	45%	Cellulose	15%	Filler and Binder
				5%	Talc Filler and Binder

Comments:

L-3 Toupe opaque mastic

Asbestos Fibrous Components:		Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
	No Asbestos Detected			95%	Resin and Binder
				5%	Mineral Fragments

Comments:

L-4 Silver thin tin foil material

Asbestos Fibrous Components:		Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
	No Asbestos Detected			100%	Metal

Comments:

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-5 Dark brown resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		90%	Resin and Binder
		7%	Mineral Fragments
		3%	Filler and Binder

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000944	**M318-0002**
Client Sample Number:	**H019**	***Masonic Retirement Center - Health Center***

L-1 Gray opaque pliable rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		85%	Rubber Particles
		15%	Calcite Filler and Binder

Comments:
This is cove base material.

L-2 Pale yellow resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		80%	Resin and Binder
		20%	Calcite Filler and Binder

Comments:

L-3 Pale brown opaque mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:	
No Asbestos Detected		98%	Resin and Binder
		2%	Mineral Fragments

Comments:

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis

L-4 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-5 White crystalline powdery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		96% Calcite Filler and Binder
		4% Mineral Fragments

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000945	M318-0002
Client Sample Number:	**H020**	***Masonic Retirement Center - Health Center***

Dark maroon purple opaque rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Rubber Particles
		20% Calcite Filler and Binder

Comments:
This is cove base material.

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000946	M318-0002
Client Sample Number:	**H021**	***Masonic Retirement Center - Health Center***

Sampled By: Chet Newell
Received By: John McCaslin 1/27/2003
Reviewed By: George McCaslin 1/30/2003

Deitrie Hanson
Analyzed By: Deitrie Hanson 1/30/2003

Prezant
330 6th Ave. North, Suite 200 Seattle, WA 98109
OFFICE: (206) 281-8858 FAX: (206) 281-8922

Bulk Asbestos Fiber Analysis

Aquamarine blue opaque pliable rubbery material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		80% Rubber Particles
		20% Calcite Filler and Binder

Comments:
This is cove base material.

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000947	M318-0002
Client Sample Number:	**H022**	*Masonic Retirement Center - Health Center*

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	60% Mineral Wool	5% Mineral Fragments
	35% Cellulose	

Comments:
This is ceiling tile material.

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000948	M318-0002
Client Sample Number:	**H023**	*Masonic Retirement Center - Health Center*

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Mineral Wool	20% Filler and Binder
	30% Cellulose	5% Mineral Fragments

Comments:

Batch Number:	03-0222	**Masonic Retirement Center**
Lab Sample Number:	03000949	M318-0002
Client Sample Number:	**H024**	***Masonic Retirement Center - Health Center***

L-1 White paint

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected		100% Paint

Comments:

L-2 Tan fibrous material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:	Non-Fibrous Components:
No Asbestos Detected	45% Mineral Wool	20% Filler and Binder
	30% Cellulose	5% Mineral Fragments

Comments:
This is ceiling tile material.

Sampled By:	Chet Newell				
Received By:	John McCaslin	1/27/2003		Deitrie Hanson	
Reviewed By:	George McCaslin	1/30/2003	Analyzed By:	Deitrie Hanson	1/30/2003

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Bulk Asbestos Fiber Analysis

Batch Number:	03-0222	Masonic Retirement Center
Lab Sample Number:	03000950	M318-0002
Client Sample Number:	**H025**	*Masonic Retirement Center - Health Center*

L-1 Toupe and white mosaic sheet vinyl tile material

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected			90%	Plastic Particles
			10%	Vinyl Filler and Binder

Comments:

L-2 Gray fibrous backing

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected	30%	Polyurethane	55%	Filler and Binder
	10%	Glass Fiber	5%	Mineral Fragments

Comments:

L-3 Yellow resinous mastic

Asbestos Fibrous Components:	Non-Asbestos Fibrous Components:		Non-Fibrous Components:	
No Asbestos Detected			96%	Resin and Binder
			4%	Mineral Fragments

Comments:

Sampled By:	Chet Newell		
Received By:	John McCaslin	1/27/2003	Deitrie Hanson
Reviewed By:	George McCaslin	1/30/2003	Analyzed By: Deitrie Hanson 1/30/2003

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Bulk Asbestos Fiber Analysis - Summary Report

Masonic Retirement Center
Project Location: Masonic Retirement Ceter

PAI Batch Number: 03-0500
Client Job Number: M318-0002

Sample Number	Lab Number	Layer	Asbestos Components
66	03002264	L-1	No Asbestos Detected
66	03002264	L-2	No Asbestos Detected
67	03002265	L-1	No Asbestos Detected
67	03002265	L-2	No Asbestos Detected
67	03002265	L-3	No Asbestos Detected
68	03002266	L-1	No Asbestos Detected
68	03002266	L-2	No Asbestos Detected
69	03002267	L-1	No Asbestos Detected
69	03002267	L-2	No Asbestos Detected
69	03002267	L-3	No Asbestos Detected
69	03002267	L-4	No Asbestos Detected
70	03002268	L-1	No Asbestos Detected
70	03002268	L-2	No Asbestos Detected
70	03002268	L-3	No Asbestos Detected
70	03002268	L-4	No Asbestos Detected
71	03002269	L-1	No Asbestos Detected
71	03002269	L-2	No Asbestos Detected
71	03002269	L-3	No Asbestos Detected
71	03002269	L-4	No Asbestos Detected
72	03002270	L-1	No Asbestos Detected
72	03002270	L-2	No Asbestos Detected
72	03002270	L-3	No Asbestos Detected
72	03002270	L-4	No Asbestos Detected
73	03002271		No Asbestos Detected
74	03002272	L-1	No Asbestos Detected
74	03002272	L-2	No Asbestos Detected
75	03002273	L-1	No Asbestos Detected
75	03002273	L-2	No Asbestos Detected
76	03002274	L-1	No Asbestos Detected

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Bulk Asbestos Fiber Analysis - Summary Report

76	03002274	L-2		No Asbestos Detected
77	03002275	L-1		No Asbestos Detected
77	03002275	L-2		No Asbestos Detected
77	03002275	L-3		No Asbestos Detected
77	03002275	L-4		No Asbestos Detected
78	03002276	L-1		No Asbestos Detected
78	03002276	L-2		No Asbestos Detected
HO26	03002277	L-1		No Asbestos Detected
HO26	03002277	L-2		No Asbestos Detected
HO26	03002277	L-3		No Asbestos Detected
HO27	03002278	L-1		No Asbestos Detected
HO27	03002278	L-2		No Asbestos Detected
HO27	03002278	L-3		No Asbestos Detected
HO27	03002278	L-4		No Asbestos Detected
HO28	03002279	L-1		No Asbestos Detected
HO28	03002279	L-2		No Asbestos Detected
HO29	03002280	L-1		No Asbestos Detected
HO29	03002280	L-2		No Asbestos Detected
HO29	03002280	L-3		No Asbestos Detected
HO30	03002281	L-1		No Asbestos Detected
HO30	03002281	L-2		No Asbestos Detected
HO30	03002281	L-3		No Asbestos Detected
HO31	03002282	L-1		No Asbestos Detected
HO31	03002282	L-2	35%	Chrysotile
HO31	03002282	L-3		No Asbestos Detected
HO32	03002283	L-1		No Asbestos Detected
HO32	03002283	L-2		No Asbestos Detected
HO33	03002284	L-1		No Asbestos Detected
HO33	03002284	L-2		No Asbestos Detected
HO34	03002285	L-1		No Asbestos Detected
HO34	03002285	L-2		No Asbestos Detected
HO34	03002285	L-3		No Asbestos Detected

Bulk Asbestos Fiber Analysis - Summary Report

HO35	03002286	L-1	No Asbestos Detected
HO35	03002286	L-2	No Asbestos Detected
HO35	03002286	L-3	No Asbestos Detected
HO36	03002287	L-1	No Asbestos Detected
HO36	03002287	L-2	No Asbestos Detected
HO37	03002288	L-1	No Asbestos Detected
HO37	03002288	L-2	No Asbestos Detected
HO38	03002289	L-1	No Asbestos Detected
HO38	03002289	L-2	No Asbestos Detected
HO39	03002290	L-1	No Asbestos Detected
HO39	03002290	L-2	No Asbestos Detected
HO40	03002291	L-1	No Asbestos Detected
HO40	03002291	L-2	No Asbestos Detected
HO41	03002292	L-1	No Asbestos Detected
HO41	03002292	L-2	No Asbestos Detected
HO42	03002293	L-1	No Asbestos Detected
HO42	03002293	L-2	No Asbestos Detected
HO43	03002294		No Asbestos Detected

Masonic Retirement Center of Washington
23660 Marine View Drive South
Main Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result**	Date/Time
1	****	Shutter Cal	****	****	****	****	****	****	****	****	****	****	1/16/2003 11:02
2	****	Calibrate	****	****	****	****	White		0	(+/-)	0.01	Negative	1/16/2003 11:11
3	****	Calibrate	****	****	****	****	Red		1.08	(+/-)	0.12	Positive	1/16/2003 11:12
4	****	Calibrate	****	****	****	****	Orange		1.47	(+/-)	0.17	Positive	1/16/2003 11:12
5	5	Room 519	A	Wall		Plaster	White	Intact	-0.45	(+/-)	1.12	Negative	1/16/2003 11:14
6	5	Room 519	D	Wall		Concrete	White	Intact	0.13	(+/-)	0.18	Positive	1/16/2003 11:15
7	5	Room 519	D	Window	Stool	Wood	White	Intact	2.39	(+/-)	1.06	Positive	1/16/2003 11:17
8	5	Room 519	B	Wall		Concrete	White	Intact	0.06	(+/-)	0.07	Positive	1/16/2003 11:17
9	5	Room 519	B	Door	Casing	Wood	White	Intact	3.86	(+/-)	1.42	Positive	1/16/2003 11:18
10	5	Room 501	A	Wall		Plaster	White	Intact	0	(+/-)	0.07	Negative	1/16/2003 11:20
11	5	Room 501	B	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.04	Negative	1/16/2003 11:21
12	5	Room 501	B	Window	Casing	Wood	White	Intact	5.24	(+/-)	1.67	Positive	1/16/2003 11:21
13	5	Room 502	D	Wall		Plaster	White	Intact	0.29	(+/-)	0.16	Positive	1/16/2003 11:22
14	5	Room 502	D	Door	Casing	Wood	White	Intact	5.1	(+/-)	1.59	Positive	1/16/2003 11:23
15	5	Storage Rm.B	C	Wall		Plaster	Yellow	Intact	0.03	(+/-)	0.07	Positive	1/16/2003 11:24
16	5	Storage Rm.B	C	Wall		Plaster	Yellow	Intact	0.02	(+/-)	0.03	Positive	1/16/2003 11:25
17	5	Storage Rm.B	A	Wall		Plaster	Yellow	Intact	0.03	(+/-)	0.06	Positive	1/16/2003 11:26
18	5	Storage Rm.B	D	Door	Casing	Wood	Yellow	Intact	3.13	(+/-)	0.72	Positive	1/16/2003 11:27
19	5	Storage Rm.B	D	Door	Casing	Wood	Yellow	Intact	7.15	(+/-)	2.15	Positive	1/16/2003 11:28
20	5	Utility Rm.1	C	Wall		Concrete	Yellow	Intact	0.11	(+/-)	0.06	Positive	1/16/2003 11:29
21	5	Utility Rm.1	C	Cabinet	Door Out	Wood	Yellow	Intact	0.73	(+/-)	0.26	Positive	1/16/2003 11:30
22	5	Utility Rm.1	C	Floor		Concrete	Grey	Intact	0.01	(+/-)	0.16	Positive	1/16/2003 11:31
23	5	Utility Rm.1	D	Door	Casing	Wood	Yellow	Intact	10.36	(+/-)	2.8	Positive	1/16/2003 11:31
24	5	Room 507	C	Wall		Plaster	Pink	Intact	0.1	(+/-)	0.07	Positive	1/16/2003 11:33
25	5	Room 507	A	Wall		Concrete	Pink	Intact	0.09	(+/-)	0.06	Positive	1/16/2003 11:34
26	5	Room 507	D	Door	Casing	Wood	Pink	Intact	6.3	(+/-)	2.05	Positive	1/16/2003 11:35
27	5	Stairwell	C	Floor		Concrete	Blue	Intact	0.35	(+/-)	0.23	Positive	1/16/2003 11:36
28	5	Stairwell	B	Window	Casing	Wood	Tan	Intact	3.21	(+/-)	1.21	Positive	1/16/2003 11:37
29	5	Stairwell	A	Wall		Plaster	White	Intact	-1.4	(+/-)	1.6	Negative	1/16/2003 11:37

Masonic Retirement Center of Washington
23660 Marine View Drive South
Main Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result**	Date/Time
30	5	Stairwell	D	Door	Casing	Wood	White	Intact	0.01	(+/-)	0.13	Positive	1/16/2003 11:38
31	5	Stairwell	D	Door	Casing	Metal	White	Intact	0.04	(+/-)	0.23	Positive	1/16/2003 11:38
32	5	Room 509	B	Ceiling		Plaster	Beige	Intact	-0.65	(+/-)	1.32	Negative	1/16/2003 11:40
33	5	Room 509	B	Window	Casing	Wood	White	Intact	4.51	(+/-)	1.56	Positive	1/16/2003 11:41
34	5	Room 511	D	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.15	Positive	1/16/2003 11:43
35	5	Room 511	D	Ceiling		Plaster	White	Intact	-0.51	(+/-)	1.03	Negative	1/16/2003 11:43
36	5	Room 513	B	Wall		Plaster	Beige	Intact	0.11	(+/-)	0.1	Positive	1/16/2003 11:45
37	5	Room 513	B	Door	Casing	Wood	Beige	Intact	5.34	(+/-)	1.53	Positive	1/16/2003 11:46
38	5	Room 513	D	Window	Casing	Wood	Beige	Intact	6.4	(+/-)	2.15	Positive	1/16/2003 11:46
39	5	Room 514	B	Wall		Plaster	Lime	Intact	0.16	(+/-)	0.08	Positive	1/16/2003 11:48
40	5	Room 514	A	Wall		Plaster	Lime	Intact	0.2	(+/-)	0.1	Positive	1/16/2003 11:49
41	5	Room 514	D	Window	Casing	Wood	Lime	Intact	6.34	(+/-)	2.08	Positive	1/16/2003 11:50
42	5	Room 514	D	Wall	Radiator	Metal	Lime	Intact	0	(+/-)	0.02	Negative	1/16/2003 11:51
43	5	Room 514	B	Door	Casing	Wood	Lime	Intact	8.4	(+/-)	2.63	Positive	1/16/2003 11:52
44	5	Room 516	A	Wall		Plaster	Beige	Intact	0.23	(+/-)	0.07	Positive	1/16/2003 11:53
45	5	Room 516	D	Window	Casing	Wood	Beige	Intact	5.65	(+/-)	1.65	Positive	1/16/2003 11:54
46	5	Room 516	D	Wall	Radiator	Metal	Beige	Intact	0.01	(+/-)	0.16	Positive	1/16/2003 11:55
47	5	Room 516	B	Door	Casing	Wood	Beige	Intact	6.33	(+/-)	2.57	Positive	1/16/2003 11:55
48	5	Linen Rm.D	B	Wall		Concrete	Yellow	Intact	-1.06	(+/-)	1.26	Negative	1/16/2003 11:56
49	5	Linen Rm.D	B	Ceiling		Concrete	Yellow	Intact	0.02	(+/-)	0.01	Positive	1/16/2003 11:57
50	5	Hallway	C	Door	Door	Wood	Tan	Intact	6.94	(+/-)	2.28	Positive	1/16/2003 12:00
51	5	Hallway	C	Door	Casing	Wood	Tan	Intact	8.01	(+/-)	2.43	Positive	1/16/2003 12:00
52	5	Hallway	D	Wall		Concrete	Beige	Intact	0.19	(+/-)	0.11	Positive	1/16/2003 12:01
53	5	Hallway	D	Wall	Radiator	Metal	Beige	Intact	0	(+/-)	0.1	Negative	1/16/2003 12:02
54	5	Hallway	D	Wall	Baseboard	Metal	Tan	Intact	10.14	(+/-)	3.22	Positive	1/16/2003 12:02
55	5	Hallway	B	Door	Casing	Wood	Tan	Intact	5.16	(+/-)	1.78	Positive	1/16/2003 12:03
56	5	Hallway	B	Wall		Concrete	Beige	Intact	0.16	(+/-)	0.09	Positive	1/16/2003 12:04
57	5	Hallway	B	Window	Casing	Wood	Beige	Intact	4.45	(+/-)	1.69	Positive	1/16/2003 12:05
58	5	Room 522	A	Wall		Concrete	Lime	Intact	0.14	(+/-)	0.06	Positive	1/16/2003 12:09

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Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result**	Date/Time
59	5	Room 522	A	Wall	Radiator	Metal	Lime	Intact	0	(+/-)	0.01	Negative	1/16/2003 12:11
60	5	Room 522	A	Window	Casing	Wood	Lime	Intact	7.14	(+/-)	2.38	Positive	1/16/2003 12:11
61	5	Room 522	C	Cabinet	Door Out	Wood	Lime	Intact	0.52	(+/-)	0.22	Positive	1/16/2003 12:11
62	5	Room 522	C	Door	Casing	Wood	Lime	Intact	6.02	(+/-)	2.13	Positive	1/16/2003 12:12
63	5	Room 525	A	Wall		Plaster	White	Intact	-0.59	(+/-)	1.11	Negative	1/16/2003 13:13
64	5	Room 525	D	Wall		Concrete	White	Intact	0.04	(+/-)	0.06	Positive	1/16/2003 13:13
65	5	Room 526	B	Wall		Plaster	Beige	Intact	0.12	(+/-)	0.08	Positive	1/16/2003 13:16
66	5	Room 526	B	Door	Casing	Wood	Beige	Intact	4.13	(+/-)	1.75	Positive	1/16/2003 13:17
67	5	Room 526	D	Door	Casing	Concrete	Beige	Intact	0.19	(+/-)	0.11	Positive	1/16/2003 13:17
68	5	Room 526	D	Window	Casing	Wood	Beige	Intact	2.89	(+/-)	1.25	Positive	1/16/2003 13:19
69	5	Room 527	A	Wall		Plaster	Pink	Intact	0.07	(+/-)	0.05	Positive	1/16/2003 13:21
70	5	Room 527	A	Ceiling		Plaster	White	Intact	0.13	(+/-)	0.09	Positive	1/16/2003 13:22
71	5	Room 539	C	Wall		Plaster	White	Intact	0.31	(+/-)	0.39	Positive	1/16/2003 13:31
72	5	Room 539	C	Wall		Plaster	Beige	Intact	0.42	(+/-)	0.15	Positive	1/16/2003 13:32
73	5	Room 539	B	Window	Casing	Plaster	Beige	Intact	3.42	(+/-)	1.32	Positive	1/16/2003 13:33
74	5	Room 539	D	Door	Casing	Plaster	Beige	Intact	4.66	(+/-)	1.49	Positive	1/16/2003 13:33
75	4	Room 401	A	Wall		Plaster	White	Intact	0	(+/-)	0.02	Negative	1/16/2003 13:43
76	4	Room 401	A	Wall		Plaster	White	Intact	-0.56	(+/-)	1.06	Negative	1/16/2003 13:43
77	4	Room 401	B	Wall		Concrete	White	Intact	0.33	(+/-)	0.09	Positive	1/16/2003 13:44
78	4	Room 401	B	Window	Casing	Wood	White	Intact	2.34	(+/-)	0.91	Positive	1/16/2003 13:45
79	4	Room 401	D	Door	Casing	Wood	White	Intact	5.48	(+/-)	1.73	Positive	1/16/2003 13:46
80	4	Room 404	B	Wall		Concrete	White	Intact	0.3	(+/-)	0.44	Positive	1/16/2003 13:50
81	4	Room 404	B	Window	Casing	Wood	White	Intact	5.46	(+/-)	1.78	Positive	1/16/2003 13:51
82	4	Room 404	D	Door	Casing	Wood	White	Intact	6.42	(+/-)	1.94	Positive	1/16/2003 13:51
83	4	Utility Rm.	B	Wall		Concrete	Yellow	Intact	0.01	(+/-)	0.01	Positive	1/16/2003 13:56
84	4	Utility Rm.	D	Wall		Drywall	Yellow	Intact	0.04	(+/-)	0.71	Positive	1/16/2003 13:57
85	4	Utility Rm.	D	Door	Casing	Wood	Yellow	Intact	5.52	(+/-)	2.21	Positive	1/16/2003 13:58
86	4	Men's Bath	C	Wall		Concrete	White	Intact	0.06	(+/-)	0.03	Positive	1/16/2003 13:59
87	4	Men's Bath	C	Ceiling		Plaster	White	Intact	0.09	(+/-)	0.06	Positive	1/16/2003 14:00

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Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm^2)			Result**	Date/Time
88	4	Men's Bath	B	Window	Casing	Wood	White	Intact	1.68	(+/-)	0.64	Positive	1/16/2003 14:02
89	4	Men's Bath	A	Window	Casing	Concrete	Beige	Intact	0.15	(+/-)	0.08	Positive	1/16/2003 14:04
90	4	Men's Bath	D	Door	Casing	Wood	Beige	Intact	5.1	(+/-)	2.02	Positive	1/16/2003 14:05
91	4	Men's Bath	A	Wall	Radiator	Metal	Beige	Intact	0.01	(+/-)	0.16	Positive	1/16/2003 14:05
92	4	Room 406	A	Wall		Plaster	White	Intact	0.21	(+/-)	0.12	Positive	1/16/2003 14:07
93	4	Room 406	A	Ceiling		Plaster	White	Intact	0.17	(+/-)	0.09	Positive	1/16/2003 14:08
94	4	Room C	B	Wall		Plaster	Beige	Intact	0.36	(+/-)	0.24	Positive	1/16/2003 14:12
95	4	Room C	B	Ceiling		Plaster	Beige	Intact	0.27	(+/-)	0.13	Positive	1/16/2003 14:13
96	4	Room C	B	Ceiling	Trim	Wood	Tan	Intact	8.42	(+/-)	3.16	Positive	1/16/2003 14:14
97	4	Room C	A	Window	Casing	Wood	Tan	Intact	5.08	(+/-)	1.5	Positive	1/16/2003 14:14
98	4	Room C	A	Wall	Radiator	Metal	Beige	Intact	0	(+/-)	0.01	Negative	1/16/2003 14:15
99	4	Room 418	C	Wall		Plaster	White	Intact	-0.78	(+/-)	1.31	Negative	1/16/2003 14:23
100	4	Room 418	D	Window	Casing	Wood	White	Intact	3.19	(+/-)	1.29	Positive	1/16/2003 14:24
101	4	Room 418	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/16/2003 14:25
102	4	Room 418	B	Door	Casing	Wood	White	Intact	6.42	(+/-)	1.95	Positive	1/16/2003 14:25
103	4	Room 418	B	Ceiling		Plaster	White	Intact	0.09	(+/-)	0.21	Positive	1/16/2003 14:26
104	4	Room 423	A	Wall		Plaster	White	Intact	0.46	(+/-)	0.16	Positive	1/16/2003 14:31
105	4	Room 423	A	Window	Casing	Wood	White	Intact	6.67	(+/-)	2.52	Positive	1/16/2003 14:32
106	4	Room 423	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.02	Negative	1/16/2003 14:32
107	4	Room 423	C	Door	Casing	Wood	White	Intact	3.56	(+/-)	1.32	Positive	1/16/2003 14:33
108	4	Room 423	C	Ceiling		Plaster	White	Intact	0.54	(+/-)	0.19	Positive	1/16/2003 14:33
109	4	Room 425	A	Wall		Plaster	Beige	Intact	0.07	(+/-)	0.11	Positive	1/16/2003 14:36
110	4	Room 425	D	Window	Casing	Wood	Beige	Intact	5.43	(+/-)	1.97	Positive	1/16/2003 14:37
111	4	Room 425	B	Door	Casing	Wood	Beige	Intact	3.96	(+/-)	1.67	Positive	1/16/2003 14:37
112	4	Room 436	A	Wall		Concrete	White	Intact	0.52	(+/-)	0.16	Positive	1/16/2003 14:43
113	4	Room 436	B	Window	Casing	Wood	White	Intact	4.51	(+/-)	1.49	Positive	1/16/2003 14:45
114	4	Room 436	B	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.07	Negative	1/16/2003 14:45
115	4	Room 436	D	Door	Casing	Wood	White	Intact	6.33	(+/-)	1.96	Positive	1/16/2003 14:46
116	4	Room 436	D	Ceiling		Plaster	White	Intact	0.56	(+/-)	0.17	Positive	1/16/2003 14:46

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117	4	Stairwell	A	Floor		Concrete	Blue	Intact	0.21	(+/-)	0.14	Positive	1/16/2003 14:48
118	4	Stairwell	A	Wall		Plaster	White	Intact	-0.42	(+/-)	1.05	Negative	1/16/2003 14:49
119	4	Stairwell	D	Door	Casing	Metal	White	Intact	0.05	(+/-)	0.2	Positive	1/16/2003 14:50
120	4	Utility Rm.	D	Wall		Concrete	Yellow	Intact	0.09	(+/-)	0.05	Positive	1/16/2003 14:53
121	4	Utility Rm.	D	Door	Casing	Wood	Yellow	Intact	10.25	(+/-)	3.37	Positive	1/16/2003 14:54
122	4	Utility Rm.	A	Cabinet	Door Out	Wood	Yellow	Intact	9.15	(+/-)	2.83	Positive	1/16/2003 14:54
123	4	Hallway	B	Wall		Concrete	Beige	Intact	0.22	(+/-)	0.1	Negative	1/16/2003 14:59
124	4	Hallway	B	Wall	Elec Panel	Metal	Beige	Intact	0.02	(+/-)	0.17	Positive	1/16/2003 15:00
125	4	Hallway	D	Wall		Concrete	Beige	Intact	0.26	(+/-)	0.12	Positive	1/16/2003 15:01
126	4	Hallway	D	Wall	Baseboard	Wood	Tan	Intact	8.58	(+/-)	2.51	Positive	1/16/2003 15:02
127	4	Hallway	B	Door	Casing	Wood	Tan	Intact	5.68	(+/-)	2.32	Positive	1/16/2003 15:02
128	4	Hallway	D	Window	Casing	Wood	Tan	Intact	3.94	(+/-)	1.5	Positive	1/16/2003 15:03
129	4	Hallway	D	Window	Stool	Wood	Tan	Intact	4.36	(+/-)	1.74	Positive	1/16/2003 15:03
130	3	Room 301	A	Wall		Plaster	Beige	Intact	-0.58	(+/-)	1.1	Negative	1/16/2003 15:09
131	3	Room 301	B	Wall		Concrete	Beige	Intact	0.34	(+/-)	0.22	Positive	1/16/2003 15:10
132	3	Room 301	B	Window	Casing	Wood	Beige	Intact	1.16	(+/-)	0.59	Positive	1/16/2003 15:11
133	3	Room 301	D	Door	Casing	Wood	Beige	Intact	6.32	(+/-)	2.11	Positive	1/16/2003 15:12
134	3	Room 301	B	Wall	Radiator	Metal	Beige	Intact	0	(+/-)	0.04	Negative	1/16/2003 15:12
135	3	Room 302	D	Wall		Plaster	White	Intact	0.27	(+/-)	0.19	Positive	1/16/2003 15:13
136	3	Room 302	C	Wall		Concrete	White	Intact	0.18	(+/-)	0.12	Positive	1/16/2003 15:14
137	3	Room 302	B	Window	Casing	Wood	White	Intact	3.76	(+/-)	1.55	Positive	1/16/2003 15:15
138	3	Room 302	B	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.12	Negative	1/16/2003 15:16
139	3	Room 302	D	Door	Casing	Wood	White	Intact	5.47	(+/-)	1.94	Positive	1/16/2003 15:16
140	3	Room 302	D	Ceiling		Plaster	White	Intact	-0.73	(+/-)	1.22	Negative	1/16/2003 15:17
141	3	Utility Rm.	B	Wall		Concrete	Yellow	Intact	0.05	(+/-)	0.04	Positive	1/16/2003 15:20
142	3	Utility Rm.	C	Cabinet	Door Out	Wood	Yellow	Intact	7.34	(+/-)	2.77	Positive	1/16/2003 15:26
143	3	Utility Rm.	B	Vent		Metal	Yellow	Intact	0.04	(+/-)	0.21	Positive	1/16/2003 15:27
144	3	Utility Rm.	D	Door	Casing	Wood	Yellow	Intact	9.99	(+/-)	3.27	Positive	1/16/2003 15:27
145	3	Utility Rm.	D	Ceiling		Concrete	Yellow	Intact	0.05	(+/-)	0.04	Positive	1/16/2003 15:28

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146	3	Room C	D	Wall		Concrete	Beige	Intact	0.27	(+/-)	0.15	Positive	1/16/2003 15:33
147	3	Room C	D	Wall	Baseboard	Wood	Tan	Intact	7.51	(+/-)	2.74	Positive	1/16/2003 15:34
148	3	Room C	D	Window	Casing	Wood	Tan	Intact	4.96	(+/-)	1.88	Positive	1/16/2003 15:35
149	3	Room C	D	Window	Stool	Wood	Tan	Intact	7.07	(+/-)	2.28	Positive	1/16/2003 15:35
150	3	Room C	C	Door	Casing	Wood	Tan	Intact	7.87	(+/-)	2.69	Positive	1/16/2003 15:35
151	3	Room C	C	Ceiling		Concrete	White	Intact	0.18	(+/-)	0.08	Positive	1/16/2003 15:36
152	3	Room 312	C	Wall		Concrete	White	Intact	0.31	(+/-)	0.15	Positive	1/16/2003 16:02
153	3	Room 312	D	Window	Casing	Wood	White	Intact	2.45	(+/-)	0.86	Positive	1/16/2003 16:03
154	3	Room 312	D	Wall	Radiator	Metal	White	Intact	0.02	(+/-)	0.2	Positive	1/16/2003 16:04
155	3	Room 312	B	Door	Casing	Wood	White	Intact	5.91	(+/-)	1.97	Positive	1/16/2003 16:05
156	3	Room 312	B	Ceiling		Plaster	White	Intact	0.13	(+/-)	0.08	Positive	1/16/2003 16:05
157	****	Calibrate	****	****	****	****	White		0	(+/-)	0.05	Negative	1/16/2003 16:16
158	****	Calibrate	****	****	****	****	Red		1.03	(+/-)	0.09	Positive	1/16/2003 16:16
159	****	Calibrate	****	****	****	****	Orange		1.48	(+/-)	0.16	Positive	1/16/2003 16:17
160	****	Shutter Cal	****	****	****	****	****	****	****	****	****	****	1/17/2003 8:34
161	****	Calibrate	****	****	****	****	White		0	(+/-)	0.02	Negative	1/17/2003 8:37
162	****	Calibrate	****	****	****	****	Red		1.11	(+/-)	0.15	Positive	1/17/2003 8:37
163	****	Calibrate	****	****	****	****	Yellow		3.7	(+/-)	0.35	Positive	1/17/2003 8:38
164	2	Room 201	A	Wall		Plaster	Beige	Intact	0	(+/-)	0.09	Negative	1/17/2003 8:42
165	2	Room 201	B	Wall		Concrete	Beige	Intact	0.1	(+/-)	0.1	Positive	1/17/2003 8:43
166	2	Room 201	B	Window	Casing	Wood	Beige	Intact	6.44	(+/-)	2.11	Positive	1/17/2003 8:43
167	2	Room 201	B	Wall	Radiator	Metal	Beige	Intact	0.01	(+/-)	0.03	Positive	1/17/2003 8:44
168	2	Room 201	D	Door	Casing	Wood	Beige	Intact	0.01	(+/-)	0.03	Positive	1/17/2003 8:44
169	2	Room 201	D	Door	Casing	Wood	Beige	Intact	7.96	(+/-)	2.79	Positive	1/17/2003 8:44
170	2	Room 205	A	Wall		Concrete	White	Intact	0.16	(+/-)	0.18	Positive	1/17/2003 8:47
171	2	Room 205	C	Wall		Concrete	White	Intact	0.19	(+/-)	0.17	Negative	1/17/2003 8:48
172	2	Room 205	C	Window	Casing	Wood	White	Intact	3.74	(+/-)	1.47	Positive	1/17/2003 8:49
173	2	Room 205	A	Door	Casing	Wood	White	Intact	7.29	(+/-)	2.73	Positive	1/17/2003 8:49
174	2	Room 205	A	Wall		Ceramic Tile	White	Intact	5.1	(+/-)	1	Positive	1/17/2003 8:50

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175	2	Room 205	B	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.07	Positive	1/17/2003 8:50
176	2	Room 205	B	Ceiling		Plaster	White	Intact	0.13	(+/-)	0.09	Positive	1/17/2003 8:51
177	2	Utility Rm.	B	Wall		Concrete	Yellow	Intact	0.1	(+/-)	0.06	Positive	1/17/2003 8:53
178	2	Utility Rm.	C	Cabinet	Door Out	Wood	Yellow	Intact	0.21	(+/-)	0.19	Positive	1/17/2003 8:54
179	2	Utility Rm.	C	Cabinet	Door Out	Wood	Yellow	Intact	0.14	(+/-)	0.14	Positive	1/17/2003 8:54
180	2	Utility Rm.	D	Door	Casing	Wood	Yellow	Intact	8.1	(+/-)	2.84	Positive	1/17/2003 8:55
181	2	Utility Rm.	D	Ceiling		Plaster	Yellow	Intact	0.16	(+/-)	0.13	Positive	1/17/2003 8:55
182	2	Tub Room	D	Wall		Plaster	Beige	Intact	0.11	(+/-)	0.06	Positive	1/17/2003 8:57
183	2	Tub Room	D	Door	Casing	Wood	Beige	Intact	5.13	(+/-)	1.87	Positive	1/17/2003 8:58
184	2	Tub Room	A	Wall	Radiator	Metal	Beige	Intact	0	(+/-)	0.14	Negative	1/17/2003 8:59
185	2	Tub Room	A	Window	Casing	Wood	Beige	Intact	6.75	(+/-)	2.34	Positive	1/17/2003 8:59
186	2	Room 210	C	Wall		Concrete	White	Intact	0.03	(+/-)	0.04	Positive	1/17/2003 9:02
187	2	Room 210	B	Door	Casing	Wood	White	Intact	5.39	(+/-)	1.77	Positive	1/17/2003 9:04
188	2	Room 210	D	Window	Casing	Wood	White	Intact	2.99	(+/-)	1.16	Positive	1/17/2003 9:04
189	2	Room 210	D	Wall		Plaster	White	Intact	0.05	(+/-)	0.14	Positive	1/17/2003 9:05
190	2	Room 210	D	Ceiling		Plaster	White	Intact	0.23	(+/-)	0.24	Positive	1/17/2003 9:05
191	2	Room 210	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 9:06
192	2	Room 224	A	Wall		Concrete	White	Intact	0.12	(+/-)	0.21	Positive	1/17/2003 9:16
193	2	Room 224	A	Door	Casing	Wood	White	Intact	5.75	(+/-)	1.84	Positive	1/17/2003 9:17
194	2	Room 224	D	Window	Casing	Wood	White	Intact	4.31	(+/-)	1.71	Positive	1/17/2003 9:17
195	2	Room 224	D	Wall	Radiator	Metal	White	Intact	0.03	(+/-)	0.17	Positive	1/17/2003 9:18
196	2	Room 224	D	Ceiling		Plaster	White	Intact	0.13	(+/-)	0.15	Positive	1/17/2003 9:18
197	2	Balcony Area	A	Wall		Concrete	White	Intact	0.05	(+/-)	0.14	Positive	1/17/2003 9:23
198	2	Balcony Area	A	Wall	Trim	Wood	White	Intact	-0.31	(+/-)	1.01	Negative	1/17/2003 9:26
199	2	Balcony Area	A	Ceiling		Plaster	Blue	Intact	0.96	(+/-)	0.16	Positive	1/17/2003 9:26
200	2	Room 230	C	Wall		Plaster	White	Intact	0.09	(+/-)	0.11	Positive	1/17/2003 9:30
201	2	Room 230	D	Window	Casing	Wood	White	Intact	3.57	(+/-)	1.49	Positive	1/17/2003 9:30
202	2	Room 230	D	Wall	Radiator	Metal	White	Intact	0.02	(+/-)	0.18	Positive	1/17/2003 9:31
203	2	Room 230	B	Door	Casing	Wood	White	Intact	7.82	(+/-)	2.65	Positive	1/17/2003 9:31

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204	2	Stairwell	A	Floor		Concrete	Blue	Intact	0.22	(+/-)	0.19	Positive	1/17/2003 9:33
205	2	Stairwell	A	Wall		Plaster	White	Intact	0.04	(+/-)	0.16	Positive	1/17/2003 9:34
206	2	Stairwell	D	Door	Casing	Metal	White	Intact	0.06	(+/-)	0.15	Positive	1/17/2003 9:35
207	2	Women's Bath	C	Door	Casing	Metal	White	Intact	0.16	(+/-)	0.09	Positive	1/17/2003 9:37
208	2	Women's Bath	D	Door	Casing	Wood	White	Intact	6.19	(+/-)	2.06	Positive	1/17/2003 9:38
209	2	Women's Bath	B	Window	Casing	Wood	White	Intact	5.94	(+/-)	2.16	Positive	1/17/2003 9:38
210	2	Women's Bath	C	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.18	Positive	1/17/2003 9:39
211	2	Women's Bath	C	Ceiling		Plaster	White	Intact	-0.3	(+/-)	1.03	Negative	1/17/2003 9:39
212	2	Utility Rm.	B	Wall		Concrete	Yellow	Intact	0.06	(+/-)	0.1	Positive	1/17/2003 9:42
213	2	Utility Rm.	B	Vent		Metal	Yellow	Intact	0.08	(+/-)	0.36	Positive	1/17/2003 9:42
214	2	Utility Rm.	A	Cabinet	Door Out	Wood	Yellow	Intact	0.11	(+/-)	0.12	Positive	1/17/2003 9:43
215	2	Utility Rm.	D	Door	Casing	Wood	Yellow	Intact	6.25	(+/-)	2.44	Positive	1/17/2003 9:44
216	2	Utility Rm.	D	Ceiling		Plaster	Yellow	Intact	0.19	(+/-)	0.14	Positive	1/17/2003 9:44
217	2	Kitchen	A	Wall		Plaster	White	Poor	0.06	(+/-)	0.08	Positive	1/17/2003 9:49
218	2	Kitchen	B	Window	Casing	Wood	White	Intact	4.69	(+/-)	1.71	Positive	1/17/2003 9:49
219	2	Kitchen	C	Cabinet	Shelf	Wood	White	Intact	0.06	(+/-)	0.13	Positive	1/17/2003 9:50
220	2	Kitchen	C	Cabinet	Door Out	Wood	White	Intact	9.39	(+/-)	2.71	Positive	1/17/2003 9:50
221	2	Kitchen	D	Door	Casing	Wood	White	Intact	4.72	(+/-)	1.8	Positive	1/17/2003 9:51
222	2	Kitchen	D	Ceiling		Plaster	White	Intact	0.22	(+/-)	0.14	Positive	1/17/2003 9:51
223	2	Storage Rm.H	D	Wall		Plaster	White	Intact	0.09	(+/-)	0.06	Positive	1/17/2003 9:54
224	2	Storage Rm.H	D	Door	Casing	Wood	White	Intact	6.46	(+/-)	2.53	Positive	1/17/2003 9:55
225	2	Storage Rm.H	B	Window	Casing	Wood	White	Intact	6.16	(+/-)	1.98	Positive	1/17/2003 9:55
226	2	Storage Rm.H	B	Ceiling		Plaster	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 9:56
227	2	Storage Rm.H	B	Ceiling	Pipes	Metal	White	Intact	0.01	(+/-)	0.05	Positive	1/17/2003 9:57
228	2	Storage Rm.H	B	Wall		Plaster	Beige	Intact	0.02	(+/-)	0.01	Positive	1/17/2003 10:06
229	2	Storage Rm.H	B	Door	Casing	Wood	Tan	Intact	5.1	(+/-)	1.98	Positive	1/17/2003 10:07
230	2	Storage Rm.H	B	Wall		Plaster	Beige	Intact	0.02	(+/-)	0.03	Positive	1/17/2003 10:07
231	2	Storage Rm.H	B	Ceiling		Plaster	Beige	Intact	0.02	(+/-)	0.03	Positive	1/17/2003 10:08
232	2	Storage Rm.H	B	Floor		Concrete	Grey	Intact	0.06	(+/-)	0.06	Positive	1/17/2003 10:09

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Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm^2)			Result**	Date/Time
233	2	Men's Bath	A	Wall		Plaster	Yellow	Intact	0.28	(+/-)	0.23	Positive	1/17/2003 10:11
234	2	Men's Bath	A	Door	Casing	Wood	Yellow	Intact	6.66	(+/-)	2.24	Positive	1/17/2003 10:12
235	2	Men's Bath	C	Window	Casing	Wood	Yellow	Intact	8.07	(+/-)	2.82	Positive	1/17/2003 10:12
236	2	Men's Bath	C	Wall	Radiator	Metal	Yellow	Intact	0.06	(+/-)	0.19	Positive	1/17/2003 10:13
237	2	Men's Bath	C	Ceiling		Concrete	Beige	Intact	0.19	(+/-)	0.18	Positive	1/17/2003 10:13
238	2	Storage Rm	D	Wall		Plaster	White	Intact	-0.4	(+/-)	1.05	Negative	1/17/2003 10:15
239	2	Storage Rm	C	Door	Casing	Wood	White	Intact	3.08	(+/-)	0.92	Positive	1/17/2003 10:16
240	2	Storage Rm	B	Closet	Door	Wood	White	Intact	3.04	(+/-)	1.23	Positive	1/17/2003 10:17
241	2	Storage Rm	A	Window	Casing	Wood	White	Intact	7.48	(+/-)	2.31	Positive	1/17/2003 10:17
242	2	Storage Rm	A	Wall		Concrete	White	Intact	-0.8	(+/-)	1.12	Negative	1/17/2003 10:18
243	2	Auditorium	D	Wall		Plaster	Beige	Intact	0.07	(+/-)	0.04	Positive	1/17/2003 10:20
244	2	Auditorium	D	Door	Casing	Wood	Beige	Intact	3.44	(+/-)	0.85	Positive	1/17/2003 10:20
245	2	Auditorium	A	Wall		Plaster	Beige	Intact	0.17	(+/-)	0.09	Positive	1/17/2003 10:21
246	2	Auditorium	A	Window	Casing	Wood	Brown	Intact	10	(+/-)	3.14	Positive	1/17/2003 10:22
247	2	Auditorium	A	Ceiling		Wood	Tan	Intact	0.2	(+/-)	0.08	Positive	1/17/2003 10:22
248	2	Auditorium	A	Ceiling		Plaster	Beige	Intact	0.17	(+/-)	0.08	Positive	1/17/2003 10:24
249	2	Men's Bath	D	Wall		Concrete	White	Intact	0.1	(+/-)	0.07	Positive	1/17/2003 10:26
250	2	Men's Bath	D	Door	Casing	Wood	White	Intact	11.39	(+/-)	3.41	Positive	1/17/2003 10:27
251	2	Men's Bath	C	Window	Casing	Wood	White	Intact	2.5	(+/-)	1.14	Positive	1/17/2003 10:27
252	2	Men's Bath	C	Ceiling		Concrete	White	Intact	0.14	(+/-)	0.21	Positive	1/17/2003 10:28
253	2	Stage	B	Wall		Plaster	Beige	Intact	-0.81	(+/-)	1.16	Negative	1/17/2003 10:30
254	2	Stage	B	Door	Casing	Wood	Beige	Intact	0	(+/-)	0.03	Negative	1/17/2003 10:31
255	2	Stage	B	Door	Casing	Metal	Beige	Intact	0.01	(+/-)	0.01	Positive	1/17/2003 10:31
256	2	Stage	C	Wall		Plaster	White	Intact	0.08	(+/-)	0.05	Positive	1/17/2003 10:32
257	2	Stage	C	Ceiling		Plaster	White	Intact	0.12	(+/-)	0.06	Positive	1/17/2003 10:33
258	2	Stage	C	Door	Casing	Wood	White	Intact	4.41	(+/-)	1.46	Positive	1/17/2003 10:34
259	2	Stage	C	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 10:34
260	2	Stage	D	Wall	Elec Panel	Metal	White	Intact	0.08	(+/-)	0.13	Positive	1/17/2003 10:36
261	2	Room 251	B	Wall		Plaster	White	Intact	-0.5	(+/-)	1.18	Negative	1/17/2003 11:00

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262	2	Room 251	B	Window	Casing	Wood	White	Intact	7.36	(+/-)	2.31	Positive	1/17/2003 11:01
263	2	Room 252	C	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.17	Positive	1/17/2003 11:02
264	2	Room 252	A	Door	Casing	Wood	White	Intact	7.81	(+/-)	2.72	Positive	1/17/2003 11:02
265	2	Room 252	A	Ceiling		Plaster	White	Intact	0.11	(+/-)	0.18	Positive	1/17/2003 11:02
266	2	Room 249	B	Wall		Plaster	White	Intact	0.02	(+/-)	0.03	Positive	1/17/2003 11:04
267	2	Room 249	C	Door	Casing	Wood	White	Intact	7.17	(+/-)	2.77	Positive	1/17/2003 11:04
268	2	Room 254	C	Wall		Concrete	White	Intact	-0.81	(+/-)	1.23	Negative	1/17/2003 11:05
269	2	Room 254	C	Window	Casing	Wood	White	Intact	8.24	(+/-)	3.49	Positive	1/17/2003 11:06
270	2	Room 254	C	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.12	Positive	1/17/2003 11:06
271	2	Room 256	B	Wall		Plaster	White	Intact	0.23	(+/-)	0.09	Positive	1/17/2003 11:07
272	2	Room 256	B	Ceiling		Plaster	White	Intact	0.19	(+/-)	0.07	Positive	1/17/2003 11:08
273	2	Room 256	A	Door	Casing	Wood	White	Intact	8.56	(+/-)	2.87	Positive	1/17/2003 11:09
274	2	Bathroom	D	Wall		Plaster	White	Intact	-0.82	(+/-)	1.23	Negative	1/17/2003 11:10
275	2	Bathroom	D	Floor		Concrete	Grey	Intact	0.11	(+/-)	0.12	Positive	1/17/2003 11:11
276	2	Storage Rm.M	D	Floor		Concrete	Grey	Intact	0.06	(+/-)	0.06	Positive	1/17/2003 11:12
277	2	Hallway 1	A	Wall		Concrete	White	Intact	0.14	(+/-)	0.07	Positive	1/17/2003 11:14
278	2	Hallway 1	C	Wall		Concrete	White	Intact	0.11	(+/-)	0.06	Positive	1/17/2003 11:15
279	2	Hallway 1	C	Door	Casing	Wood	Beige	Intact	6.87	(+/-)	2.79	Positive	1/17/2003 11:16
280	2	Hallway 1	A	Wall	Baseboard	Wood	Beige	Intact	10.92	(+/-)	3.72	Positive	1/17/2003 11:16
281	2	Hallway 1	B	Window	Casing	Wood	Beige	Intact	5.43	(+/-)	2.15	Positive	1/17/2003 11:17
282	2	Hallway 1	B	Ceiling		Concrete	White	Intact	0.11	(+/-)	0.05	Positive	1/17/2003 11:17
283	2	Main Hallway	D	Wall		Concrete	White	Intact	0.04	(+/-)	0.06	Positive	1/17/2003 11:20
284	2	Main Hallway	D	Wall		Concrete	White	Intact	0.03	(+/-)	0.05	Positive	1/17/2003 11:21
285	2	Main Hallway	B	Wall		Concrete	White	Intact	0.04	(+/-)	0.09	Positive	1/17/2003 11:21
286	2	Main Hallway	B	Wall		Concrete	White	Intact	1.74	(+/-)	0.87	Incomplete	1/17/2003 11:22
287	2	Main Hallway	B	Wall		Concrete	White	Intact	1.26	(+/-)	0.66	Incomplete	1/17/2003 11:23
288	2	Main Hallway	B	Wall		Concrete	White	Intact	1.18	(+/-)	0.58	Positive	1/17/2003 11:25
289	2	Main Hallway	B	Window	Casing	Wood	Tan	Intact	8.17	(+/-)	2.58	Positive	1/17/2003 11:28
290	2	Main Hallway	D	Door	Casing	Wood	Tan	Intact	6.38	(+/-)	2.28	Positive	1/17/2003 11:29

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291	2	Main Hallway	D	Wall	Baseboard	Wood	Tan	Intact	7.77	(+/-)	2.7	Positive	1/17/2003 11:29
292	2	Main Hallway	D	Ceiling		Concrete	White	Intact	0.14	(+/-)	0.35	Positive	1/17/2003 11:30
293	2	Main Hallway	A	Ceiling		Concrete	White	Intact	0.02	(+/-)	0.08	Positive	1/17/2003 11:30
294	3	Room 321	C	Wall		Concrete	White	Intact	0.14	(+/-)	0.09	Positive	1/17/2003 11:34
295	3	Room 321	D	Window	Casing	Wood	White	Intact	3.19	(+/-)	1.1	Positive	1/17/2003 11:35
296	3	Room 321	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 11:35
297	3	Room 321	B	Door	Casing	Wood	White	Intact	7.04	(+/-)	2.76	Positive	1/17/2003 11:36
298	3	Room 321	B	Ceiling		Plaster	White	Intact	0.23	(+/-)	0.15	Positive	1/17/2003 11:36
299	3	Room 325	C	Wall		Plaster	White	Intact	0.33	(+/-)	0.13	Positive	1/17/2003 11:40
300	3	Room 325	C	Ceiling		Plaster	White	Intact	0.35	(+/-)	0.14	Positive	1/17/2003 11:41
301	3	Room 325	C	Door	Casing	Wood	White	Intact	7.1	(+/-)	2.68	Positive	1/17/2003 11:42
302	3	Room 325	A	Door	Casing	Wood	White	Intact	6.81	(+/-)	2.31	Positive	1/17/2003 11:42
303	3	Room 330	D	Wall		Plaster	White	Intact	0.24	(+/-)	0.26	Positive	1/17/2003 11:45
304	3	Room 330	D	Window	Casing	Wood	White	Intact	6.66	(+/-)	2.01	Positive	1/17/2003 11:46
305	3	Room 330	D	Wall	Radiator	Metal	White	Intact	0.04	(+/-)	0.23	Positive	1/17/2003 11:47
306	3	Room 330	B	Door	Casing	Wood	White	Intact	7.96	(+/-)	2.86	Positive	1/17/2003 11:47
307	3	Room 330	B	Ceiling		Plaster	White	Intact	0.29	(+/-)	0.37	Positive	1/17/2003 11:47
308	3	Room 336	A	Wall		Plaster	White	Intact	0.14	(+/-)	0.08	Positive	1/17/2003 11:50
309	3	Room 336	D	Wall		Plaster	White	Intact	0.17	(+/-)	0.11	Positive	1/17/2003 11:51
310	3	Room 336	D	Ceiling		Plaster	White	Intact	0.18	(+/-)	0.1	Positive	1/17/2003 11:52
311	3	Utility Rm.	D	Wall		Concrete	Yellow	Intact	-1.12	(+/-)	1.28	Negative	1/17/2003 11:54
312	3	Utility Rm.	C	Cabinet	Door Out	Wood	Yellow	Intact	0.49	(+/-)	0.32	Positive	1/17/2003 11:55
313	3	Utility Rm.	B	Door	Casing	Wood	Yellow	Intact	6.2	(+/-)	2.21	Positive	1/17/2003 11:56
314	3	Utility Rm.	B	Ceiling		Plaster	Yellow	Intact	0.05	(+/-)	0.05	Positive	1/17/2003 11:56
315	3	Room 342	B	Wall		Plaster	White	Intact	0.22	(+/-)	0.14	Positive	1/17/2003 11:59
316	3	Room 342	B	Window	Casing	Wood	White	Intact	6.45	(+/-)	2.14	Positive	1/17/2003 12:00
317	3	Room 342	B	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.13	Positive	1/17/2003 12:01
318	3	Room 342	D	Door	Casing	Wood	White	Intact	6.76	(+/-)	2.62	Positive	1/17/2003 12:01
319	3	Room 342	D	Ceiling		Plaster	White	Intact	-0.39	(+/-)	1.05	Negative	1/17/2003 12:02

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320	3	Kitchen	C	Wall		Plaster	Beige	Intact	0.22	(+/-)	0.09	Positive	1/17/2003 12:04
321	3	Kitchen	B	Cabinet	Door Out	Wood	Beige	Intact	1.58	(+/-)	0.45	Positive	1/17/2003 12:05
322	3	Kitchen	B	Window	Casing	Wood	Beige	Intact	6.97	(+/-)	2.34	Positive	1/17/2003 12:06
323	3	Kitchen	D	Door	Casing	Wood	Beige	Intact	3.06	(+/-)	1.37	Positive	1/17/2003 12:06
324	3	Kitchen	D	Ceiling		Plaster	Beige	Intact	0.24	(+/-)	0.15	Positive	1/17/2003 12:07
325	3	Room 344	B	Wall		Plaster	Blue	Intact	0.07	(+/-)	0.05	Positive	1/17/2003 12:08
326	3	Room 344	A	Wall		Plaster	Blue	Intact	0.07	(+/-)	0.1	Positive	1/17/2003 12:09
327	3	Room 344	A	Door	Casing	Wood	Blue	Intact	6.78	(+/-)	2.52	Positive	1/17/2003 12:10
328	3	Room 344	C	Window	Casing	Wood	Blue	Intact	6.31	(+/-)	2.29	Positive	1/17/2003 12:10
329	3	Room 344	C	Ceiling		Plaster	White	Intact	0.07	(+/-)	0.05	Positive	1/17/2003 12:12
330	3	Balcony Area	C	Wall		Plaster	Beige	Intact	0.14	(+/-)	0.15	Positive	1/17/2003 12:16
331	3	Balcony Area	A	Wall		Plaster	Beige	Intact	0.09	(+/-)	0.07	Positive	1/17/2003 12:16
332	3	Hall	B	Wall		Plaster	White	Intact	0.12	(+/-)	0.07	Positive	1/17/2003 12:18
333	3	Hall	D	Wall		Plaster	White	Intact	0.14	(+/-)	0.08	Positive	1/17/2003 12:19
334	3	Hall	D	Window	Casing	Wood	White	Intact	7.09	(+/-)	2.48	Positive	1/17/2003 12:20
335	3	Hall	D	Wall	Baseboard	Wood	White	Intact	7.53	(+/-)	2.98	Positive	1/17/2003 12:21
336	3	Hall	B	Door	Casing	Wood	White	Intact	7.07	(+/-)	2.9	Positive	1/17/2003 12:21
337	3	Hall	B	Wall	Trim	Wood	Tan	Intact	10.84	(+/-)	3.98	Positive	1/17/2003 12:22
338	3	Hall	B	Wall	Elec Panel	Metal	White	Intact	0.02	(+/-)	0.13	Positive	1/17/2003 12:23
339	****	Calibrate	****	****	****	****	White		0	(+/-)	0.03	Negative	1/17/2003 12:25
340	****	Calibrate	****	****	****	****	Red		1.07	(+/-)	0.13	Positive	1/17/2003 12:25
341	****	Calibrate	****	****	****	****	Yellow		3.36	(+/-)	0.58	Positive	1/17/2003 12:26
342	****	Shutter Cal	****	****	****	****	****	****	****	****	****	****	1/17/2003 13:30
343	****	Calibrate	****	****	****	****	White		0	(+/-)	0.01	Negative	1/17/2003 13:31
344	****	Calibrate	****	****	****	****	Green		0.35	(+/-)	0.08	Negative	1/17/2003 13:31
345	****	Calibrate	****	****	****	****	Orange		1.62	(+/-)	0.24	Positive	1/17/2003 13:32
346	1	Room A	A	Wall		Plaster	White		0	(+/-)	0.06	Negative	1/17/2003 13:36
347	1	Room A	D	Door	Casing	Wood	White		5.1	(+/-)	1.51	Positive	1/17/2003 13:37
348	1	Room 105	A	Wall		Concrete	White	Intact	0.5	(+/-)	0.4	Positive	1/17/2003 13:39

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349	1	Room 105	D	Door	Casing	Wood	White	Intact	5.46	(+/-)	1.79	Positive	1/17/2003 13:40
350	1	Room 105	B	Window	Casing	Wood	White	Intact	8.55	(+/-)	3.27	Positive	1/17/2003 13:41
351	1	Utility Rm.	B	Wall		Concrete	Yellow	Intact	-0.73	(+/-)	1.11	Negative	1/17/2003 13:42
352	1	Utility Rm.	D	Door	Casing	Wood	Yellow	Intact	6.32	(+/-)	2.42	Positive	1/17/2003 13:43
353	1	Utility Rm.	C	Cabinet	Door Out	Wood	Yellow	Intact	2.25	(+/-)	0.92	Positive	1/17/2003 13:44
354	1	Utility Rm.	B	Ceiling		Plaster	Yellow	Intact	0.01	(+/-)	0.02	Positive	1/17/2003 13:44
355	1	Men's Bath	C	Wall		Concrete	White	Intact	0.09	(+/-)	0.11	Positive	1/17/2003 13:46
356	1	Men's Bath	C	Window	Casing	Wood	White	Intact	7.15	(+/-)	2.97	Positive	1/17/2003 13:47
357	1	Men's Bath	C	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 13:48
358	1	Men's Bath	C	Door	Casing	Wood	White	Intact	8.26	(+/-)	2.99	Positive	1/17/2003 13:48
359	1	Room 116	B	Wall		Plaster	White	Intact	0.29	(+/-)	0.18	Positive	1/17/2003 13:53
360	1	Room 116	B	Door	Casing	Wood	White	Intact	7.85	(+/-)	2.8	Positive	1/17/2003 13:54
361	1	Room 116	D	Window	Casing	Wood	White	Intact	9.66	(+/-)	3.21	Positive	1/17/2003 13:55
362	1	Room 116	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.07	Negative	1/17/2003 13:55
363	1	Office Rm.	A	Wall		Plaster	White	Intact	0.02	(+/-)	0.02	Positive	1/17/2003 13:58
364	1	Office Rm.	C	Wall		Plaster	White	Intact	0.08	(+/-)	0.08	Positive	1/17/2003 13:59
365	1	Office Rm.	D	Window	Casing	Wood	White	Intact	6.75	(+/-)	2.81	Positive	1/17/2003 13:59
366	1	Office Rm.	C	Door	Casing	Wood	White	Intact	8.4	(+/-)	2.98	Positive	1/17/2003 14:00
367	1	Lounge	D	Wall		Concrete	White	Intact	0.02	(+/-)	0.06	Positive	1/17/2003 14:02
368	1	Lounge	B	Wall		Plaster	White	Intact	0.05	(+/-)	0.11	Positive	1/17/2003 14:02
369	1	Lounge	D	Column		Concrete	White	Intact	0.02	(+/-)	0.06	Positive	1/17/2003 14:03
370	1	Room 136	A	Wall		Plaster	White	Intact	0.18	(+/-)	0.1	Positive	1/17/2003 14:08
371	1	Room 136	D	Wall		Plaster	White	Intact	3.18	(+/-)	1.51	Positive	1/17/2003 14:09
372	1	Room 136	B	Window	Casing	Wood	White	Intact	9.93	(+/-)	2.86	Positive	1/17/2003 14:10
373	1	Room 136	A	Door	Casing	Wood	White	Intact	7.83	(+/-)	2.82	Positive	1/17/2003 14:22
374	1	Room 136	D	Wall		Other	White	Intact	5.1	(+/-)	1.01	Positive	1/17/2003 14:22
375	1	Room 136	B	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.02	Negative	1/17/2003 14:23
376	1	Room 136	B	Closet	Door	Wood	White	Intact	1.82	(+/-)	0.48	Positive	1/17/2003 14:23
377	1	Room F	A	Ceiling		Plaster	White	Intact	0.16	(+/-)	0.09	Positive	1/17/2003 14:24

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378	1	Room F	C	Wall		Plaster	White	Intact	0	(+/-)	0.02	Negative	1/17/2003 14:30
379	1	Room F	B	Door	Casing	Wood	White	Intact	3.42	(+/-)	1.36	Positive	1/17/2003 14:31
380	1	Room F	C	Cabinet	Door Out	Wood	White	Intact	3.55	(+/-)	1.39	Positive	1/17/2003 14:32
381	1	Waiting/Dining	A	Wall		Plaster	White	Intact	0.05	(+/-)	0.07	Positive	1/17/2003 14:34
382	1	Waiting/Dining	D	Wall		Plaster	White	Intact	0.1	(+/-)	0.12	Positive	1/17/2003 14:35
383	1	Waiting/Dining	A	Column		Plaster	White	Intact	-0.7	(+/-)	1.11	Negative	1/17/2003 14:36
384	1	Guest Dining	C	Window	Casing	Wood	White	Intact	6.01	(+/-)	2.24	Positive	1/17/2003 14:37
385	1	Guest Dining	C	Wall	Radiator	Metal	White	Intact	0.01	(+/-)	0.05	Positive	1/17/2003 14:38
386	1	Guest Dining	C	Ceiling		Plaster	White	Intact	0.04	(+/-)	0.12	Positive	1/17/2003 14:39
387	1	Kitchen	D	Wall		Other	White	Intact	13.38	(+/-)	3.44	Positive	1/17/2003 14:41
388	1	Kitchen	D	Floor		Other	Red	Intact	0.01	(+/-)	0.11	Positive	1/17/2003 14:41
389	1	Employee Din.	C	Wall		Plaster	Blue	Intact	0.03	(+/-)	0.09	Positive	1/17/2003 14:43
390	1	Employee Din.	D	Wall		Plaster	White	Intact	0	(+/-)	0.05	Negative	1/17/2003 14:44
391	1	Employee Din.	A	Window	Casing	Wood	White	Intact	0.05	(+/-)	0.29	Positive	1/17/2003 14:45
392	1	Employee Din.	C	Wall		Other	White	Intact	10.92	(+/-)	4.6	Positive	1/17/2003 14:46
393	1	Employee Din.	B	Door	Casing	Wood	White	Intact	9.53	(+/-)	3.05	Positive	1/17/2003 14:46
394	1	Hallway	B	Wall		Plaster	White	Intact	0.02	(+/-)	0.06	Positive	1/17/2003 14:51
395	1	Hallway	D	Wall		Plaster	White	Intact	0.07	(+/-)	0.08	Positive	1/17/2003 14:52
396	1	Hallway	D	Wall		Plaster	White	Intact	0	(+/-)	0.11	Negative	1/17/2003 14:53
397	1	Hallway	B	Door	Casing	Wood	White	Intact	5.44	(+/-)	1.64	Positive	1/17/2003 14:53
398	1	Hallway	B	Wall	Baseboard	Wood	White	Intact	11.95	(+/-)	3.6	Positive	1/17/2003 14:54
399	1	Hallway	D	Window	Casing	Wood	Tan	Intact	6.73	(+/-)	2.27	Positive	1/17/2003 14:55
400	****	Shutter Cal	****	****	****	****	****	****	****	****	****	****	1/17/2003 15:10
401	Basement	Room 1	C	Wall		Concrete	White	Intact	0.31	(+/-)	0.12	Positive	1/17/2003 15:11
402	Basement	Room 1	A	Wall		Drywall	White	Intact	-0.8	(+/-)	1.09	Negative	1/17/2003 15:12
403	Basement	Room 1	A	Door	Casing	Wood	White	Intact	0.06	(+/-)	0.1	Positive	1/17/2003 15:13
404	Basement	Room 1	A	Ceiling		Concrete	White	Intact	0.01	(+/-)	0.06	Positive	1/17/2003 15:13
405	Basement	Room 3	D	Floor		Concrete	Blue	Intact	0.13	(+/-)	0.1	Positive	1/17/2003 15:14
406	Basement	Room 5	D	Wall		Concrete	Beige	Intact	0.02	(+/-)	0.06	Positive	1/17/2003 15:16

Masonic Retirement Center of Washington
23660 Marine View Drive South
Main Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result**	Date/Time
407	Basement	Room 6	A	Wall		Concrete	Yellow	Intact	-0.76	(+/-)	1.12	Negative	1/17/2003 15:18
408	Basement	Room 6	D	Wall	Pipes	Metal	Yellow	Intact	0.03	(+/-)	0.08	Positive	1/17/2003 15:19
409	Basement	Room 6	D	Ceiling		Concrete	White	Intact	0.04	(+/-)	0.07	Positive	1/17/2003 15:19
410	Basement	Room 6	A	Ceiling	Elec Panel	Metal	White	Intact	0.04	(+/-)	0.22	Positive	1/17/2003 15:20
411	Basement	Room 10	D	Wall		Concrete	Grey	Intact	0.1	(+/-)	0.12	Positive	1/17/2003 15:22
412	Basement	Room 10	D	Wall	Pipes	Metal	Red	Intact	0.02	(+/-)	0.07	Positive	1/17/2003 15:23
413	Basement	Room 10	D	Wall	Pipes	Metal	Blue	Intact	0.04	(+/-)	0.16	Positive	1/17/2003 15:23
414	Basement	Room 13	A	Wall		Concrete	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 15:26
415	Basement	Room 13	A	Ceiling		Concrete	White	Intact	0.02	(+/-)	0.15	Positive	1/17/2003 15:27
416	Basement	Room 13	A	Floor		Concrete	Grey	Intact	0.01	(+/-)	0.07	Positive	1/17/2003 15:27
417	Basement	Room 18	A	Floor		Concrete	White	Intact	0.05	(+/-)	0.1	Positive	1/17/2003 15:32
418	Basement	Room 21	B	Wall		Concrete	White	Intact	0.02	(+/-)	0.08	Positive	1/17/2003 15:34
419	Basement	Room 21	B	Door	Casing	Wood	White	Intact	10.25	(+/-)	3.97	Positive	1/17/2003 15:35
420	Basement	Room 21	D	Window	Casing	Wood	White	Intact	7.23	(+/-)	3.05	Positive	1/17/2003 15:35
421	Basement	Room 21	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/17/2003 15:35
422	Basement	Room 21	A	Ceiling		Concrete	White	Intact	0.03	(+/-)	0.08	Positive	1/17/2003 15:36
423	Basement	Room 26	B	Wall		Concrete	White	Intact	0.24	(+/-)	0.19	Positive	1/17/2003 15:40
424	Basement	Room 26	B	Door	Casing	Wood	Other	Intact	5.1	(+/-)	1.18	Positive	1/17/2003 15:41
425	Basement	Men's Bath	C	Wall		Plaster	Blue	Intact	0.13	(+/-)	0.07	Positive	1/17/2003 15:44
426	Basement	Men's Bath	B	Door	Casing	Wood	Blue	Intact	13.34	(+/-)	4.44	Positive	1/17/2003 15:45
427	Basement	Men's Bath	D	Window	Casing	Wood	Blue	Intact	5.55	(+/-)	1.88	Positive	1/17/2003 15:45
428	Basement	Men's Bath	D	Floor		Concrete	Grey	Intact	1.18	(+/-)	0.64	Positive	1/17/2003 15:46
429	Basement	Room 40	A	Wall		Concrete	Beige	Intact	-0.67	(+/-)	1.18	Negative	1/17/2003 15:53
430	Basement	Room 40	A	Wall		Concrete	Beige	Intact	0.23	(+/-)	0.14	Positive	1/17/2003 15:54
431	Basement	Room 40	A	Floor		Concrete	Grey	Intact	0.49	(+/-)	0.33	Positive	1/17/2003 15:55
432	Basement	Room 43	D	Wall		Concrete	Other	Intact	0.15	(+/-)	0.31	Positive	1/17/2003 15:58
433	Basement	Room 43	C	Wall		Concrete	Other	Intact	0.02	(+/-)	0.08	Positive	1/17/2003 15:59
434	Basement	Room 43	C	Ceiling		Concrete	White	Intact	0.05	(+/-)	0.05	Positive	1/17/2003 15:59
435	Basement	Room 43	B	Door	Casing	Metal	White	Intact	0.23	(+/-)	0.12	Positive	1/17/2003 16:00

Masonic Retirement Center of Washington
23660 Marine View Drive South
Main Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side*	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm^2)			Result**	Date/Time
436	Basement	Room 43	A	Door	Casing	Wood	White	Intact	5.1	(+/-)	1.04	Positive	1/17/2003 16:01
437	Basement	Room 49	A	Wall		Concrete	White	Intact	0.02	(+/-)	0.13	Positive	1/17/2003 16:03
438	Basement	Room 49	C	Wall		Concrete	White	Intact	0	(+/-)	0.03	Negative	1/17/2003 16:04
439	Basement	Hall	B	Wall		Concrete	White	Intact	0.03	(+/-)	0.06	Positive	1/17/2003 16:08
440	Basement	Hall	B	Wall	Elec Panel	Metal	White	Intact	0.05	(+/-)	0.18	Positive	1/17/2003 16:09
441	Basement	Hall	B	Wall		Concrete	Beige	Intact	0.07	(+/-)	0.09	Positive	1/17/2003 16:09
442	Basement	Hall	B	Wall	Baseboard	Wood	Beige	Intact	8.81	(+/-)	2.87	Positive	1/17/2003 16:10
443	Basement	Hall	D	Door	Casing	Wood	Tan	Intact	8.83	(+/-)	3.21	Positive	1/17/2003 16:11
444	Basement	Hall	D	Ceiling		Concrete	White	Intact	0.03	(+/-)	0.17	Positive	1/17/2003 16:11
445	Basement	Hall	D	Wall		Concrete	White	Intact	0.03	(+/-)	0.05	Positive	1/17/2003 16:13
446	Basement	Hall	D	Wall		Concrete	Beige	Intact	-0.67	(+/-)	1.3	Negative	1/17/2003 16:14
447	****	Calibrate	****	****	****	****	White		0	(+/-)	0.04	Negative	1/17/2003 16:19
448	****	Calibrate	****	****	****	****	Red		1.16	(+/-)	0.16	Positive	1/17/2003 16:19
449	****	Calibrate	****	****	****	****	Orange		1.6	(+/-)	0.23	Positive	1/17/2003 16:20

*Side A is the North side of building/room, Side B is the East side, Side C is the South side and Side D is the West Side.
**Results are based on the L & I interpretation of a lead-based paint, which is any detectable lead.

Masonic Retirement Center of Washington
23660 Marine View Drive South
Health Care Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result	Date/Time
450	****	Shutter Cal	****	****	****	****	****	****	****	****	****	****	1/20/2003 9:04
451	****	Calibrate	****	****	****	****	White		0	(+/-)	0.07	Negative	1/20/2003 9:06
452	****	Calibrate	****	****	****	****	Red		1.09	(+/-)	0.13	Positive	1/20/2003 9:06
453	****	Calibrate	****	****	****	****	Yellow		3.7	(+/-)	0.58	Positive	1/20/2003 9:07
454	1	Hallway 1	B	Wall		Drywall	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 9:23
455	1	Hallway 1	D	Wall		Drywall	White	Intact	-0.88	(+/-)	1.19	Negative	1/20/2003 9:24
456	1	Hallway 1	D	Wall		Drywall	Dk. Pink	Intact	0	(+/-)	0.01	Negative	1/20/2003 9:25
457	1	Hallway 1	B	Wall		Drywall	Dk. Pink	Intact	0.01	(+/-)	0.02	Positive	1/20/2003 9:25
458	1	Hallway 1	D	Wall	Elec Panel	Metal	White	Intact	0	(+/-)	0.06	Negative	1/20/2003 9:26
459	1	Hallway 1	D	Door	Casing	Metal	Maroon	Intact	0.01	(+/-)	0.14	Positive	1/20/2003 9:27
460	1	Hallway 1	B	Door	Casing	Metal	Maroon	Intact	0	(+/-)	0.11	Negative	1/20/2003 9:27
461	1	Hallway 1	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 9:29
462	1	Hallway 1	B	Door	Casing	Metal	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 9:29
463	1	Hallway 1	B	Door		Wood	White	Intact	0	(+/-)	0.04	Negative	1/20/2003 9:29
464	1	Hallway 1	B	Door		Wood	Maroon	Intact	0.08	(+/-)	0.06	Positive	1/20/2003 9:30
465	1	Hallway 1	D	Door		Wood	Maroon	Intact	0.07	(+/-)	0.06	Positive	1/20/2003 9:31
466	1	Hallway 2	C	Wall		Drywall	White	Intact	0.02	(+/-)	0.02	Positive	1/20/2003 9:32
467	1	Hallway 2	A	Wall		Drywall	White	Intact	0.02	(+/-)	0.04	Positive	1/20/2003 9:33
468	1	Hallway 2	A	Wall		Drywall	Lt. Green	Intact	0.02	(+/-)	0.16	Positive	1/20/2003 9:34
469	1	Hallway 2	D	Wall		Drywall	Lt. Green	Intact	0	(+/-)	0.03	Negative	1/20/2003 9:35
470	1	Hallway 2	A	Door	Casing	Metal	Olive	Intact	0	(+/-)	0.06	Negative	1/20/2003 9:36
471	1	Hallway 2	A	Door		Metal	Olive	Intact	0	(+/-)	0.03	Negative	1/20/2003 9:36
472	1	Hallway 2	A	Door	Casing	Metal	Green	Intact	0.34	(+/-)	0.2	Positive	1/20/2003 9:37
473	1	Hallway 2	D	Door	Casing	Metal	Green	Intact	0.26	(+/-)	0.19	Positive	1/20/2003 9:38
474	1	Hallway 2	D	Door		Wood	Green	Intact	0.12	(+/-)	0.2	Positive	1/20/2003 9:38
475	1	Hallway 2	A	Door		Wood	Green	Intact	0.07	(+/-)	0.15	Positive	1/20/2003 9:38
476	1	Hallway 2	C	Fire Exting.	Door	Metal	White	Intact	0.12	(+/-)	0.38	Positive	1/20/2003 9:39
477	1	Hallway 3	A	Wall		Drywall	White	Intact	0.05	(+/-)	0.06	Positive	1/20/2003 9:41
478	1	Hallway 3	A	Wall		Drywall	White	Intact	0.11	(+/-)	0.17	Positive	1/20/2003 9:42

Masonic Retirement Center of Washington
23660 Marine View Drive South
Health Care Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result	Date/Time
479	1	Hallway 3	A	Wall		Drywall	Dk. Pink	Intact	0.02	(+/-)	0.13	Positive	1/20/2003 9:43
480	1	Hallway 3	C	Wall		Drywall	Dk. Pink	Intact	0.01	(+/-)	0.05	Positive	1/20/2003 9:43
481	1	Hallway 3	C	Door	Casing	Metal	Maroon	Intact	0.19	(+/-)	0.14	Positive	1/20/2003 9:44
482	1	Hallway 3	A	Door	Casing	Metal	Maroon	Intact	0.26	(+/-)	0.25	Positive	1/20/2003 9:44
483	1	Hallway 3	A	Door		Wood	Maroon	Intact	0.05	(+/-)	0.15	Positive	1/20/2003 9:45
484	1	Hallway 3	A	Door		Wood	Maroon	Intact	0	(+/-)	0.05	Negative	1/20/2003 9:45
485	1	Hallway 3	A	Wall	Elec Panel	Metal	White	Intact	0.09	(+/-)	0.3	Positive	1/20/2003 9:47
486	1	Hallway 4	B	Wall		Drywall	Tan	Intact	-0.3	(+/-)	0.97	Negative	1/20/2003 9:48
487	1	Hallway 4	A	Wall		Drywall	Tan	Intact	-0.38	(+/-)	0.97	Negative	1/20/2003 9:49
488	1	Hallway 4	B	Wall		Drywall	Blue	Intact	0	(+/-)	0.07	Negative	1/20/2003 9:50
489	1	Hallway 4	D	Wall		Drywall	Maroon	Intact	0	(+/-)	0.01	Negative	1/20/2003 9:51
490	1	Hallway 4	D	Door	Casing	Metal	Maroon	Intact	0	(+/-)	0.02	Negative	1/20/2003 9:52
491	1	Hallway 4	D	Door		Wood	Maroon	Intact	0.06	(+/-)	0.08	Positive	1/20/2003 9:52
492	1	Lounge	B	Door		Wood	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 9:54
493	1	Lounge	C	Door		Wood	White	Intact	-0.67	(+/-)	0.8	Negative	1/20/2003 9:54
494	1	Room 5	D	Wall		Drywall	White	Intact	-0.29	(+/-)	0.94	Negative	1/20/2003 9:56
495	1	Room 5	C	Door	Casing	Metal	Tan	Intact	0	(+/-)	0.05	Negative	1/20/2003 9:57
496	1	Room 5	C	Door		Wood	Tan	Intact	0.01	(+/-)	0.09	Positive	1/20/2003 9:58
497	1	Dining Area	B	Wall		Drywall	Tan	Intact	0	(+/-)	0.03	Negative	1/20/2003 9:59
498	1	Room 9	B	Wall		Drywall	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 10:01
499	1	Room 9	B	Door	Casing	Metal	Tan	Intact	0.03	(+/-)	0.17	Positive	1/20/2003 10:02
500	1	Room 9	B	Door		Wood	Tan	Intact	0	(+/-)	0.13	Negative	1/20/2003 10:02
501	1	Room 9	B	Wall		Ceramic Tile	Tan	Intact	17.72	(+/-)	3.84	Positive	1/20/2003 10:03
502	1	Room 9	B	Wall		Ceramic Tile	Blue	Intact	17.5	(+/-)	6.62	Positive	1/20/2003 10:03
503	1	Room 9	B	Floor		Ceramic Tile	White	Intact	0.03	(+/-)	0.15	Positive	1/20/2003 10:04
504	1	Bathroom	B	Floor		Ceramic Tile	White	Intact	0.04	(+/-)	0.13	Positive	1/20/2003 10:06
505	1	Bathroom	D	Wall		Ceramic Tile	Tan	Intact	0	(+/-)	0.13	Negative	1/20/2003 10:06
506	1	Bathroom	D	Wall		Ceramic Tile	Maroon	Intact	0.02	(+/-)	0.04	Positive	1/20/2003 10:07
507	1	Bathroom	A	Wall		Drywall	White	Intact	0	(+/-)	0.08	Negative	1/20/2003 10:08

Masonic Retirement Center of Washington
23660 Marine View Drive South
Health Care Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result	Date/Time
508	1	Room 206	A	Wall		Drywall	White	Intact	0.06	(+/-)	0.1	Positive	1/20/2003 10:10
509	1	Room 206	D	Wall		Drywall	White	Intact	0.04	(+/-)	0.1	Positive	1/20/2003 10:10
510	1	Room 213	B	Wall		Drywall	White	Intact	0.26	(+/-)	0.12	Positive	1/20/2003 10:12
511	1	Room 213	D	Wall		Drywall	White	Intact	0	(+/-)	0.06	Negative	1/20/2003 10:13
512	1	Room 213	D	Door	Casing	Metal	White	Intact	0.22	(+/-)	0.23	Positive	1/20/2003 10:14
513	1	Room 213	D	Door		Wood	White	Intact	0.03	(+/-)	0.07	Positive	1/20/2003 10:15
514	1	Room 301	B	Door		Wood	White	Intact	0.15	(+/-)	0.39	Positive	1/20/2003 10:18
515	1	Room 301	C	Door		Wood	White	Intact	0.03	(+/-)	0.05	Positive	1/20/2003 10:18
516	1	Room 301	C	Door	Casing	Wood	White	Intact	0.24	(+/-)	0.26	Positive	1/20/2003 10:19
517	1	Room 301	C	Door		Wood	White	Intact	0.05	(+/-)	0.09	Positive	1/20/2003 10:19
518	1	Room 308	A	Wall		Drywall	White	Intact	0.18	(+/-)	0.28	Positive	1/20/2003 10:21
519	1	Room 308	C	Door	Casing	Wood	White	Intact	0.25	(+/-)	0.17	Positive	1/20/2003 10:21
520	1	Room 308	C	Door		Wood	Pink	Intact	0.03	(+/-)	0.05	Positive	1/20/2003 10:22
521	1	Room 312	C	Wall		Drywall	White	Intact	0	(+/-)	0.02	Negative	1/20/2003 10:23
522	1	Room 312	A	Wall		Drywall	White	Intact	0.04	(+/-)	0.07	Positive	1/20/2003 10:23
523	1	Dining Area	A	Wall		Drywall	White	Intact	0	(+/-)	0.03	Negative	1/20/2003 10:25
524	1	Dining Area	C	Wall		Drywall	Green	Intact	0	(+/-)	0.02	Negative	1/20/2003 10:26
525	1	P. Therapy	A	Wall		Drywall	Blue	Intact	0.01	(+/-)	0.06	Positive	1/20/2003 10:28
526	1	P. Therapy	A	Wall		Drywall	White	Intact	0	(+/-)	0.02	Negative	1/20/2003 10:29
527	1	Pool	A	Floor		Ceramic Tile	Orange	Intact	0.03	(+/-)	0.13	Positive	1/20/2003 10:30
528	1	Pool	A	Floor		Ceramic Tile	Brown	Intact	0.07	(+/-)	0.11	Positive	1/20/2003 10:31
529	1	Pool	C	Wall		Ceramic Tile	Tan	Intact	18.44	(+/-)	5.29	Positive	1/20/2003 10:32
530	1	Pool	C	Wall		Ceramic Tile	Blue	Intact	20.33	(+/-)	5.41	Positive	1/20/2003 10:33
531	1	Pool	C	Wall		Ceramic Tile	Olive	Intact	23.24	(+/-)	7.05	Positive	1/20/2003 10:33
532	1	Hallway 4	D	Wall	Elec Panel	Metal	Tan	Intact	0	(+/-)	0.01	Negative	1/20/2003 10:35
533	1	Hallway 4	D	Wall	Radiator	Metal	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 10:35
534	Basement	Dining Area	B	Wall		Drywall	Beige	Intact	0	(+/-)	0.02	Negative	1/20/2003 10:44
535	Basement	Dining Area	D	Wall		Drywall	Beige	Intact	-0.76	(+/-)	1.14	Negative	1/20/2003 10:45
536	Basement	Dining Area	D	Window	Casing	Metal	Tan	Intact	0	(+/-)	0.05	Negative	1/20/2003 10:46

Masonic Retirement Center of Washington
23660 Marine View Drive South
Health Care Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm²)			Result	Date/Time
537	Basement	Dining Area	C	Door	Casing	Metal	Tan	Intact	0	(+/-)	0.04	Negative	1/20/2003 10:46
538	Basement	Dining Area	C	Door		Metal	Tan	Intact	0	(+/-)	0.07	Negative	1/20/2003 10:46
539	Basement	Dining Area	C	Wall		Drywall	Other	Intact	-0.36	(+/-)	0.86	Negative	1/20/2003 10:47
540	Basement	Dining Area	C	Wall	Elec Panel	Metal	Grey	Intact	0	(+/-)	0.01	Negative	1/20/2003 10:48
541	Basement	Hallway	D	Wall		Drywall	Beige	Intact	0	(+/-)	0.04	Negative	1/20/2003 10:48
542	Basement	Hallway	B	Wall		Drywall	Beige	Intact	0	(+/-)	0.03	Negative	1/20/2003 10:49
543	Basement	Hallway	B	Door	Casing	Metal	Tan	Intact	0	(+/-)	0.07	Negative	1/20/2003 10:50
544	Basement	Hallway	B	Door		Metal	Tan	Intact	0	(+/-)	0.12	Negative	1/20/2003 10:51
545	Basement	Room 26	A	Wall		Drywall	White	Intact	0	(+/-)	0.03	Negative	1/20/2003 10:51
546	Basement	Room 26	C	Wall		Drywall	White	Intact	-0.31	(+/-)	0.83	Negative	1/20/2003 10:52
547	Basement	Room 26	D	Door	Casing	Metal	White	Intact	0	(+/-)	0.01	Negative	1/20/2003 10:53
548	Basement	Room 26	D	Door		Wood	White	Intact	0	(+/-)	0.07	Negative	1/20/2003 10:53
549	Basement	Room 26	B	Window	Casing	Wood	White	Intact	0	(+/-)	0.1	Negative	1/20/2003 10:54
550	Basement	Room 19	C	Window	Casing	Wood	White	Intact	0	(+/-)	0.03	Negative	1/20/2003 10:55
551	Basement	Room 19	B	Window	Casing	Wood	White	Intact	0	(+/-)	0.1	Negative	1/20/2003 10:56
552	Basement	Exterior	C	Wall		Stucco	Tan	Intact	0.02	(+/-)	0.08	Positive	1/20/2003 10:58
553	Basement	Exterior	C	Door	Casing	Metal	Tan	Intact	0	(+/-)	0.1	Negative	1/20/2003 10:58
554	Basement	Exterior	C	Door		Metal	Tan	Intact	0.01	(+/-)	0.12	Positive	1/20/2003 10:59
555	Basement	Exterior	C	Wall		Concrete	Tan	Intact	0.04	(+/-)	0.12	Positive	1/20/2003 10:59
556	Basement	Exterior	C	Wall	Downspout	Metal	Tan	Intact	-0.14	(+/-)	0.78	Negative	1/20/2003 11:00
557	Basement	Exterior	C	Window	Casing	Metal	Brown	Intact	-0.05	(+/-)	0.64	Negative	1/20/2003 11:01
558	Basement	Exterior	C	Stairs	Baseboard In	Metal	Brown	Intact	0	(+/-)	0.02	Negative	1/20/2003 11:02
559	Basement	Exterior	C	Stairs	Rail cap	Metal	Brown	Intact	0.02	(+/-)	0.14	Positive	1/20/2003 11:03
560	Basement	Exterior	B	Wall		Stucco	Brown	Intact	0	(+/-)	0.06	Negative	1/20/2003 11:04
561	Basement	Exterior	B	Wall	Downspout	Metal	Brown	Intact	-0.11	(+/-)	0.69	Negative	1/20/2003 11:05
562	Basement	Exterior	B	Wall		Concrete	Brown	Intact	0.02	(+/-)	0.07	Positive	1/20/2003 11:06
563	Basement	Exterior	B	Stairs	Rail cap	Metal	Tan	Intact	0.01	(+/-)	0.22	Positive	1/20/2003 11:07
564	Basement	Exterior	B	Wall	Flashing	Metal	Brown	Intact	0.1	(+/-)	0.08	Positive	1/20/2003 11:08
565	Basement	Exterior	B	Wall	Elec Panel	Metal	Tan	Intact	0.06	(+/-)	0.13	Positive	1/20/2003 11:09

Masonic Retirement Center of Washington
23660 Marine View Drive South
Health Care Building
XRF Survey Results
January 16 -17 and 20, 2003

Number	Floor	Room	Side	Structure	Feature	Substrate	Color	Condition	Lead Level (mg/cm^2)			Result	Date/Time
566	Basement	Exterior	B	Door	Casing	Metal	Brown	Intact	0	(+/-)	0.03	Negative	1/20/2003 11:10
567	Basement	Exterior	A	Door	Downspout	Metal	Brown	Intact	0	(+/-)	0.01	Negative	1/20/2003 11:11
568	Basement	Exterior	A	Stairs	Rail cap	Metal	Brown	Intact	0.05	(+/-)	0.02	Positive	1/20/2003 11:12
569	Basement	Exterior	A	Stairs	Rail cap	Wood	Tan	Intact	1.08	(+/-)	1.5	Positive	1/20/2003 11:13
570	Basement	Exterior	A	Poles		Metal	Tan	Intact	0.81	(+/-)	0.17	Positive	1/20/2003 11:13
571	Basement	Exterior	A	Wall		Concrete	Tan	Intact	0.05	(+/-)	0.14	Positive	1/20/2003 11:15
572	Basement	Exterior	A	Door	Casing	Metal	Tan	Intact	0.09	(+/-)	0.12	Positive	1/20/2003 11:15
573	Basement	Exterior	A	Door		Metal	Brown	Intact	0.06	(+/-)	0.07	Positive	1/20/2003 11:16
574	****	Calibrate	****	****	****	****	White		0	(+/-)	0.01	Negative	1/20/2003 11:18
575	****	Calibrate	****	****	****	****	Red		1.02	(+/-)	0.07	Positive	1/20/2003 11:19
576	****	Calibrate	****	****	****	****	Yellow		3.19	(+/-)	0.55	Positive	1/20/2003 11:20

*Side A is the North side of building/room, Side B is the East side, Side C is the South side and Side D is the West Side.

**Results are based on the L & I interpretation of a lead-based paint, which is any detectable lead.

Appendix C: Certifications

Certificate of Completion

This is to certify that

Robert C Newell

has satisfactorily completed
4 hours of refresher training as an

Asbestos Building Inspector

to comply with the training requirements of
TSCA Title II / 40 CFR 763 (AHERA)

Certificate Number 1002620

Philippa Murphy
Training Administration
AHERA Certified MO9907012

ARGUS PACIFIC
SAFETY • TRAINING • INDUSTRIAL HYGIENE

Jul 10, 2002
Date(s) of Training
Expiration Date: Jul 10, 2003

Argus Pacific, Inc. • 1900 W. Nickerson, Suite 315 • Seattle, Washington • 98119 • (206) 285.3373 • fax (206) 285.3927

CERTIFICATE NUMBER

25234

Certificate of Attendance

This is to Certify that

LLOYD H. TANGUNAN SS # 576-74-7845

Has Completed the Course of

AHERA ASBESTOS BUILDING INSPECTOR 4 HOUR REFRESHER COURSE (CA-014-06)

For puposes of accreditation under section 206 of the Toxic Substances Control Act (TSCA) and compliance with AMAP in accordance with 59 FR 5236 effective April 1994

JOHN DALY
INSTRUCTOR

ARMANDO DUCOING
DIRECTOR

July 11, 2002
COMPLETION DATE

E071102BIR
CLASS NUMBER / STARTING DATE

July 11, 2003
CERTIFICATE EXPIRES

Ecologics Training Institute

550 N. Parkcenter Drive, Suite 102 . Santa Ana, CA 92705 . Ph. (714) 480-0111 . Fax (714) 480-0222

NITON®

CORPORATION

Certificate of Achievement

Lloyd H. Tangunan

EMET/EnviroMETeo Services, Inc.

has successfully completed the a Training Course for the
NITON Spectrum Analyzer *and is now certified*
in radiation safety and monitoring, measurement technology,
and machine maintenance of the **NITON XRF Spectrum Analyzer**.

99043039400
Certificate Number

04/01/99 Waipahu
Date & Site of Course

Victoria Grzybinski
Training Coordinator

Kenneth P. [illegible]
Director of Training

UNIVERSITY OF CALIFORNIA, SAN DIEGO
WESTERN REGIONAL LEAD TRAINING CENTER

This is to verify that

LLOYD H. TANGUNAN

has successfully completed the DHS accredited course in

Lead Inspector & Risk Assessor Training

July 23-27, 2001

Denise Tuttle

Denise Tuttle, Training Director
Western Regional Lead Training Center

Appendix C

Cost Estimate

BASIS OF ROM ESTIMATE R8

Conditions of Construction

The pricing is based on the following general conditions of construction

A start date of September 2024

A construction period of 24 months

EXCLUSIONS

Compression of schedule, premium or shift work, and restrictions on the contractor's working hours

Tap fees, street use fees, electrical consumption charges

Scope change and post contract contingencies

Also see detail of each estimate

OVERALL SUMMARY

	Enclosed Area	$ / SF	$x1,000
Renovation			
Cold/Dark Core+ Shell - Excluding the Infirmary	128,140 SF	436.84	55,977
TOTAL	***128,140 SF***	***436.84***	***55,977***

Cold/Dark Core+ Shell - Excluding the Infirmary

	Quantity	Unit	Rate	Total
Program				
	128,140	sf		
Foundations				
Brace frame footings	608	lf	1,644.50	999,856
Excavation/haul	811	cy	177.10	143,569
Slab on grade, cut/patch for footings	5,472	sf	37.00	202,464
Slab on grade, cut/patch for plbg, etc	25,000	sf	5.69	142,313
Superstructure				
Brace frames	160	ea	15,180.00	2,428,800
Fireproofing/Intumescent paint		Excluded		
Dampers	160	ea	15,700.00	2,512,000
Strongback interior, 4", 100%	590,000	sf	27.83	16,419,700
Strongback exterior, 6" w/spray foam	60,000	sf	39.85	2,390,850
Carbon fiber wrap		Excluded		
CIP Tie beam	6,500	lf	313.50	2,037,750
Parapet bracing	1	ls	316,250.00	316,250
Pin façade	7,300	sf	22.14	161,604
Exterior enclosure				
Repoint masonry/Seal	6,300	sf	31.63	199,238
New brick+sealer	1,000	sf	79.06	79,063
Lintel repair/replace	136	ea	632.50	86,020
Plaster repair	7,500	sf	25.30	189,750
Plaster coating	63,000	sf	7.59	478,170
Terra cotta restoration (paint removal)	2,100	sf	31.00	65,100
New AL windows, assume operable		Excluded		
Replace window caulking	1,500	lf	15.18	22,770
Allow for repair to ladders/fire escapes/railings	1	ls	442,750.00	442,750
Roofing				
Terra cotta replacement	1,800	sf	146.74	264,132
Allow for roof repairs	25,000	sf	3.80	94,875
Allow for sheetmetal/gutters/downspout replacement	25,000	sf	1.27	31,625
Skylight replacement	180	sf	158.13	28,463
Spray insulation	40,000	sf	13.92	556,600
Stairs modifications		Excluded		
Patch/protect floor finish		Excluded		
Conveying systems incl. hoistway modifications		Excluded		
Selective demo	128,140	sf	15.18	1,945,165
Demolish walls not strongbacked.		Excluded		
HazMat Allowance	1	allow	1,000,000.00	1,000,000

	Quantity	Unit	Rate	Total
				-
Mark ups				-
Estimating contingency	15.00%		33,238,875	4,985,831
Construction contingency	3.00%		38,224,706	1,146,741
Escalation contingency	22.51%		39,371,447	8,863,509
GCs/GRs	10.00%		48,234,956	4,823,496
Fee incl GL, B&O	5.50%		53,058,452	2,918,215
				-
				55,976,667

Zenith Properties
FEASIBILITY STUDY - BALANCE TO FINISH
Des Moines, Washington

PRE-DESIGN
ROM ESTIMATE R10
August 21, 2022

JMB CONSULTING GROUP

JMB CONSULTING GROUP

4320 29th Avenue W
Seattle, Washington 98199
Tel: 206.708.7280

August 21, 2022

John Rupp
OAC Services, Inc.
2200 1st Avenue S
Suite 200
Seattle, Washington 98134

Re: Zenith Properties
Subject: Feasibility Study - Balance to Finish
Des Moines, Washington

Dear John:

In accordance with your instructions, we enclose our cost estimate for the project referenced above. This cost estimate is a statement of reasonable and probable construction cost. It is not a prediction of low bid.

We would be pleased to discuss this report with you further at your convenience.

Sincerely,

Jon Bayles

JMB Consulting Group LLC 21-001

Enclosures

BASIS OF ROM ESTIMATE R10

Conditions of Construction

The pricing is based on the following general conditions of construction

A start date of September 2024

A construction period of 24 months

EXCLUSIONS

Compression of schedule, premium or shift work, and restrictions on the contractor's working hours

Tap fees, street use fees, electrical consumption charges

Scope change and post contract contingencies

Also see detail of each estimate

OVERALL SUMMARY

	Enclosed Area	$ / SF	$x1,000
Renovation			
Cold/Dark Core+ Shell - Excluding the Infirmary	128,140 SF	45.22	5,794
Site	128,140 SF	30.57	3,918
TI - Market Rate Housing, Low	128,140 SF	218.93	28,054
TI - Market Rate Housing, Medium	128,140 SF	244.19	31,291
TI - Market Rate Housing, High	128,140 SF	269.45	34,528
Multi-family/Senior Fit-out, Low	128,140 SF	202.09	25,896
Multi-family/Senior Fit-out, Medium	128,140 SF	227.35	29,133
Multi-family/Senior Fit-out, High	128,140 SF	252.61	32,370

	Quantity	Unit	Rate	Total
Cold/Dark Core+ Shell - Excluding the Infirmary				
Program				
	128,140	sf		
New AL windows, assume operable	500	ea	3,100.00	1,550,000
Stairs modifications	128,140	sf	5.00	640,700
Patch/protect floor finish	Excluded			
Conveying systems incl. hoistway modifications	2	ea	625,000.00	1,250,000
				-
Mark ups				-
Estimating contingency	15.00%		3,440,700	516,105
Construction contingency	3.00%		3,956,805	118,704
Escalation contingency	22.51%		4,075,509	917,500
GCs/GRs	10.00%		4,993,009	499,301
Fee incl GL, B&O	5.50%		5,492,310	302,077
				-
				5,794,387
Site				
Site prep	104,750	sf	3.80	397,526
Demo+abate building, no salvage	42,400	sf	12.65	536,360
Misc upgrades to garages	Excluded			
Site improvements	104,750	sf	8.86	927,561
Frontage improvements	14,700	sf	31.63	464,888
Site utilities	Excluded			
				-
Mark ups	68.41%		2,326,335	1,591,381
				-
				3,917,716

	Quantity	Unit	Rate	Total
TI - Market Rate Housing, Low				
Allow for average fit-out costs	128,140	sf	130.00	16,658,200
				-
Mark ups	68.41%		16,658,200	11,395,412
				-
				28,053,612
TI - Market Rate Housing, Medium				
Allow for average fit-out costs	128,140	sf	145.00	18,580,300
				-
Mark ups	68.41%		18,580,300	12,710,267
				-
				31,290,567
TI - Market Rate Housing, High				
Allow for average fit-out costs	128,140	sf	160.00	20,502,400
				-
Mark ups	68.41%		20,502,400	14,025,123
				-
				34,527,523

	Quantity	*Unit*	*Rate*	*Total*
Multi-family/Senior Fit-out, Low				
Allow for average fit-out costs	128,140	sf	120.00	15,376,800
				-
Mark ups	68.41%		15,376,800	10,518,842
				-
				25,895,642
Multi-family/Senior Fit-out, Medium				
Allow for average fit-out costs	128,140	sf	135.00	17,298,900
				-
Mark ups	68.41%		17,298,900	11,833,697
				-
				29,132,597
Multi-family/Senior Fit-out, High				
Allow for average fit-out costs	128,140	sf	150.00	19,221,000
				-
Mark ups	68.41%		19,221,000	13,148,553
				-
				32,369,553

Fit Out Costs by Use Type

Use Type	$/SQFT Low	Med	High	Inclusions/Exclusions
Multi-Family Fit Out Costs, Market rate	$ 220	$ 245	$ 270	*Inclusions*
Multi-Family/Senior Housing Fit Out Costs, Affordable	$ 200	$ 230	$ 250	- Interior construction/finishes
Hotel (4-star) Fit Out Costs	$ 360	$ 400	$ 440	- Plumbing
				- HVAC
				- Fire protection
				- Electrical
				- Equipment/Furnishings
				Exclusions
				- Impact , street use, and inspection fees
				- Architecture & Engineering
				- Construction Management
				- Sales tax
				- Insurance

APPENDIX F CULTURAL RESOURCES INVESTIGATION REPORT

Cultural Resources Investigation Report

Zenith Property

Des Moines, King County, Washington

January 23, 2023

PRIVILEGED/CONFIDENTIAL

CULTURAL RESOURCES INVESTIGATION REPORT

Zenith Property

Des Moines, King County, Washington

PRIVILEGED/CONFIDENTIAL

Prepared For:
Zenith Properties, LLC
601 Union Street, Suite 3500
Seattle, Washington 98101

Prepared By:

Anna Robison-Mathes, B.A.
Jennifer Ferris, M.A., RPA

HDR, Inc.
929 108th Avenue
Suite 1300
Bellevue, Washington 98004

January 23, 2023

Executive Summary

Zenith Properties, LLC (Zenith Properties), is proposing the demolition of structures, pavement, and overhead and underground utilities at the former Masonic Retirement Center of Washington (the Project). The Project is located on a 27-acre parcel at 23660 Marine View Drive South in Des Moines, Washington, on the west side of Interstate 5 and 0.15 mile from the Puget Sound shoreline.

HDR Engineering, Inc. (HDR) was retained to complete a cultural resources investigation of the Project Area (i.e., the 27-acre parcel) to support Zenith Properties' demolition permit application to the City of Des Moines (LUA2019-0032), which requires review under the State Environmental Policy Act (SEPA). The investigation complied with the Revised Code of Washington and included a background review and field survey to identify cultural resources that could potentially be impacted by the Project and to provide recommendations regarding their significance and potential Project effects.

During a record search at the Washington Information System for Architectural and Archaeological Records Data, which is managed by the Washington State Department of Archaeology and Historic Preservation, the Masonic Retirement Center of Washington and the Masonic Water Tank were previously determined eligible for listing in the National Register of Historic Places.

The field survey was performed by HDR on May 19 to 21, 2022, and on December 6 and 8, 2022, and consisted of pedestrian and subsurface survey. The pedestrian survey included a visual inspection of the ground surface while walking systematic transects across the entire Project Area. The subsurface survey consisted of the excavation of 48 shovel probes placed strategically in areas of higher probability for containing buried cultural resources and where a higher degree of ground disturbance is anticipated during Project demolition activities.

During the field survey, historic built environment resources were observed within the Project Area; however, recordation of these resources was not part of HDR's scope of work, as they are being addressed under a separate study (Peterson 2022). No archaeological resources were observed during the pedestrian and subsurface surveys. Subsurface survey results indicate that the Project Area was leveled and graded during development of the Masonic Retirement Center, throughout the early to mid-1900s. Though predictive modeling, as described in this report, suggests a high to very high risk of archaeological resources existing within the Project Area, the survey results indicate that there was significant prior land clearing and development of the property, which reduces the risk of encountering archaeological resources. As such, HDR finds that there is low to moderate risk for such resources within the Project Area. However, given that shovel probes cannot be excavated within the footprint of existing building and paved areas planned for demolition to confirm the current lack of archaeological sensitivity in the area, HDR recommends that an inadvertent discovery plan (IDP) be developed and implemented during Project construction. The IDP will outline the process to follow in the event of any inadvertent discoveries during construction.

Contents

Tables

Figures

Attachment

Acronyms

BP	Before Present
DAHP	Department of Archaeology and Historic Preservation
DMMC	City of Des Moines Municipal Code
DNS	determination of non-significance
EIS	environmental impact statement
GLO	General Land Ordinance
GPS	global positioning system
IDP	Inadvertent Discovery Plan
KCHPP	King County Historic Preservation Program
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
Project	Zenith Properties Project
RCW	Revised Code of Washington
RPA	Register of Professional Archaeologists
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer
SOI	Secretary of the Interior
SP	shovel probe
TCP	Traditional Cultural Property
WISAARD	Washington Information System for Architectural and Archaeological Records Data
Zenith Properties	Zenith Properties, LLC

1. Introduction

Zenith Properties, LLC (Zenith Properties), is proposing the demolition of structures, pavement, and overhead and underground utilities at the former Masonic Retirement Center of Washington (the Project).

HDR performed a cultural resources investigation to support Project review under the State Environmental Policy Act (SEPA) and in compliance with the Revised Code of Washington (RCW). This report is subject to review by the Department of Archaeology and Historic Preservation (DAHP) and affected Indian tribes as part of the SEPA review process.

1.1. Project Description

Zenith Properties, LLC (Zenith Properties), is seeking a demolition permit from the City of Des Moines (LUA2019-0032) for their 27-acre property located at 23660 Marine View Drive South in Des Moines, Washington. The property is west of Interstate 5 and 0.15 mile from the shoreline of the Puget Sound, at the intersection of South 240th Street and Marine View Drive South, and within the south half of Section 17 in Township 22 North, Range 4 East of the Willamette Meridian (Figure 1-1 through Figure 1-3).

The property is the site of the former Masonic Retirement Center of Washington, also known as the Landmark on the Sound, and includes the former retirement center residential building, driveways and parking lots, caretaker apartments, garages, gardens and lawns; utilities, outdoor kitchen, shelter, and restrooms; and a water tower on the north side of the parcel. The eastern portion of the property is lightly developed and includes native and non-native vegetation, walking trails, picnic structures, and a non-operational restroom. The property is currently zoned as an Institutional Campus, and the surrounding parcels are primarily for residential use.

Proposed Project activities include the demolition of the existing Masonic Retirement Home and associated structures, and removal of the paved driveways, walkways, parking areas, and power poles and associated in-ground power lines, and other utility lines including water, gas, and sewer (Figure 1-4). Zenith Properties intends to remove unsafe conditions and potential hazards due to existing structure conditions, prevent further trespass within the existing structures, and prevent further vandalism and graffiti to the existing structures. Project staging, including equipment parking, will occur on existing pavement. Demolition includes a total of approximately 161,162 square feet of building demolition area, including the main building, infirmary wing, a residential structure, water tower, caretaker apartments, outdoor kitchen, bathrooms, and shelter; underground and overhead utilities; and two maintenance buildings. The Project Area is defined as the areas planned for demolition and utility removal within the 27-acre parcel.

During the permitting process, the City of Des Moines issued a SEPA Determination of Significance regarding proposed demolition activities in the Project Area and issued the requirement for the preparation of an Environmental Impact Statement to assess the potential environmental impacts of the proposed action, analyze alternatives, and propose possible mitigation measures as part of the permitting process.

HDR was retained to complete a cultural resources investigation for the Project, which was completed in compliance with SEPA and RCW. The investigation included a background review and field survey to identify cultural resources that could potentially be impacted by the Project and to provide recommendations regarding their determination of significance and potential Project effects.

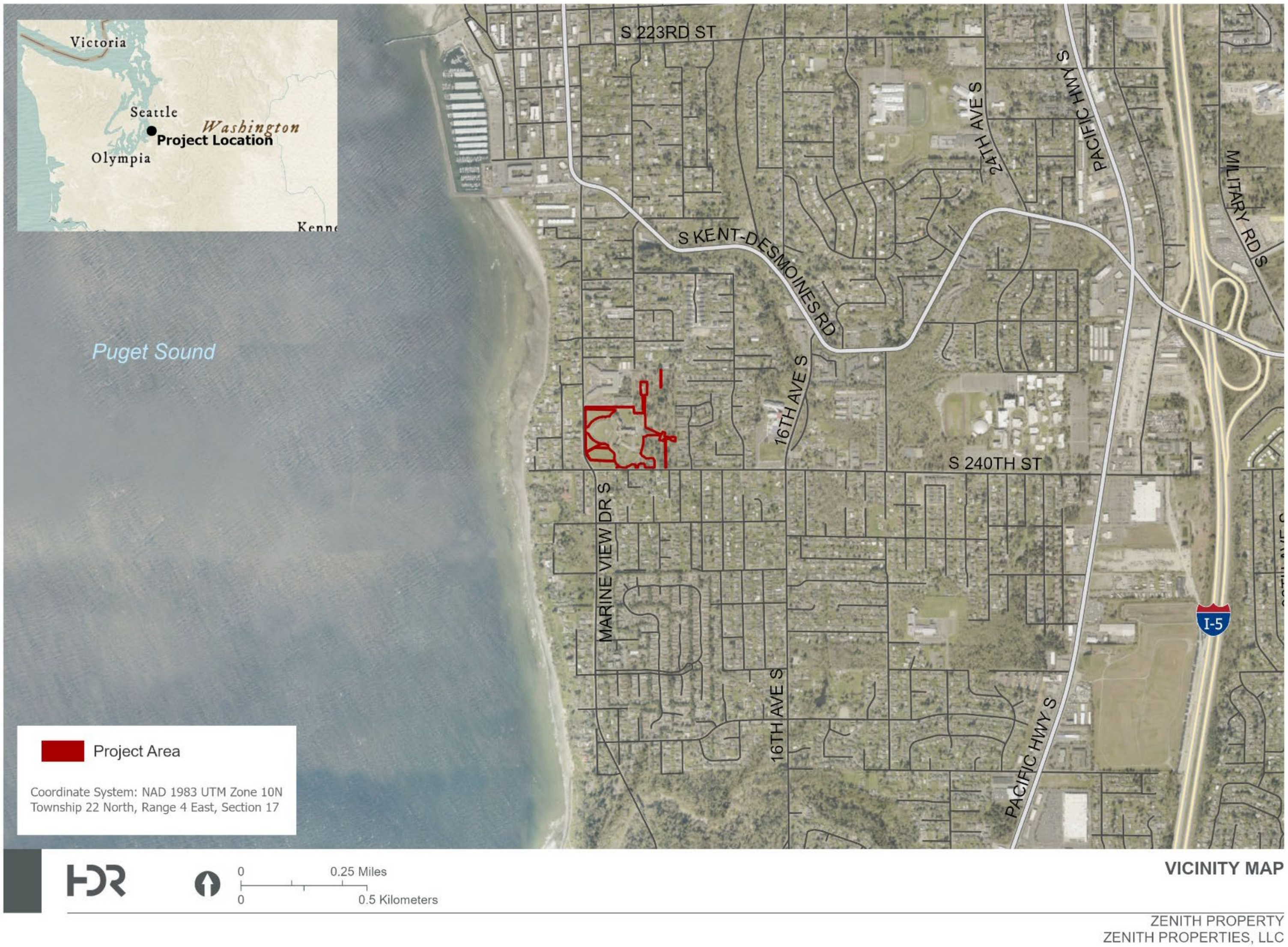

Figure 1-1. Project vicinity map.

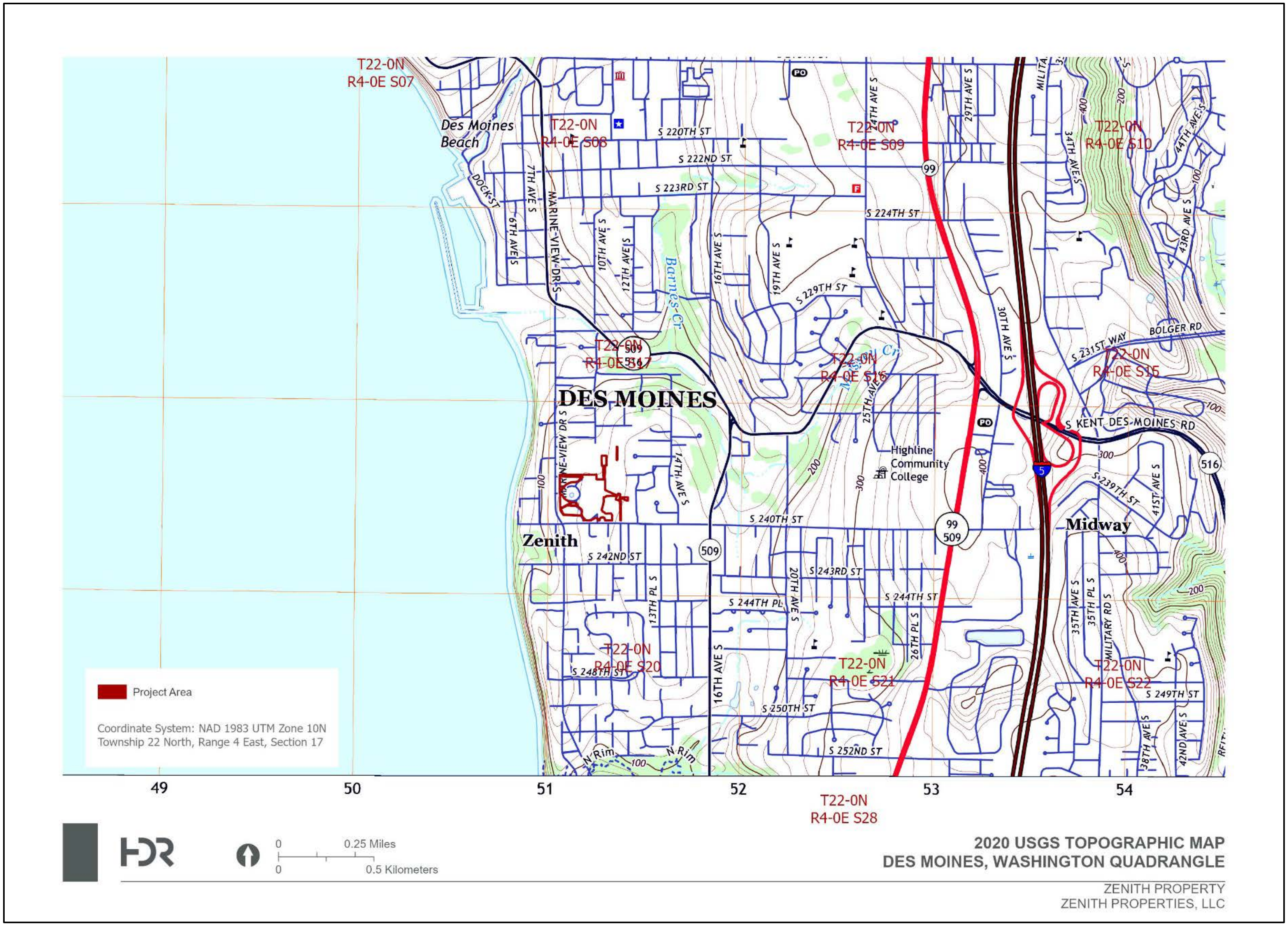

Figure 1-2. Project Area shown on a 2020 U.S. Geological Survey topographic map, Des Moines, WA, quadrangle.

Figure 1-3. Project Area shown on aerial photograph.

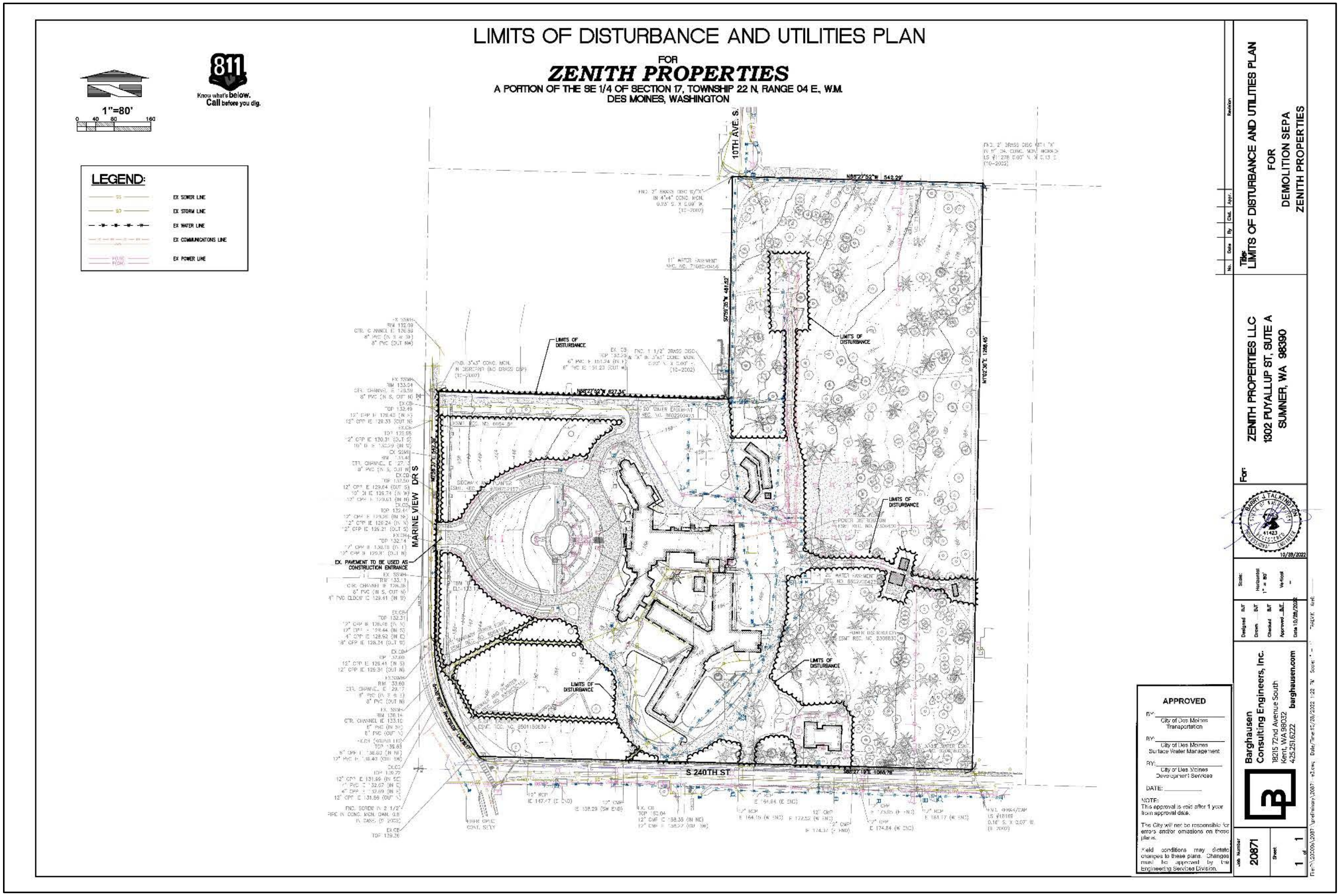

Figure 1-4. Project Demolition Plan.

1.2. Regulatory Context

1.2.1. City of Des Moines Municipal Code 18.215

Chapter 18.125 of the City of Des Moines Municipal Code (DMMC) concerning the "Protection of Historic and Archaeological Resources" addresses regulations and procedures regarding the identification and protection of cultural resources within the vicinity of Project-related work. Historic or archaeological properties of local significance are defined under DMMC Chapter 18.215.060, and designation of historic or archaeological properties of local significance is described under DMMC Chapter 18.215.070. The following criteria are considered under DMMC Chapter 18.215.050 for the designation of historic or archaeological properties of local significance:

a) It is associated with events that have made a significant contribution to the broad patterns of national, state, or local history;

(b) It is associated with the life of a person that is important in the history of the community, City, state, or nation or who is recognized by local citizens for substantial contribution to the neighborhood or community;

(c) It embodies the distinctive characteristics of a type, period, style, or method of construction;

(d) It is an outstanding or significant work of an architect, builder, designer, or developer who has made a substantial contribution to the art;

(e) It has yielded, or may be likely to yield, information important in prehistory or history;

(f) Because of its location, age or scale, it is an easily identifiable visual feature of a neighborhood, community, or the City and contributes to the distinctive quality or identity of such neighborhood, community or the City, or because of its association with significant historical events or historic themes, association with important or prominent persons in the community or the City, or recognition by local citizens for substantial contribution to the neighborhood or the City.

1.2.2. State Regulations

The Project is required to comply with the RCW as part of the SEPA review process. The SEPA review process seeks to provide information that will inform agency decision-makers, applicants, and the public to understand how a proposal will affect the environment. Under SEPA, resources on the subject or adjacent property are evaluated for eligibility for listing in local and/or state registers and the National Register of Historic Places. The lead agency will review the applicant-prepared SEPA checklist and other information about the proposal and will make either a determination of non-significance (DNS) or that an environmental impact statement (EIS) is necessary to further evaluate the impacts. The DNS or EIS, depending on which is prepared by the lead agency, will provide information to all agencies that must approve the proposal.

Precontact and historic archaeological sites are protected by several Washington state regulations on both public and private lands. RCW 27.44 (Indian Graves and Records) and RCW 27.53 (Archaeological Sites and Resources) require that a person obtain a permit from the DAHP before excavating, removing, or altering Native American human remains or archaeological resources in Washington.

Chapter 25-48 of the Washington Administrative Code outlines the requirements of the Archaeological Excavation and Removal Permit. Failure to obtain a permit is punishable by civil fines and penalties under RCW 27.53.095 and criminal prosecution under RCW 27.53.090. If a person(s) violates this statute and knowingly disturbs or alters an archaeological site, the DAHP is allowed to issue civil penalties of up to $5,000 in addition to site restoration costs and investigative costs per RCW 27.53.095.

Restorative and monetary remedies do not prevent concerned Indian tribes from undertaking civil action in state or federal court, or law enforcement agencies from undertaking criminal investigation or prosecution. If human remains and/or burials are disturbed, RCW 27.44.050 allows an affected Indian tribe to undertake civil action. Additionally, the excavation of human remains without a permit is a felony.

2. Environmental Setting

The Project is located within the Puget Sound, which was shaped by widespread continental glaciation that extended south from British Columbia to the northern Puget Lowland and along the western flanks of the Cascade Mountains. This low-lying area extends to the Cowlitz and Chehalis rivers and is known as the Puget Sound Trough (Franklin and Dyrness 1988). The natural topography of the southern Puget Sound region was formed by widespread glaciation during the Pleistocene that scoured the landscape and deposited outwash sediments during several episodes of glacial advances and retreats (Lewarch et al. 1996).

Geologic processes since the end of the last glacial period have included incision of stream channels into the glacial deposits that underlie the upland surfaces, with fluvial processes transporting and redepositing eroded materials. Vast amounts of meltwater, fed by retreating continental glaciers, created north-south-trending ridges and till plains. The northern retreat of glaciers also saw the development of streams and proglacial lakes, and the sea entered the Puget Lowland during the late Vashon Stade period and deposited glacial-marine sediments (approximately 15,000–13,000 years Before Present [BP]) (Thorson 1980). Following the retreat of the Cordilleran ice sheet (approximately 16,000 years BP), streams were carved into glacial sediments, lowering valley floors and creating terraces and salmonid habitat (Beechie et al. 2001).

The Project is on the landform known as the Des Moines Drift Upland, a late-stage glaciation landform (Iversen et al. 2000a). Mapped soils within the Project Area consist of Alderwood gravelly sandy loam varieties (NRCS 2022). This soil type is associated with slopes ranging from 0 to 65 percent and is consistent with environments located within a glacial till plain (NRCS 2022).

The postglacial conditions of the Project Area were cooler and drier than modern climates and supported a vegetation profile of grassland with scattered lodgepole pine (*Pinus contorta*), sedges (Cyperaceae), sage (*Artemesia sp*.), and various herbs (Barnosky et al. 1987; Brubaker 1991; Whitlock 1992). By 12,000 years ago, Douglas-fir (*Pseudotsuga menziesii*) and Western hemlock (*Tsuga heterophylla*) appeared, potentially due to regional climate warming, which would have also caused an increase in summer droughts (Iversen et al. 2000a). Prey species during this time would have included elk (*Cervus elaphus*) and deer (*Odocoileus* sp.), Puget Sound marine species, and freshwater fauna and flora in waterways such as the Duwamish Embayment and nearby kettle lakes, bogs, and marshes. Des Moines Creek, located approximately 1 mile north of the Project Area, was likely a seasonal drainage (Iversen et al. 2000a).

The regional climate became moister starting 6,000 years ago with increasing summer precipitation (Brubaker 1991; Whitlock 1992). Vegetation such as Western hemlock and western red cedar (*Thuja plicata*) became more abundant, while Douglas-fir, red alder (*Alnus rubra*), and grasses decreased (Iversen et al. 2000a). Forests became denser; however, the diversity and density of understory shrubs and herbs decreased, accompanied by a subsequent decrease in the abundance of elk and deer and other smaller species (Iversen et al. 2000a).

The historic period vegetative profile for the Project Area includes cedar, fir, vine maple (*Acer circinatum*), alder, willow (*Salix* sp.), crab apple (*Pyrus fusca*), and salal (*Gaultheria shallon*). The Project Area was developed in 1926 as a residential and retirement property with several buildings, paved roads, and utilities, construction of which leveled and graded much of the property, changing the vegetation. Park areas were also cultivated on the property, adding a variety of ornamental species.

3. Cultural Setting

3.1. Precontact Context

The temporal timeframes used in the following discussion include regional-specific labels that represent shifts in subsistence strategies, socio-political organization, settlement and land use, and material culture within the environment of the Puget Sound, adapted within the broader phase categories used for many regions across the Pacific Northwest. The phases are divided into three sections and are discussed below as follows: the Paleo-Indian Period, the Archaic Period, and the Pacific Period.

3.1.1. Paleo-Indian Period (Before 12,500 Years BP)

Much of the late Pleistocene terrain was uninhabitable due to glaciers, and the lands that were occupied at this time were predominately coastal reaches. Sites from this period are rare, as Paleo-Indian populations were small and highly mobile, and much of the land during this time was covered by glaciers. The earliest occupations in Western Washington at this time are known as Paleo-Indians, who were highly mobile hunter-gatherers living in small groups. These occupations are characterized by the presence of large, fluted projectile points (Ames and Maschner 1999; Carlson 1990). Paleo-Indians were also thought to be maritime-oriented and therefore occupied coastal reaches that are now submerged due to isostatic rebound following glacial retreat (Carlson 2003; Dixon 1993; Fedje and Christensen 1999; Fladmark 1979). Ocean levels rose and submerged many of these coastal sites with the commencement of the warming Holocene. Coastal sites that were not submerged have been found above the present shoreline due to various geologic processes (Fedje and Christensen 1999).

3.1.2. Archaic Period (12,500–6,400 Years BP)

Sites from the Archaic period, which dates from 12,500 to 6,400 years BP, are also sparse within the archaeological record (Ames and Maschner 1999; Carlson 1990). Similar to the Paleo-Indians, populations during the Archaic period were small, highly mobile, and generally concentrated along the coast and major waterways. Sea level changes, erosion, and dense vegetation has obscured much of the evidence for coastal occupation during this time; however, as the climate continued to warm, glaciers retreated over larger areas and provided the opportunity for inland expansion (Ames and Maschner 1999). Archaic sites are identifiable by the presence of large, stemmed lanceolate projectile points and bifaces with the addition of microblades in Pacific Northwest Archaic tool assemblages (Ames and Maschner 1999).

3.1.3. Pacific Period (ca. 6,400–250 Years BP)

The Early Pacific period (6,400 to 3,800 years BP) saw an increase in the use of marine resources as well as the appearance of human burials in middens and cemeteries, more diversity in subsistence activities, and the increased use of bone, antler, and ground stone tools. Microblade technology disappeared; however, ground stone tools (e.g., celts and adze blades) appeared in the toolkit, along with diversification of chipped-stone tool forms and an increase in ornamental pieces, which appear in human burial sites and cemeteries. This shift likely represented an expansion of contact and trade with neighboring groups (Kirk and Daugherty 2007).

The Middle Pacific period (3,800 to 1,800/1,500 years BP) is marked by the appearance of long-term settlements and plank houses, intensification of salmon harvest, and a variegation in tool form and style including fishing technologies (e.g., wooden fishing weirs and girdled/drilled net sinkers) (Ames and Maschner 1999).

The Late Pacific period (1,800/1,500 to 250 years BP) saw an increase in the use of larger woodworking tools, a decline in the use of chipped-stone tools, and an increase in funerary ritual and burial activities.

Stabilizing sea levels during this period mean that Middle and Late Pacific periods are the most visible in the coastal archaeological record (Ames and Maschner 1999). The end of the Pacific period is marked by the introduction of smallpox to the region (Ames and Maschner 1999).

3.2. Ethnographic Context

The Project Area is located within the traditional territory of the Coast Salish peoples, specifically the Duwamish and the Muckleshoot Tribes, who speak Southern Lushootseed as their primary language (Haeberlin and Gunther 1930; Spier 1936).

At the time of the first Euro-American contact in the mid-nineteenth century, the Duwamish lived in 17 or more winter villages on the shoreline of Elliott Bay and nearby waterways. Their territory extended to Lake Washington, Lake Union, and Salmon Bay, and to the Duwamish, Black, and Cedar rivers (Duwamish Tribe 2022; Iversen et al. 2000a; Larson and Lewarch 1995; Waterman 2001). Smaller groups would form during summer for increased mobility to hunt and gather seasonal foods. Temporary fishing and plant-gathering camps were set up as needed while traveling during seasonal procurement (Suttles and Lane 1990). The Duwamish fished for salmon, cod, and halibut, and hunted game such as deer, elk, bear, and waterfowl. They collected clams and other shellfish, as well as berries, roots, camas, wapato, and other plants for food and medicinal purposes (Duwamish Tribe 2022; Suttles and Lane 1990).

The Muckleshoot lived near the Duwamish (formerly known as Green River and White River people), and they likely camped together at Elliott Bay fishing areas. At the time of Euro-American contact, the Muckleshoot occupied the Green River and upper White River areas, traveling to other areas for resource gathering. While their primary subsistence source was salmon, they also hunted game including deer, elk, and waterfowl, and collected shellfish and other marine resources from Elliott Bay, Des Moines, Redondo, and Woodmont Beach (Bernholz and Weiner 2008; Hoyt et al. 2009; Iversen et al. 2000a; Larson and Lewarch 1995; Upchurch 1941).

Both the Duwamish and the Muckleshoot would travel overland or by waterway using canoes, and both tribes have been reported to have traveled together and to have gathered resources together (Swindell 1941). The Duwamish and the Muckleshoot Tribes had close interconnections that were shaped and fortified by marriages, cultural practices, shared land, and shared resources. Complex arts and utilitarian objects developed among these groups alongside increased specialization and included carved wood utensils and household items, preserved foodstuffs, basketry, blankets, and tools. Puget Salish groups engaged in complex political, social, and economic organizations and practices including potlatches and spirit quests (Elmendorf 1971). Groups also organized by social stratification, whereby villages consisted of elite, commoner, and slave classes (Ames 2001; Grier 2003).

Northwest Indian populations were affected by westward expansion of Euro-Americans well before initial contact in the form of disease transmission as well as the exchange of trade. Evidence of smallpox among Native communities was observed by Lewis and Clark during their journey to the Pacific Ocean from 1805 to 1806, and it is estimated that the spread of disease was occurring approximately 30 years prior to their observations (Goetz et al. 2009).

Though rapid Euro-American settling of the Puget Sound area brought significant upheaval to traditional Native subsistence practices, as well as social and political foundations, initial relations between Euro-Americans and Native American groups were relatively peaceful. The Stevens Treaties, a series of treaties established between 1854 and 1856 by Washington Governor Isaac Stevens, significantly disrupted this accord as tribes were reorganized and tribal rights were outlined and enforced by Euro-American settlers. Tribes were consolidated both in names and locations, forcing multiple tribes into a limited number of reservations and ceding traditional tribal lands in exchange for retaining hunting and fishing rights at certain locations (Courtois et al. 1999; Richards 2005).

These conflicts eventually led to the signing of the Treaty of Point Elliot in 1855 and other treaties in the following decade (Treaty of Point Elliot 1885). These treaties effectively relinquished local Native populations of their traditional territories in return for fishing, hunting, and gathering rights as well as monetary payments and other assistance (e.g., access to education and healthcare). The Muckleshoot Reservation was established in 1857 by Governor Stevens to subdue arising conflicts. The Duwamish people, who were included in the Treaty of Point Elliott, were assigned to the Port Madison and Muckleshoot reservations, though many chose to live outside of the reservations (Celmer 1995). The Duwamish Tribe is currently pursuing federal recognition as a tribal entity (Duwamish Tribe 2022).

3.3. Historical Context

Euro-American settlement of the Des Moines area began when settlers arrived in the early 1880s, following the draw of timber resources (Figure 3-1 and Figure 3-2) (Eyler and Yeager 1979). The land that would become downtown Des Moines was sold to F.A. Blasher in 1889, a recent immigrant from Des Moines, Iowa. His land was later sold to John W. Kleeb and Orin Watts Barlow, who named the town Des Moines, platted the townsite, and organized the Des Moines Improvement Company (Kennedy and Schmidt 1989; Stein 1999). Logging was the principal industry in Des Moines, centered on the abundant Douglas-fir and cedar tree resources found in the region, and by the late 1880s, numerous sawmills were built near the future Des Moines Marina (Kennedy and Schmidt 1989). Development in Des Moines was generally slow to expand until a military road connecting Seattle and Tacoma passed through the area in the 1890s (Stein 1999). Ease of and access to these larger cities drove the growth of Des Moines in the decades to come. Timber-dependent business generated expansion in Des Moines, including lumber processing, shingle mills, and port construction. Private ferries from Des Moines shuttled to Seattle and Tacoma. Soon the town included a chair factory, tin factory, and boat yard, as well as schools and churches (Stein 1999).

While the Seattle-Tacoma Interurban private trolley line ran 5 miles east of town during the early twentieth century, the widespread introduction of the automobile and the completion of Pacific Highway South (State Route 99) in the 1930s kick-started Des Moines' exponential growth. Small but productive chicken and berry farms in the area could then reach much larger markets with much greater efficiency. Des Moines was incorporated in 1959 to avoid being annexed by the City of Kent and to retain more control over local issues among Des Moines residents (Stein 1999).

Platted a mile south of Des Moines, Zenith was made up of scattered homesteads and small farms at the turn of the twentieth century. The Zenith U.S. Post Office was built in 1906 across the street from the Project Area, at the corner of South 240th Street and Marine View Drive South and operated until 1932. Zenith also sported its own dock and florist in the early 1900s, and by 1910 that florist included greenhouses at the northeast corner of South 240th Street and Marine View Drive South, where the Masonic Center of Washington would later be constructed (Peterson 2022).

In 1924, the Grand Lodge of the Freemasons of Washington, a fraternal organization founded in 1858, appointed a committee to select a location for an expanded Masonic retirement facility between Tacoma and Seattle and purchased the property in Zenith where the current Project Area is located. The Masonic Home of Washington was commissioned to be constructed by architects Frederick Heath and George Gove and was completed in 1926, along with three water-well pumphouses and a water tower. Building additions were constructed in the 1960s and 1980s to accommodate nursing home care, physical therapy amenities, and staff residences. The Masonic Center and the town of Zenith were incorporated into the City of Des Moines in 1982. Use of the property as a retirement home was discontinued in 2007, and the building subsequently functioned as an event center known as Landmark on the Sound until it was sold in 2013 to Zenith Properties, LLC (Peterson 2022).

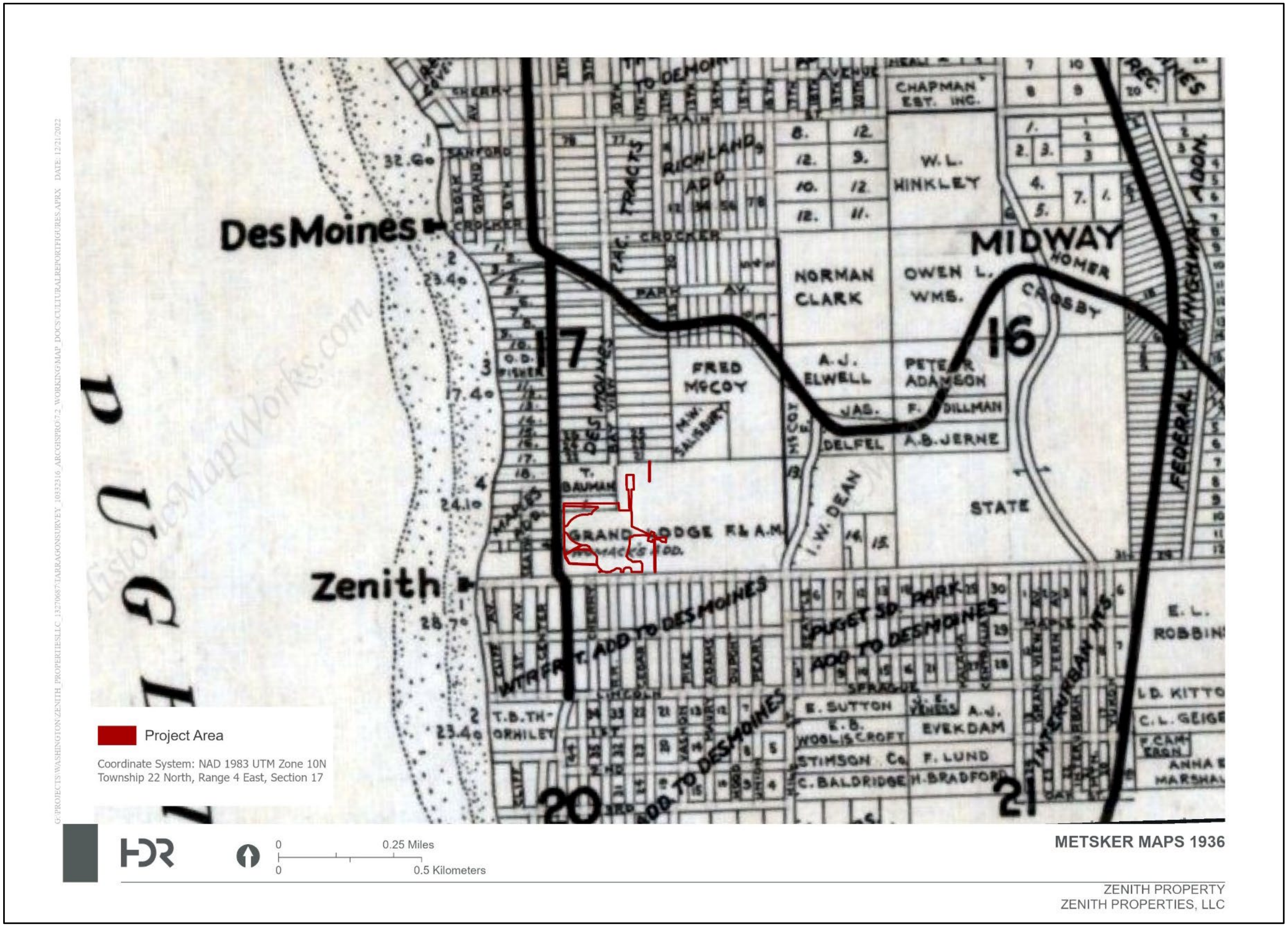

Figure 3-1. Project Area shown on historic 1936 Metsker Maps, King County Atlas.

Figure 3-2. Project Area shown on historic Bureau of Land Management General Land Office 1863 survey plat map, King County, WA.

4. Background Review

Prior to fieldwork, a background literature review was conducted to identify previously recorded archaeological, ethnographic, and historic resources located within 1 mile (1.6 kilometers) of the Project Area. HDR reviewed archival records from the Washington Information System for Architectural and Archaeological Records Data (WISAARD) in June 2022 and November 2022. Historic General Land Office (GLO) plats and other historic maps of the Project Area and surrounding area available on the internet were also reviewed. According to the DAHP predictive model, the Project Area has very high to high risk for containing archaeological resources. The WISAARD predictive model utilizes statistical methods and statewide environmental and cultural resource data by corelating locations of known archaeological sites with environmental data to determine the probability that an area may contain archaeological resources (GeoEngineers 2009). The results of the background and literature review are discussed below in five sections: (1) previously conducted cultural resources investigations; (2) previously recorded cultural resources; (3) previously recorded historic resources; (4) previously recorded cemeteries, and (5) previously recorded traditional cultural properties (TCPs).

4.1. Previously Conducted Cultural Resources Investigations

Seventeen cultural resources investigations have been conducted within a 1-mile radius of the Project Area on behalf of the City of Kent, the City of Des Moines, and a variety of other agencies and developers (see Table 4-1). In 2013, Adapt Engineering, Inc., conducted the only cultural resources investigation within the Project Area, which included a records review and limited reconnaissance survey to support proposed panel antenna replacement on the water tower located in the Project Area. During their survey, two historic built environment resources were recorded, including the Masonic Retirement Center of Washington and the Masonic water tower, both of which are within the current Project Area. No archaeological materials were recorded within the current Project Area during the 2013 investigation.

Table 4-1. Previous studies within 1 mile of the Project Area

Year	Author(s)	Report Title	NADB #	Report Type	Proximity to Project Area & Direction
2000	Iversen & Larson	Preliminary Report, Cliff Condominiums Archaeological Resources and Traditional Cultural Places Assessment, Des Moines, King County, Washington	1339864	Survey	0.90 mile N
2000	Iversen et al.	Cliff Condominiums Des Moines Archaeological Resources and Traditional Places Assessment, King County, Washington	1339865	Survey	0.90 mile N
2001	Chatters	The Archaeological Potential of the “Midden” at the Cliff Condominiums Construction Site, Des Moines, Washington	1340100	Survey	0.90 mile N

Year	Author(s)	Report Title	NADB #	Report Type	Proximity to Project Area & Direction
2001	Robbins	Cultural Resources Monitoring of the Cliff Condominiums Land Parcel, Des Moines, King County, Washington	1340104	Monitoring	0.90 mile N
2008	Scott	Historic Resources Survey & Inventory, Kent, Washington	1352086	Historic Structures Survey	0.85 mile SE
2009	Boggs et al.	City of Des Moines North Marina Combined Improvements Project, King County, Washington	1352540	Survey	0.88 mile N
2009	Smith	Cultural Resources Survey and Test Excavation Results for the Saltwater State Park Bio-Retention Systems Project, King County, Washington	1353431	Survey	0.98 mile S
2010	Wilson	Archaeological Monitoring for the Saltwater State Park Bio-Retention System, King County, Washington	1353871	Monitoring	0.97 mile S
2009	Hoyt et al.	Cultural Resources Assessment for the Des Moines Creek Flood Mitigation Project, King County, Washington	1354031	Survey	1.0 mile N
2010	Stipe	Barnes Creek Cultural Resource Investigation	1680783	Survey	0.77 mile N
2013	Buehner	Masonic Water Tank	1683589	Historic Structures Survey	Within Project Area
2014	Chambers & Amell	Cultural Resources Assessment for the Saltwater State Park Bridge Rehabilitation Project Des Moines, King County, Washington	1685583	Survey	0.81 mile N
2014	Marcotte & Lockwood	Lower Massey Creek Improvements Project, Des Moines, King County, Washington – Cultural Resources Assessment	1686375	Survey	0.93 mile N
2015	Mather & Arthur	Archaeological Survey and Assessment of the Proposed Lakeridge Highline View Estates Subdivision, Des Moines, King County, Washington	1686409	Survey	0.85 mile E
2016	Artifacts Consulting, Inc.	Highline College, Cultural Resources Survey	1688522	Survey	0.52 mile E
2018	Hannum	Cultural Resources Assessment for the Zenith Park Site, King County, Washington	1690724	Survey	0.24 mile E
2019	Dellert et al.	Final Site Delineation and Spoils Screening of Site 45KI449 at the Van Gasken Property Project, City of Des Moines, King County, Washington	1692798	Archaeological Test Excavations/ NRHP Evaluation	1.0 mile N

Note: NADB = National Archaeological Database; NRHP = National Register of Historic Places

4.2. Previously Recorded Cultural Resources

There are four previously recorded archaeological resources located within a 1-mile radius of the Project Area; however, none are within the Project Area (Table 4-2). These include one precontact shell midden previously determined eligible for listing in the

NRHP (site 45KI00449), one unevaluated precontact shell midden (site 45KI00436), and two unevaluated precontact lithic isolates (45KI01550 and 45KI1626).

The one eligible site near the Project Area, site 45KI00449, is located north of the Project Area on the shore of the Des Moines Marina District, at the mouth of the Des Moines Creek. The site consists of partially disturbed and partially intact precontact shell midden and suggests numerous subsistence, tool manufacturing, and resource processing activities occurred at the site representing long-term use. The site was tested after the City of Des Moines unintentionally trenched through an area of shell midden deposit during a landscape renovation project (Iversen et al. 2000b).

Table 4-2. Previously recorded archaeological resources within 1 mile of the Project Area

Resource No.	Resource Type	NRHP Eligibility (SHPO)	SHPO Determination Date	Proximity to Project Area
45KI00436	Pre-contact shell midden; lithic isolate	Unevaluated	NA	0.96 mile N
45KI00449	Pre-contact shell midden	Eligible	07/25/2019	1 mile N
45KI01550	Lithic isolate	Unevaluated	NA	0.25 mile E
45KI01626	Lithic isolate	Unevaluated	NA	0.90 mile NE

Note: NA = not applicable; SHPO = State Historic Preservation Officer

4.3. Previously Recorded Historic Resources

There are two previously recorded historic built environment resources within the Project Area that have been determined eligible for listing in the NRHP (Table 4-3). These resources include the Masonic Retirement Center of Washington (Property ID 671482) and the Masonic Water Tank (Property ID 671480). The Masonic Retirement Center of Washington and the Masonic Water Tank are described in more detail in the historic resource report titled *Masonic Home of Washington* (Peterson 2022).

There is a total of 2,002 historic built environment resources located within a 1.0-mile radius of the Project Area. Thirty of these resources have been determined eligible for listing in the NRHP and the Washington Heritage Register and are summarized in Table 4-3. The remaining resources within 1 mile of the Project Area are either unevaluated or have been determined not eligible for listing in the NRHP.

Table 4-3. Previously recorded historic built environment resources within the Project Area

Property ID	Site Name	NRHP Eligibility (SHPO)	SHPO Determination Date
671482	Masonic Retirement Center of Washington	Eligible	5/28/2014
671480	Masonic Water Tank	Eligible	5/28/2014

Table 4-4. Previously recorded historic built environment resources determined eligible for NRHP listing within 1-mile of the Project Area

Property ID	Site Name	NRHP Eligibility (SHPO)	SHPO Determination Date
40773	Highline Community College - Building 7	Eligible	11/19/2013
86500	Saltwater State Park Log House	Eligible	7/20/2011
86837	South Twin Bridge	Eligible	4/16/2001
86838	Saltwater State Park Bridge	Eligible	7/30/2014
100934	North Twin Bridge	Eligible	10/25/2011
668283	Highline Community College – Building 4	Eligible	11/25/2013
670397	Highline Community College - Building 6	Eligible	11/18/2013
673141	Highline Community College - Building 5	Eligible	11/19/2013
673155	Highline Community College - Building 11	Eligible	11/19/2013
670403	Highline Community College - Building 19	Eligible	11/18/2013
673157	Highline Community College - Building 28	Eligible	11/18/2013
673713	Highline Community College - Building 12	Eligible	11/19/2013
673721	Highline Community College - Building 15	Eligible	11/18/2013
674170	Highline Community College - Building 13	Eligible	11/19/2013
674171	Highline Community College - Building 14	Eligible	11/19/2013
674172	Highline Community College - Building 18	Eligible	11/19/2013
674174	Highline Community College - Building 16	Eligible	11/19/2013
705609	Highline Community College - Building 1	Eligible	11/19/2013
705610	Highline Community College - Building 2	Eligible	11/18/2013
705611	Highline Community College - Building 3	Eligible	11/18/2013
705612	Highline Community College - Building 9	Eligible	11/18/2013
705613	Highline Community College - Building 10	Eligible	11/19/2013

Property ID	Site Name	NRHP Eligibility (SHPO)	SHPO Determination Date
705615	Highline Community College - Building 17	Eligible	11/19/2013
705616	Highline Community College - Building 21	Eligible	11/19/2013
705622	Highline Community College - Building 27	Eligible	11/18/2013
705702	Highline Community College - Building 28A	Eligible	11/19/2013
705617	Highline Community College - Building 22	Eligible	11/19/2013
705623	Highline Community College - Building 12A	Eligible	11/18/2013

4.4. Previously Recorded Cemeteries

There are no previously recorded cemeteries within 1 mile of the Project Area that were identified during the records review of the WISAARD database.

4.5. Previously Recorded Traditional Cultural Properties

There was no information regarding existing or potential TCPs located within 1 mile of the Project Area identified during the review of the WISAARD database.

HDR is not aware of any known ethnographic place names within or immediately adjacent to the Project Area. However, there are several ethnographic place names recorded in the general vicinity of the Project Area (Waterman 2001), as listed below:

- qw3aʔəb – "kelp" for Bow Lake
- x̌ ix̌ ədalusəd – "mat smoother, creaser" for a small creek on a point north of Des Moines
- cikweb – "jerking place" for a cold and swift-flowing stream located north of Des Moines
- baxqwab – "prairie" for an open space in the timber, which is the present location of Des Moines
- čagwqs – "the first one in" for a small creek just south of Des Moines
- Ctcagkqs – "where a trail comes down to a beach" for the place on the western side of the river where the trail from Des Moines came over the ridge and down to the river

There is also an ethnographic story about a boulder on the beach near Des Moines known as White Rock (Waterman 2001). An Indian canoe was also reportedly found near the Covenant Beach Bible Camp in 1932, located approximately 1.2-miles north of the Project Area (Sullivan 2005).

5. Field Methods

HDR performed pedestrian and subsurface survey within the Project Area, which followed the Washington State Standards for Cultural Resources Reporting (DAHP 2022). Survey methodology is described below, along with Indian tribal and agency notification efforts.

5.1. Indian Tribal and Agency Notification

HDR cultural resources specialist Jennifer Ferris provided email notification of the May fieldwork on May 17, 2022 to the following Indian tribes and agencies: Duwamish Tribe, King County Historic Preservation Program (KCHPP), Muckleshoot Indian Tribe, Puyallup Tribe of Indians, Snoqualmie Indian Tribe, Stillaguamish Tribe of Indians, Suquamish Tribe, and Tulalip Tribes of Washington. Responses were received from the Duwamish Tribe, Suquamish Tribe, and KCHPP acknowledging the survey and requesting the survey results. The Snoqualmie Indian Tribe responded that they would observe the fieldwork on May 19, 2022.

Ms. Ferris provided additional email notification of the December fieldwork on December 5, 2022 to the Indian tribes and agencies who received the May notification. Responses were received from the Snoqualmie Indian Tribe and KCPP acknowledging the survey and forthcoming report.

5.2. Pedestrian Survey

The pedestrian survey consisted of a visual inspection of the Project Area. Transects were walked east and west across the Project Area and were spaced approximately 15 to 20 meters (50 to 66 feet) apart. The ground surface was visually inspected during the pedestrian survey for artifacts, features, and other evidence of cultural resources. Overview photographs were taken of the Project Area that included general conditions (e.g., slope and ground surface visibility) and other features within or near the Project Area boundary. A handheld global positioning system (GPS) Trimble Geo-7X unit that achieved submeter accuracy in the field was used during the pedestrian survey to record transects and, if observed, cultural resources.

If cultural resources were observed during the pedestrian survey, they were photographed and recorded following professional standards and left in place.

5.3. Subsurface Survey

Subsurface survey of the Project Area consisted of the excavation of 48 shovel probes (SPs) placed in areas of higher probability for cultural resources deposits and/or areas in which there will be a higher degree of ground disturbance from proposed Project activities. SPs were excavated by handheld shovels, measured approximately 40 to 50 centimeters (16 to 20 inches) in diameter, and were excavated to a maximum depth of 1 meter (3 feet) or until culturally sterile sediments (e.g., glacial sediments), impenetrable sediments, and/or cobbles were encountered. Excavated sediments were screened through a 1/4-inch mesh onto a drop cloth while being examined for cultural resources deposits. If located, archaeological resources were recorded, photographed, measured, and backfilled into the SP. No archaeological resources were observed during the survey.

Sediments were documented according to professional standards including sediment type, color, compaction, gravel content, and depth of deposit. Soil profiles and overviews of each SP were photographed before backfilling, and the location of each SP was recorded with the handheld GPS device that achieved submeter accuracy in the field.

6. Survey Results

HDR cultural resources specialists Anna Robison-Mathes and Jennifer Ferris performed the field survey on May 19, 20, and 21, 2022, and on December 6 and 8, 2022. Ms. Ferris is a Registered Professional Archaeologist (RPA) and meets the Secretary of the Interior's (SOI) Professional Qualifications Standards (36 Code of Federal Regulations Part 61) for archeology. Snoqualmie Indian Tribe Archaeological Technician Stephen Wymer was present during the survey on May 19. The results of the field survey are summarized below.

6.1. Pedestrian Survey Results

Pedestrian survey conducted on May 19, 2022, revealed no precontact or historic-era archaeological resources within the Project Area. The parcel was surveyed in approximately 20-meter transects in north-to-south and east-to-west directions. Overview photographs were taken, including photos of buildings and features within the Project Area that are proposed for demolition.

The Project Area is generally flat, with an approximately 10 percent gradual west-facing slope on the western lawn, situated on the side of the parcel where the front driveway and the main entrance to the main building are located, adjacent to Marine View Drive South and South 240th Street. The Project Area landform was logged and graded prior to construction in the 1920s. Areas proposed for demolition were observed and include paved walkways and driveways, paved parking lots, buildings associated with the Masonic Home, overhead and underground utilities, and associated appurtenances (Figure 6-1 through Figure 6-6).

Figure 6-1. Overview of proposed demolition area on the east side of the property in front of the main building (view north).

Figure 6-2. Overview of proposed demolition area on the north side of the building (view west).

Figure 6-3. Overview of proposed demolition area on the east side of the main building (view north).

Figure 6-4. Overview of proposed demolition area on the driveway/road SE of the main building (view northeast).

Figure 6-5. Overview of the overhead utilities proposed for removal on east side of parcel (view north).

Figure 6-6. Overview of corridor with underground and overhead utilities proposed for removal (view south).

6.2. Subsurface Survey Results

Twenty-three SPs were excavated on May 19, 20, and 21, 2022, and 25 SPs were excavated on December 6 and 8, 2022, for a total of 48 SPs spread across the Project Area (Figure 6-7). SPs were strategically placed in areas where a higher degree of ground disturbance will likely occur from proposed Project-related activities, including the demolition of the main Masonic building and associated buildings, parking lot and driveway demolition, and removal of underground and overhead utilities and water tank. Areas where only underground utilities will be removed were not shovel probed due to the expectation that their removal will occur within their immediate footprint, and shovel probing within this footprint would be unsafe. It is anticipated that demolition activities will not disturb sediments beyond the existing backfilled utility trenches.

The SPs were excavated to depths between 28 and 80 centimeters (11 and 31 inches) and terminated when impenetrable sediment, cobbles, water, or glacial sediments were encountered. Photographs of representative SPs are provided in Figure 6-8 through Figure 6-21 below. A summary of shovel probe stratigraphy and results is included in Attachment A.

All SPs located around the main building and driveways displayed a similar sediment profile consisting of 20 to 60 centimeters of imported and/or native fill overlying glacial sediments. Property development beginning in circa 1910 leveled and graded much of the Project Area, which removed much of the Holocene sediments.

Eleven SPs were located along the above-ground utility corridor and adjacent to the outdoor kitchen, bathroom building, and picnic area on the eastern portion of the parcel and exhibited a soil profile that included native soils to a depth of 18 to 80 centimeters overlying glacial sediments. The potential for intact archaeological materials is greatest in this location; however, much of the area was also disturbed during logging and property development and no buried surfaces were identified. The northeast portion of the Project Area within the utility corridor was wet with saturated soils at the ground surface and was shovel probed.

Shovel testing was not performed in areas that were inaccessible due to the presence of buildings, pavement, or buried utilities. These areas represent a significant portion of the Project Area that will be impacted during construction activities.

No precontact or historic cultural materials were identified during the pedestrian and subsurface surveys. Modern debris (e.g., windowpane glass, pieces of plastic, ceramic roof tile fragments, wire nails, metal bolt), non-diagnostic debris (e.g., terracotta or vitrified clay pipe fragments, metal fragments, bottle glass), and utilities (metal water pipe, plastic PVC pipe) were observed in 14 SPs. These materials were all observed in the top 45 centimeters of imported fill and/or disturbed native soil, and thus do not represent intact cultural deposits. The only intact object observed during shovel probing was a single machine-made cylindrical colorless glass jar in disturbed native soils within SP 35, adjacent to the restroom building on the east side of the Project Area (Figure 6-22). The shape and type of the jar is consistent with topical creams or miscellaneous storage (SHA 2021). The embossed maker's mark on the base indicates that the jar was manufactured by the Northwestern Glass Company ("NW"), which was active in Seattle, Washington, between 1929 and 1987 (Lockhart et al. 2018). The base contains a plant code (“I8I”) and date code (“82”). The date code indicates that the jar was manufactured in 1982, and as such, it is considered modern and does not qualify as a historic archaeological isolate.

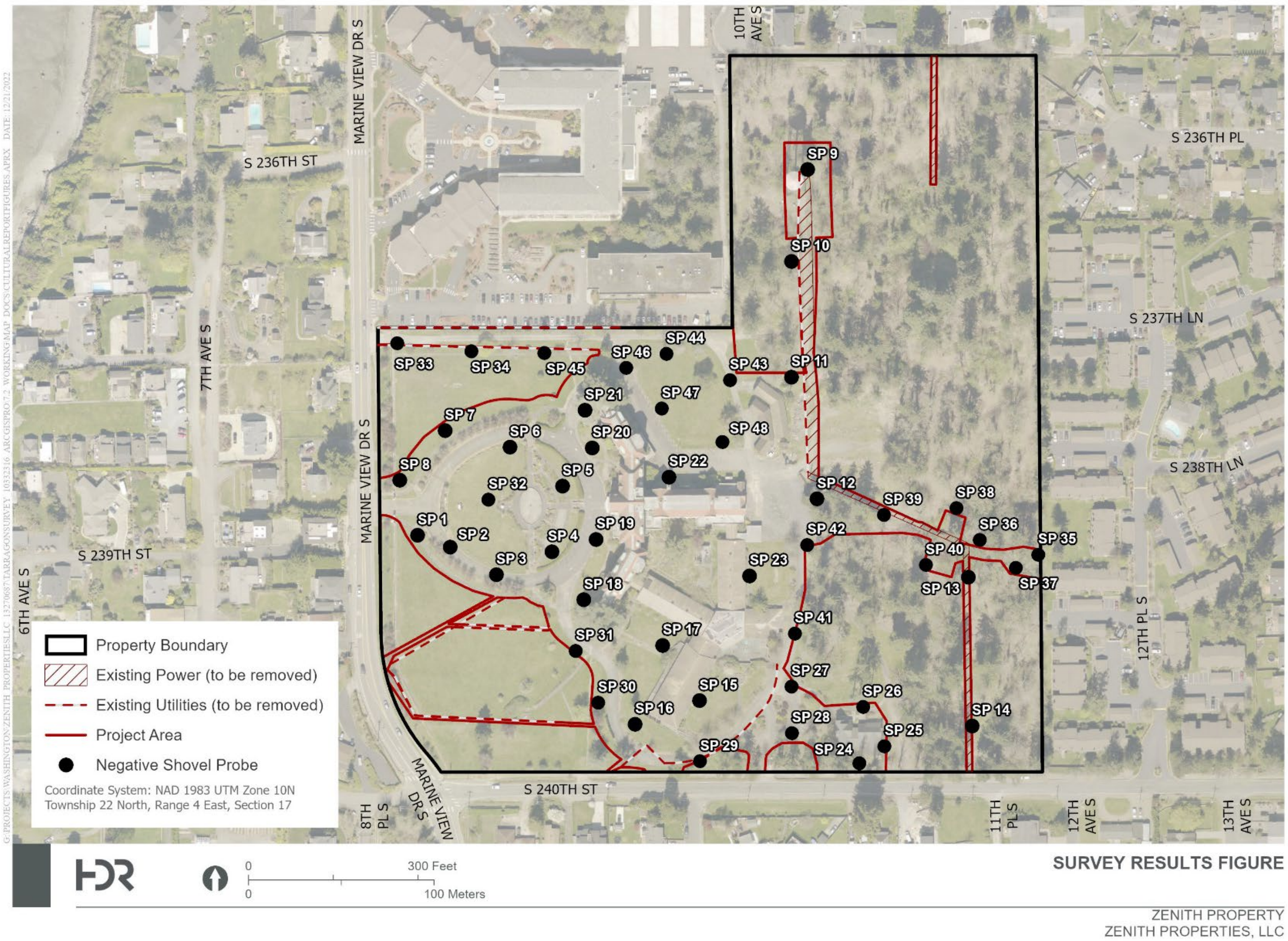

Figure 6-7. Map showing the SP locations.

Figure 6-8. Overview of SP-1 (view east).

Figure 6-9. SP-1 plan view.

Figure 6-10. Overview of SP-4 (view to north).

Figure 6-11. SP-4 plan view.

Figure 6-12. Overview SP-12 (view to north).

Figure 6-13. SP-12 plan view.

Figure 6-14. Overview SP-14 (view to west).

Figure 6-15. SP-14 plan view.

Figure 6-16. Overview SP-22 (view to east).

Figure 6-17. SP-22 plan view.

Figure 6-18. Overview SP-24 (view to east).

Figure 6-19. SP-24 plan view.

Figure 6-20. Overview SP-38 (view to south).

Figure 6-21. SP-38 plan view.

Figure 6-22. Base view of modern machine-made glass jar at SP-35.

7. Report Summary and Management Recommendations

HDR completed a cultural resources investigation to support the demolition permit application for the proposed Zenith Properties demolition activities located in the City of Des Moines, Washington. The cultural resources investigation was designed to identify and evaluate archaeological resources present with the Project Area, which is located within a 27-acre parcel. The investigation considered only archaeological resources; built environment resources in the Project Area have been analyzed in a separate report (Peterson 2022).

The investigation included a background archival review and pedestrian and subsurface survey. The pedestrian survey consisted of visual inspection of the ground surface while walking systematic transects east-west across the Project Area. No archaeological resources were observed during the pedestrian survey. The subsurface survey consisted of the excavation of 48 SPs placed strategically in areas of higher probability for containing buried cultural resources and where a higher degree of ground disturbance is anticipated during demolition activities. The depth of SPs ranged from 30 to 80 centimeters (11 to 31 inches), terminating in impenetrable cobbles and sediments or glacial sediments. The subsurface survey indicates that much of the Project Area was leveled and graded as early as circa 1910 and continuing through the mid-1900s, during which time, agricultural and business development expanded in the Des Moines area. Construction of the Masonic Home on the property occurred between 1925 and 1926. Modern and non-diagnostic debris was observed during the subsurface survey, but do not represent intact cultural deposits.

HDR recommends that no further archaeological investigations are necessary for the Project. Although the WISAARD predictive model shows that the Project Area includes a high to very high risk of containing archaeological resources, the investigation reported on herein indicates that there was significant prior land clearing and development of the property, which reduces the risk of encountering archaeological resources. As such, HDR finds that there is low to moderate risk for encountering archaeological resources within the Project Area. HDR recommends that an inadvertent discovery plan (IDP) be developed and implemented during construction. The IDP will outline the process to follow in the event of any inadvertent discoveries during ground disturbing activities.

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Attachment A: Shovel Probe Profiles and Results

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
1	551066 E 5248505 N	**0-30 centimeters below surface (cmbs):** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **30-45 cmbs:** Grayish brown 2.5Y5/2 glacial silt loam with orange iron staining mottles, 5-10% sub-round and sub-angular gravel (1-7 cm in size), moist, cemented, very compact. Terminated excavation in glacial sediment.	None
2	551084 E 5248499 N	**0-25 cmbs:** Dark greyish brown (10YR3/2) silty loam, fine particles, 5-10% sub-round gravels, moderate compaction. **25-35 cmbs:** Gray brown 2.5Y5/2 glacial gritty sand silt, 10-15% gravels and small cobbles, sub-angular to sub-round. Terminated excavation in glacial sediment .	None
3	551108E 5248484N	**0-30 cmbs:** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **30-40 cmbs:** Grayish brown 2.5Y5/2 glacial silt loam with orange iron staining mottles, 5-10% sub-round and sub-angular gravel (1-7 cm in size), moist, cemented, very compact. Terminated excavation in glacial sediment.	None
4	551138E 5248496N	**0-5 cmbs:** Sod, manicured lawn, thick roots. **0-30 cmbs:** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **30-40 cmbs:** Grayish brown 2.5Y5/2 glacial sandy silt with orange iron staining mottles, 20% sub-round gravel (1-10 cm in size), moist to saturated, moderately compact, water at 70 cmbs. Terminated excavation in glacial sediment.	None
5	551144E 5248531N	**0-14 cmbs:** Sod. **14-40 cmbs:** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **40-72 cmbs:** Grayish brown 2.5Y5/2 glacial sandy silt with orange iron staining mottles, 20% sub-round gravel (1-10 cm in size), moist to saturated, moderately compact. Terminated excavation in glacial sediment.	None
6	551116E 5248552N	**0-5 cmbs:** Sod, manicured lawn. **5-25 cmbs:** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **25-28 cmbs:** Grayish brown 2.5Y5/2 glacial silt loam with orange iron staining mottles, 20% sub-round gravel (1-10 cm in size), moist to saturated, moderately compact, water pipe encountered at depth. Terminated excavation due to water pipe and in glacial sediments.	None (modern water pipe)
7	551081E 5248561N	**0-9 cmbs:** Sod, manicured lawn. **9-19 cmbs:** Fill sediments, mottled mix of brown, orange, grey, and tan sandy silt, 10-15% gravels (2-7 cm in size), occasional pieces of soft plastic. **19-37 cmbs:** Grayish brown 2.5Y5/2 glacial silty sand, gritty, with orange iron staining mottles, 20% sub-round gravel (1-10 cm in size), moist to saturated, moderately compact. PVC pipe 20 cm deep adjacent to northwest side of SP. Terminated excavation in glacial sediment.	None (modern PVC, plastic pieces)
8	551056E 5248535N	**0-5 cmbs:** Sod. **5-32 cmbs:** Dark brown (10Y$3/2) fine grain silt loam, 5-10% small (2-3 cm) sub-round and sub-angular gravels, moderate to low compaction. **32-38 cmbs:** Rapid interface with upper strata; 10-15% sub-round cobbles and gravels, mottled tan grey and orange greyish brown 2.5Y5/2 glacial sandy silt, very compact. Terminated excavation in glacial sediment.	None
9	551276E 5248702N	**0-5 cmbs:** Brown 10YR3/2 fine silt loam, 5-10% small gravels, damp, occasional small charcoal and organics, low compaction, some small orange and grey mottling. **5-45 cmbs:** Brown-10YR4/3 clay loam, 10-15% gravels, sub-round, some mottling of orange and grey, low compaction, occasional small charcoal fleck, damp. **45-56 cmbs:** Gradual transition to glacial sandy silt loam, low compaction, grey and tan mottling, 10-15% gravels, sub-angular to subrounded with some small cobbles. Water at depth. Terminated excavation in glacial sediment.	None

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
10	551268E 5248653N	**0-15 cmbs:** 10YR3/2 silty loam, moist, few small to medium roots, less than 2% sub-round gravels. **15-35 cmbs:** 10YR4/3 brown moist clay loam, mottled with iron oxide stains (soil development of glacial), friable. **35-60 cmbs:** 2.5Y5/2 glacial sediments with orange iron oxide stains, friable, moist, 5% gravels, sub-round (1-7 cm in size). Terminated excavation in glacial sediment.	None
11	551268E 5248590N	**0-5 cmbs:** Sod. **5-43 cmbs:** Sudden transition, reworked glacial sediments, mottled brown with tan, grey, and orange mottling. **43-52 cmbs:** Gradual upper interface to glacial sediments, 2.5Y5/2 glacial sediments with orange iron oxide stains, friable, moist, 5% gravels, sub-round (1-7 cm in size). Terminated excavation in glacial sediment.	None
12	551281E 5248524N	**0-25 cmbs:** 10YR4/2 greyish brown silt loam, few fine roots, moist, 5% subround gravels (1-4 cm diameter). **25-50 cmbs:** 7.5YR4/4 brown silt loam, friable, moist, few fine roots, approximately 10% sub-round gravels (1-4 cm diameter) **50-70 cmbs:** 10YR5/4 yellowish brown glacial fine sand with silt, approximately 10% sub-round gravels (1-4 cm in diameter), iron staining. Terminated excavation in glacial sediment.	None
13	551363E 5248482N	**0-15 cmbs:** 10YR4/2 greyish brown silt loam, few fine roots, moist, 5% subround gravels (1-4 cm diameter), few small cobbles (6-10 cm diameter), many small to fine roots. **25-51 cmbs:** 7.5YR4/4 brown silt loam, friable, moist, few fine roots, approximately 10% sub-round gravels (1-4 cm diameter) **50-62 cmbs:** 10YR5/4 yellowish brown glacial fine sand with silt, approximately 10% sub-round gravels (1-4 cm in diameter), iron staining. Terminated excavation in glacial sediment.	None
14	551365E 5248402N	**0-20 cmbs:** 10YR4/2 greyish brown silt loam, few fine roots, moist, organic, 5% subround gravels (1-4 cm diameter). **25-65 cmbs:** 7.5YR4/4 brown silt loam, friable, moist, few fine roots, approximately 10% sub-round gravels (1-4 cm diameter) **65-70 cmbs:** 10YR5/4 yellowish brown glacial silt loam, approximately 20% sub-round gravels (1-8 cm in diameter), cemented. Terminated excavation in glacial sediment.	None
15	551218E 5248416N	**0-5 cmbs:** Brown silt loam, sod. **5-46 cmbs:** Mottled grey-brown 7.5YR74/4 silt loam, sand pockets, occasional small 1-4 cm diameter fragments of asphalt, small flat glass fragments and roofing material, 30% mixed angular to rounded gravels (1-4 cm diameter). Imported fill. **46-55 cmbs:** Gradual upper interface, mottled grey, tan, and orange, cemented clay silt loam, 15-20% gravels, round to sub-angular (1-7 cm diameter). Reworked glacial sediments. Terminated excavation due to heavy compaction.	None
16	551183E 5248403N	**0-10 cmbs:** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **10-45 cmbs:** Mottled grey-brown silt loam with 30% angular gravels (1-7 cm diameter), moist; imported fill. **45-60 cmbs:** 2.5Y5/2 glacial till silt loam, with orange mottles of iron oxide staining, approximately 5-10% sub-round gravels (1-5 cm diameter), moist, not compact. Terminated excavation in glacial sediment.	None
17	551198E 5248446N	**0-5 cmbs:** Sod. **5-35 cmbs:** Imported fill and reworked glacial sediments, mottled grey, tan, and orange, sandy silt with sand pockets, two fragments of roofing material, 15-20% round to angular gravels (2-6 cm diameter) **35-45 cmbs:** 2.5Y5/2 glacial till silt loam, mottled tan and grey, with orange mottles of iron oxide staining, approximately 5-10% sub-round gravels (1-5 cm diameter), moist, not compact. Terminated excavation in glacial sediment.	None
18	551156E 5248470N	**0-5 cmbs:** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size).	None

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
		<u>5-25 cmbs:</u> Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **<u>25-50 cmbs:</u>** Mottled grey-brown silt loam with 30% angular gravels (1-7 cm diameter), moist. Imported fill. One unidentified metal fragment. **<u>25-50 cmbs:</u>** 2.5Y5/2 glacial till silt loam, with orange mottles of iron oxide staining, approximately 25% sub-round gravels (1-5 cm diameter), moist. Terminated excavation in glacial sediment.	
19	551162E 5248503N	**<u>0-5 cmbs:</u>** Very dark greyish brown (10YR3/2) silty loam, many fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **<u>5-15 cmbs:</u>** Very dark greyish brown (10YR3/2) silty loam, very few fine roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **<u>15-40 cmbs:</u>** Mottled grey-brown silt loam with 30% angular gravels (1-7 cm diameter), moist; imported fill. Couple of metal rust fragments and black plastic. **<u>40-60 cmbs:</u>** 2.5Y5/2 glacial till silt loam, with orange mottles of iron oxide staining, approximately 25% sub-round gravels (1-5 cm diameter), moist. Terminated excavation in glacial sediment.	None (modern metal rust fragments and black plastic)
20	551160E 5248552N	**<u>0-15 cmbs:</u>** Very dark greyish brown (10YR3/2) silty loam, many fine to medium roots, slightly moist, less than 1% gravel (sub-round, less than 2 cm in size). **<u>15-25 cmbs:</u>** Mottled grey-brown silt loam with 30% angular gravels (1-7 cm diameter), moist; imported fil.. Couple of metal rust fragments and black plastic. **<u>25-38 cmbs:</u>** 2.5Y5/2 glacial till silt loam, with orange mottles of iron oxide staining, approximately 25% sub-round gravels (1-5 cm diameter), one large cobble (15 cm diameter), moist. Terminated excavation in glacial sediment.	None (modern metal rust fragments and black plastic)
21	551156E 5248572N	**<u>10-15 cmbs:</u>** 10YR3/2 silt loam, moist, few fine to medium roots, 5-10% sub-round gravels (1-5 cm diameter). **<u>15-40 cmbs:</u>** Mottled grey-brown silt loam with 30% angular gravels (1-7 cm diameter), moist; imported fill mixed with glacial till sediments. One roof tile fragment. PVC pipe encountered at 35 cmbs at east wall of SP. **<u>40-43 cmbs:</u>** 2.5Y5/2 glacial till silt loam, with orange mottles of iron oxide staining, approximately 25% sub-round gravels (1-5 cm diameter), one large cobble (15 cm diameter), moist. Terminated excavation in glacial sediment.	None (modern PVC, roof tile fragment)
22	551202E 5248536N	**<u>0-10 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>10-20 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, some rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>20-45 cmbs:</u>** Imported fill mixed with glacial sediments, a couple of red roof tile fragments, black plastic, 30% angular gravels (1-10 cm diameter). **<u>45-60 cmbs:</u>** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subround gravels (1-5 cm diameter), moist, not compact. Terminated excavation in glacial sediment.	None (modern roof tile, black plastic)
23	551245E 5248483N	**<u>0-5 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>5-20 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, some rootlets, 10% pea gravel (1 cm diameter). **<u>20-45 cmbs:</u>** Imported fill mixed with glacial sediments, 30% angular gravels (1-10 cm diameter). Three fragments of colorless flat glass fragments. **<u>45-60 cmbs:</u>** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subround gravels (1-5 cm diameter), moist, not compact. One root at base. Terminated excavation in glacial sediment.	None (non-diagnostic glass fragments)
24	551304E 5248382N	**<u>0-3 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>3-22 cmbs:</u>** Imported and/or native fill mixed with glacial sediments, 10YR3/2 sandy silt loam, few subround cobbles (5-8 cm diameter), 25-30% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling **<u>45-62 cmbs:</u>** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subround gravels (1-5 cm diameter), moist, not compact. Terminated excavation in glacial sediment.	None

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
25	551318E 5248391N	**0-2 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **2-35 cmbs:** Re-worked glacial and road gravel; yellow brown/tan fine sandy loam with 30% subrounded gravels and cobbles. Two pieces of rusted wire nail, not diagnostic. **35-40 cmbs:** Glacial yellow brown/tan fine sandy loam with 30% subrounded gravels and cobbles, with coarse grey-brown sand mixed. Terminated excavation in glacial sediment.	None (non-diagnostic metal)
26	551306E 5248412N	**0-3 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **5-29 cmbs:** Imported and/or native fill mixed with glacial sediments, 10YR3/2 sandy silt loam, few subrounded cobbles (5-8 cm diameter), 5-10% subrounded to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. Sudden interface at base. **29-36 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. One root at base. Terminated excavation in glacial sediment.	None
27	551268E 5248423N	**0-2 cmbs:** Sod, dark brown fine sandy loam, moist, many rootlets, 5-10% sub-angular gravels (1-4 cm diameter). **20-50 cmbs:** Imported and/or native fill mixed with glacial sediments, dark brown fine sandy loam, many rootlets, 5-10% sub-angular gravels (1-4 cm diameter) and small cobbles (~5 cm diameter), fewer rootlets than above. 1 fragment of non-diagnostic amber bottle glass at 30-40 cmbs. **50-70 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, less than 5% subrounded cobbles (less than 5 cm diameter), moist, not compact. – Water at 70 cmbs. Terminated excavation in water and glacial sediment.	None (non-diagnostic glass)
28	551268E 5248398N	**0-3 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **3-29 cmbs:** Imported and/or native fill mixed with glacial sediments, 10YR3/2 sandy silt loam, few subrounded cobbles (5-8 cm diameter), 25-30% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. **29-35 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. Water at 35 cmbs. Terminated excavation in water and glacial sediment.	None
29	551218E 5248383N	**0-3 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **3-30 cmbs:** Imported and/or native fill, dark-brown fine sandy loam, moist, 25% round-subrounded gravels (less than 2 cm diameter), many rootlets. **30-60 cmbs:** Road prism gravels mixed with sod, 90-95% round gravels (1-3 cm diameter). South portion of SP is glacial sediments at 55 cmbs. Water at 60 cmbs. Terminated excavation in water and glacial sediment.	None
30	551163E 5248415N	**0-3 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **3-35 cmbs:** Imported and/or native fill mixed with glacial sediments, 10YR3/2 fine sandy loam, few subrounded cobbles (5-8 cm diameter), 25-30% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. **35-43 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. Water at 43 cmbs. Terminated excavation in water and glacial sediment.	None
31	551151E 5248443N	**0-3 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **3-40 cmbs:** Imported and/or native fill mixed with glacial sediments, 10YR3/2 fine sandy loam, less than 10% subrounded gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. Chunk of concrete in south wall at 15 cmbs (7 cm thick). 1 non-diagnostic colorless flat glass fragment, 1 fragment of non-diagnostic rusted metal. Metal water pipe, ½ inch diameter, on S wall at 35 cmbs. **40-45 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. Terminated excavation in glacial sediment and obstruction by water pipe above.	None (metal utility pipe, non-diagnostic metal and glass)

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
32	551104E 5248524N	**<u>0-3 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>3-35 cmbs:</u>** Imported and/or native fill mixed with glacial sediments, 10YR3/2 fine sandy loam, few subrounded cobbles (5-8 cm diameter), 25-30% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. **<u>35-40 cmbs:</u>** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. Terminated excavation in glacial sediment.	None
33	551055E 5248608N	**<u>0-3 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>3-35 cmbs:</u>** Imported and/or native fill mixed with glacial sediments, 10YR3/2 fine sandy loam, few subrounded cobbles (5-8 cm diameter), 25-30% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. **<u>35-45 cmbs:</u>** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, and mottles, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. Water at 45 cmbs. Terminated excavation in water and glacial sediment.	None
34	551095E 5248604N	**<u>0-3 cmbs:</u>** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **<u>3-29 cmbs:</u>** Imported and/or native fill mixed with glacial sediments, dark grey-brown coarse sandy loam, few subrounded cobbles (5-10 cm diameter), 10-15% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. **<u>29-34 cmbs:</u>** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, 10-15% subrounded gravels (1-5 cm diameter), moist, not compact. Water at 29 cmbs. Terminated excavation in water and glacial sediment.	None
35	551401E 5248494N	**<u>0-10 cmbs:</u>** Surface duff, brown fine sandy silty loam with many fine roots. **<u>10-30 cmbs:</u>** Surface duff, fewer small roots and less silt, one large root at 25 cmbs. 1 machine- made glass jar, straight sided, cylindrical, colorless glass, metal lid, exterior screw closure. 7 cm tall, 4.25 cm diameter. Embossed maker's mark "NW/ 181 B27," across upper half of jar base, straight across. Recovered at approximately 30 cmbs. Metal lid rusted to glass threading; markings on lid are indistinguishable due to rust. Re-buried in ST. **<u>30-40 cmbs:</u>** Native sediments mixed with glacial, dark brown fine sandy loam, mixed with grey-brown glacial sediments, subrounded gravels (less than 5 cm diameter). Large root at 40 cmbs. Terminated excavation in glacial sediment.	1 machine-made glass jar
36	551369E 5248502N	**<u>0-18 cmbs:</u>** Native soils and surface duff, brown fine sandy silty loam, less than 5% subrounded gravels (1-4 cm diameter), many roots and rootlets (1 cm to 4 cm diameter). **<u>18-25 cmbs:</u>** Native soils mixed with glacial sediments from root activity, brown fine sandy silty loam mixed with tan and light grey glacial sediments., less than 5% subrounded gravels (1-4 cm diameter), many roots and rootlets (1 cm to 4 cm diameter). Large root in south wall at 15 cmbs, ~8 cm diameter. **<u>25-48 cmbs:</u>** Glacial silty loam mixed with sand, mottled tan and light grey, iron staining, less than 5% subrounded gravels (1-4 cm diameter). Terminated excavation in glacial sediment.	None
37	551388E 5248487N	**<u>0-15 cmbs:</u>** Surface duff and native soils, dark brown silty loam with many rootlets, less than 5% subrounded gravels (1-4 cm diameter), moist. **<u>15-45 cmbs:</u>** Native soils mixed with glacial, brown very fine sandy silty loam, large roots, less than 5% subrounded gravels (1-4 cm diameter), some tan and grey mottling of glacial sediments. **<u>45-50 cmbs:</u>** Glacial silty loam mixed with sand, mottled tan and light grey, iron staining, less than 5% subrounded gravels (1-4 cm diameter). Water at 50 cmbs. Terminated excavation in glacial sediment.	None
38	551357E 5248519N	**<u>0-15 cmbs:</u>** Surface duff and native dark brown silty loam with many rootlets, less than 5% subrounded gravels (1-4 cm diameter), many small roots (1-3 cm diameter). Low compaction. **<u>15-38 cmbs:</u>** Dark brown sandy silty loam mixed with tan and orange mottles, a few decomposing pieces of wood. Many small roots, 1-3 cm diameter. Native soils mixed with glacial sediments from root activity. Low compaction.	None

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
		38-47 cmbs: Glacial silty loam mixed with sand, mottled tan and light grey, iron staining, less than 5% subrounded gravels (1-4 cm diameter). Low compaction. Terminated excavation in glacial sediment.	
39	551317E 5248516N	**0-10 cmbs:** Surface duff and native dark brown silty loam, moist, many rootlets and organics, less than 5% subrounded gravels (1-4 cm diameter). **10-40 cmbs:** Native dark brown silty loam, moist, few small to medium roots, less than 5% subrounded gravels (less than 10 cm diameter), last 5 cm. mottled with glacial sediments. **40-55 cmbs:** Glacial silty loam mixed with sand, mottled tan and light grey, iron staining, less than 5% subrounded gravels (1-4 cm diameter). Terminated excavation in glacial sediment.	None
40	551340E 5248489N	**0-20 cmbs:** Surface duff and native dark brown silty loam, moist, many roots (1-5 cm diameter) and organics, less than 5% subrounded gravels (1-4 cm diameter). **20-80 cmbs:** Native dark brown silty loam mixed with glacial sediments from root activity, moist, many fine roots (1-3 cm diameter), tan and grey mottling, 10-20% subrounded gravels (1-5 cm diameter), very compact. Terminated excavation due to rocks and compaction.	None
41	551269E 5248452N	**0-2 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **2-60 cmbs:** Imported and/or native fill mixed with glacial sediments, dark brown very fine silty loam, less than 5% subrounded gravels (1-4 cm diameter), some fine roots. 1 heavily rusted bolt, 1 fragment colorless flat window glass, 1 fragment green plastic in upper 20 cm. **60-70 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron stained mottles, less than 5% subrounded gravels (1-7 cm diameter). Terminated excavation in glacial sediment.	None (non-diagnostic metal, glass, plastic)
42	551276E 5248500N	**0-5 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **5-50 cmbs:** Imported and/or native fill mixed with glacial sediments, black and dark brown very fine silty loam, 25-30% crunched up asphalt and angular gravels (1-4% cm diameter), tan and grey glacial sediments mixed in lower 5 cm. **50-55 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, less than 5% subrounded gravels (1-7 cm diameter). Terminated excavation in glacial sediment.	None
43	551234E 5248589N	**0-2 cmbs:** Sod, dark brown sandy loam, moist, 10% round pea gravel and gravel (1-3 cm diameter. **2-50 cmbs:** Imported and/or native fill, brown sandy loam with 15-20% round gravels (1-3 cm diameter), few fine roots, moist, pockets of coarse sand. 1 fragment white plastic and 2 fragments terracotta or vitrified clay pipe (less than 1 cm diameter) in upper 30 cm. **50-60 cmbs:** Grey and tan mottled glacial sediments, 10-15% subrounded gravels (less than 8 cm diameter). Water at 60 cmbs. Terminated excavation in water and glacial sediment.	None (non-diagnostic plastic and terracotta or vitrified clay pipe)
44	551200E 5248603N	**0-3 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 10% sub-round gravels (1-4 cm diameter). **3-42 cmbs:** Imported and/or native fill mixed with glacial sediments, dark brown very fine silty loam, 25-30% angular gravels (1-4% cm diameter), tan and grey glacial sediments mixed in lower 5 cm. **42-50 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, less than 5% subrounded gravels (1-7 cm diameter). Water at 50 cmbs. Terminated excavation in water and glacial sediment.	None
45	551134E 5248603N	**0-5 cmbs:** Sod, 10YR3/2 silt loam, moist, many rootlets, 5-10% sub-round gravels (1-4 cm diameter), many organics. **5-25 cmbs:** Imported and/or native fill mixed with glacial sediments, dark brown coarse sandy loam, few subrounded cobbles (5-10 cm diameter), 10-15% subangular to angular gravels (1-4 cm diameter), some fine roots, some tan and grey mottling. 1 fragment of terracotta or vitrified clay pipe at 15 cmbs.	None (non-diagnostic terracotta or vitrified clay pipe)

SP #	Universal Transverse Mercators (UTMs) Zone 10T	Sediment Description	Cultural Material
		25-45 cmbs: 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, 10-15% subrounded gravels (1-5 cm diameter), moist. Terminated excavation in glacial sediment.	
46	551178E 5248595N	**0-5 cmbs:** Sod, 10YR3/2 silt sandy loam, moist, many rootlets, 5-10% sub-round gravels (1-4 cm diameter), many organics. **5-38 cmbs:** Imported and/or native fill mixed with glacial sediments, grey-brown fine sandy loam, few subrounded cobbles (5-10 cm diameter), 3-5% subrounded gravels (1-4 cm diameter), some fine roots, some tan and grey mottling, moist. Some small asphalt chunks, 2 fragments flat glass shards (3-5 cm diameter). **38-45 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, 10-15% subrounded gravels (1-5 cm diameter), moist. Water at 45 cmbs. Terminated excavation in water and glacial sediment.	None (non-diagnostic glass)
47	551198E 5248573N	**0-2 cmbs:** Sod, 10YR3/2 silt sandy loam, moist, many rootlets, 5-10% sub-round gravels (1-4 cm diameter), many organics. **2-15 cmbs:** Imported and/or native fill, grey-brown fine sandy loam, moist, ~20% rounded gravels (1-4 cm diameter). **15-40 cmbs:** Imported and/or native fill mixed with glacial sediments, grey-brown fine sandy loam with grey and tan mottles, wet, ~20% rounded gravels (1-10 cm diameter). Water at 40 cmbs. Terminated excavation in water and glacial sediment.	None
48	551230E 5248555N	**0-5 cmbs:** Sod, 10YR3/2 silt sandy loam, moist, many rootlets, 5-10% sub-round gravels (1-4 cm diameter), many organics. **5-35 cmbs:** Imported and/or native fill mixed with glacial sediments, grey-brown fine sandy loam, few subrounded cobbles (5-10 cm diameter), 3-5% subrounded gravels (1-4 cm diameter), some fine roots, some tan and grey mottling, moist. **35-40 cmbs:** 2.5YR5/2 Glacial clay loam mixed with medium sand, iron staining, 10-15% subrounded gravels (1-5 cm diameter), moist. Terminated excavation in glacial sediment.	None

Note: cm = centimeters; cmbs = centimeters below ground surface; PVC = polyvinyl chloride.

APPENDIX G INADVERTENT DISCOVERY PLAN

Inadvertent Discovery Plan

Zenith Property

Des Moines, King County, Washington

January 23, 2023

Prepared by
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HDR, Inc.

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Appendix

Acronyms

DMMC	Des Moines Municipal Code
City	City of Des Moines
DAHP	Department of Archaeology and Historic Preservation
DNS	Determination of non-significance
Ecology	Washington Department of Ecology
EIS	Environmental impact statement
HPP	(King County) Historic Preservation Program
IDP	Inadvertent Discovery Plan
NRHP	National Register of Historic Places
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SOI	Secretary of the Interior
WAC	Washington Administrative Code
WISAARD	Washington Information System for Architectural and Archaeological Records Data

1.0 Introduction

Zenith Properties, LLC (Zenith Properties) is proposing the demolition of structures, pavement, and overhead and underground utilities at the former Masonic Retirement Center of Washington (the Project). This inadvertent discovery plan (IDP) outlines procedures to perform in the event of a unanticipated discovery of cultural resources. It was prepared for implementation during Project construction.

The Project construction activities and applicable regulations pertaining to cultural resources are discussed below. Definitions of cultural resources are also provided below. Section 2 of this IDP describes the steps to take in the event of an inadvertent discovery of archaeological materials and/or human remains. Section 3 contains the contact list and Section 4 provides the references cited. Photographs of various archaeological resources are provided in Appendix A (adapted from Ecology 2021).

1.1 Project Description

Zenith Properties is seeking a demolition permit from the City of Des Moines (LUA2019-0032) for their 27-acre property located at 23660 Marine View Drive South in Des Moines, Washington (Figure 1). The property is west of Interstate 5 and 0.15 mile from the shoreline of the Puget Sound, at the intersection of South 240th Street and Marine View Drive South, and within the south half of Section 17 in Township 22 North, Range 4 East of the Willamette Meridian.

The property is the site of the former Masonic Retirement Center of Washington, also known as the Landmark on the Sound, and includes the former retirement center residential building, driveways and parking lots, caretaker apartments, garages, gardens and lawns; utilities, outdoor kitchen, shelter, and restrooms; and a water tower on the north side of the parcel. The eastern portion of the property is lightly developed and includes native and non-native vegetation, walking trails, picnic structures, and a non-operational restroom. The property is currently zoned as an Institutional Campus, and the surrounding parcels are primarily for residential use.

Proposed Project activities include the demolition of the existing Masonic Retirement Home and associated structures, and removal of the paved driveways, walkways, parking areas, and power poles and associated in-ground power lines, and other utility lines including water, gas, and sewer. Zenith Properties intends to remove unsafe conditions and potential hazards due to existing structure conditions, prevent further trespass within the existing structures, and prevent further vandalism and graffiti to the existing structures. Project staging, including equipment parking, will occur on existing pavement. Demolition includes a total of approximately 161,162 square feet of building demolition area, including the main building, infirmary wing, a residential structure, water tower, caretaker apartments, outdoor kitchen, bathrooms, and shelter; underground and overhead utilities; and two maintenance buildings. The Project Area is defined as the areas planned for demolition and utility removal within the 27-acre parcel (Figures 2 and 3).

1.2 Regulatory Context

1.2.1 City of Des Moines Municipal Code 18.215

The Project must take into account Chapter 18.125 of the City of Des Moines Municipal Code (DMMC) concerning the “Protection of Historic and Archaeological Resources,” which addresses regulations and procedures regarding the identification and protection of cultural resources. Historic or archaeological properties of local significance are defined under DMMC Chapter 18.215.060, and designation of historic or archaeological properties of local significance is described under DMMC Chapter 18.215.070. The following criteria are considered under DMMC Chapter 18.215.050 for the designation of historic or archaeological properties of local significance:

> a) It is associated with events that have made a significant contribution to the broad patterns of national, state, or local history;
>
> (b) It is associated with the life of a person that is important in the history of the community, City, state, or nation or who is recognized by local citizens for substantial contribution to the neighborhood or community;
>
> (c) It embodies the distinctive characteristics of a type, period, style, or method of construction;
>
> (d) It is an outstanding or significant work of an architect, builder, designer, or developer who has made a substantial contribution to the art;
>
> (e) It has yielded, or may be likely to yield, information important in prehistory or history;
>
> (f) Because of its location, age or scale, it is an easily identifiable visual feature of a neighborhood, community, or the City and contributes to the distinctive quality or identity of such neighborhood, community or the City, or because of its association with significant historical events or historic themes, association with important or prominent persons in the community or the City, or recognition by local citizens for substantial contribution to the neighborhood or the City.

1.2.2 State Regulations

The Project is required to comply with State Environmental Policy Act (SEPA) and the Revised Code of Washington (RCW). The SEPA review process seeks to provide information that will inform agency decision-makers, applicants, and the public to understand how a proposal will affect the environment. Under SEPA, resources on the subject or adjacent property are evaluated for their eligibility at the local, state and/or national register level. The lead agency will review the applicant prepared SEPA checklist and other information about the proposal and will either make a determination of non-significance (DNS) or that an environmental impact statement (EIS) is necessary to further evaluate the impacts. The DNS or EIS, which are prepared by the lead agency, will provide information to all agencies that must approve the proposal.

Precontact and historic archaeological sites are protected by several Washington state regulations on both public and private lands. RCW 27.44 (Indian Graves and Records) and RCW 27.53 (Archaeological Sites and Resources) require that a person obtain a permit from the DAHP before excavating, removing, or altering Native American human remains or archaeological resources in

Washington. Chapter 25-48 of the Washington Administrative Code (WAC) outlines the requirements of the Archaeological Excavation and Removal Permit. Failure to obtain a permit is punishable by civil fines and penalties under RCW 27.53.095 and criminal prosecution under RCW 27.53.090.

If a person(s) violates this statute and knowingly disturbs or alters an archaeological site, the DAHP is allowed to issue civil penalties of up to $5,000 in addition to site restoration costs and investigative costs per RCW 27.53.095. Restorative and monetary remedies do not prevent concerned Indian Tribes from undertaking civil action in state or federal court, or law enforcement agencies from undertaking criminal investigation or prosecution. If human remains and/or burials are disturbed, RCW 27.44.050 allows an affected Indian tribe to undertake civil action. Additionally, the excavation of human remains without a permit is a felony.

1.3 Cultural Resources

A cultural resources survey was previously performed within the Project area (Robison-Mathes and Ferris 2022). No archaeological resources were identified during the survey.

Photographs of various archaeological resources are provided in Attachment A (adapted from Department of Ecology). According to DAHP guidelines (2022), archaeological resources are defined as follows:

> **Archaeological Object:** An object that comprises the physical evidence of an indigenous and subsequent culture including material remains of past human life including monuments, symbols, tools, facilities, and technological by-products.
>
> **Site**: A geographic locality including but not limited to submerged and submersible lands and the bed of the sea within the state's jurisdiction that contains archaeological objects.
>
> **Isolate:** One distinct artifact or a few fragments of the same artifact that are too far away (typically more than 98 ft [30 m]) from other cultural materials (over 50 years old) to be considered part of a site. If diagnostic, the find should be recorded on an Isolate Form accompanied by photographs.
>
> **Intact Artifact Deposit or Feature:** Two or more distinct artifacts or one feature (immovable object such as a concrete foundation) within a 164-ft (50-m) area. Such deposits would be considered an archaeological site and depending on their size and nature, take longer than an isolated find to record on an Archaeological Site Inventory Form.
>
> **Disturbed Artifact Deposits:** Artifacts identified in disturbed soils (such as historic fill) should be documented in field notes and photographed. Depending on the volume of artifacts and the level of disturbance, the site may or may not need to be recorded on an Archaeological Site Inventory Form. Further investigation may be necessary to determine the presence of additional artifacts, determine the potential site boundary, and notify the appropriate parties of the inadvertent discovery.
>
> **Other:** Abandoned/remnant utilities and materials less than 50 years old are not considered significant. These items should be documented in field notes, but are not recorded on DAHP isolate or site forms. No further action is necessary.

1.3.1 Precontact Cultural Resources

No precontact archaeological materials were identified within the Project area. However, unknown materials may be encountered during ground disturbing activities. Such evidence of precontact/ethnohistoric-period activities may include concentrations of fire-modified rock (FMR); animal bone; lithic debitage (flaked stone); ground- and flaked- stone artifacts; tools made from bone and antler; and features consisting of burned or organically stained sediments, clusters of FMR and/or charcoal, or other evidence of living surfaces or habitations.

Precontact archaeological materials may include, but are not limited to:

- Clusters of FMR, charcoal, or other evidence of fire-related activities;
- Discarded shell, animal bone, bone tools, cordage, fibers, burned earth, charcoal, ash, and exotic rocks and minerals;
- Freshwater shell midden;
- Faunal remains modified or found in association with stone chips or tools;
- Ground or chipped stone objects (i.e., debitage or tools); and
- Isolated artifacts similar in nature to those listed above.

1.3.2 Historic Cultural Resources

No historic archaeological materials were identified within the Project area. However, unknown materials may be encountered during ground disturbing activities. Such evidence of historic-period activities may include materials related to the development of residential neighborhoods, nearby transportation corridors, and commercial buildings. Historic-period archaeological materials may include, but are not limited to:

- Features such as relic utility lines, footings, and foundations;
- Small structural elements such as concrete pads, asphalt fragments, and masonry features;
- Wood pilings and milled lumber;
- Concentrated or isolated debris such as vessel glass, dinnerware ceramic, metal can fragments, and other discarded domestic or commercial items; and
- Isolated artifacts composed of glass, metal, ceramic, or other materials manufactured more than 50 years ago.

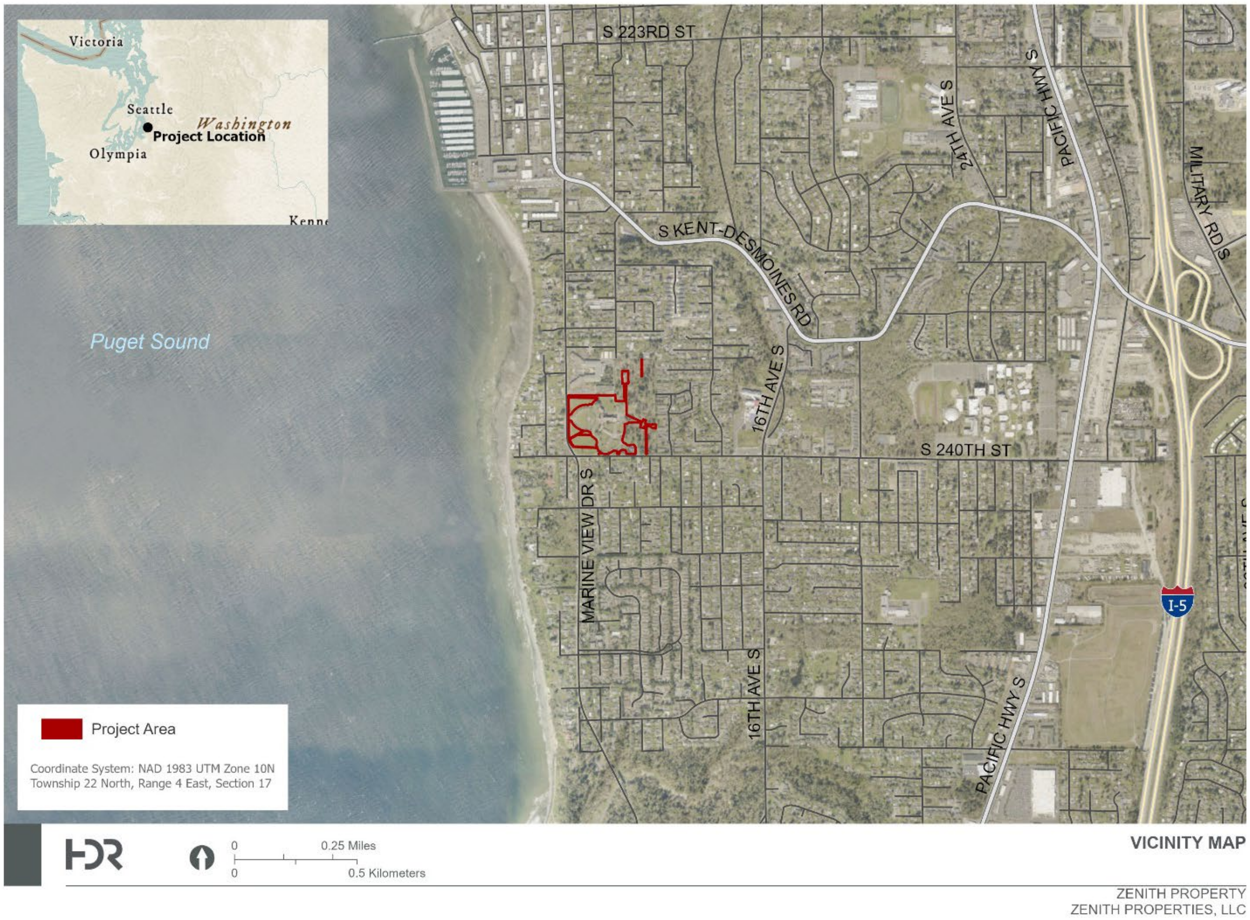


Figure 1. Project location.

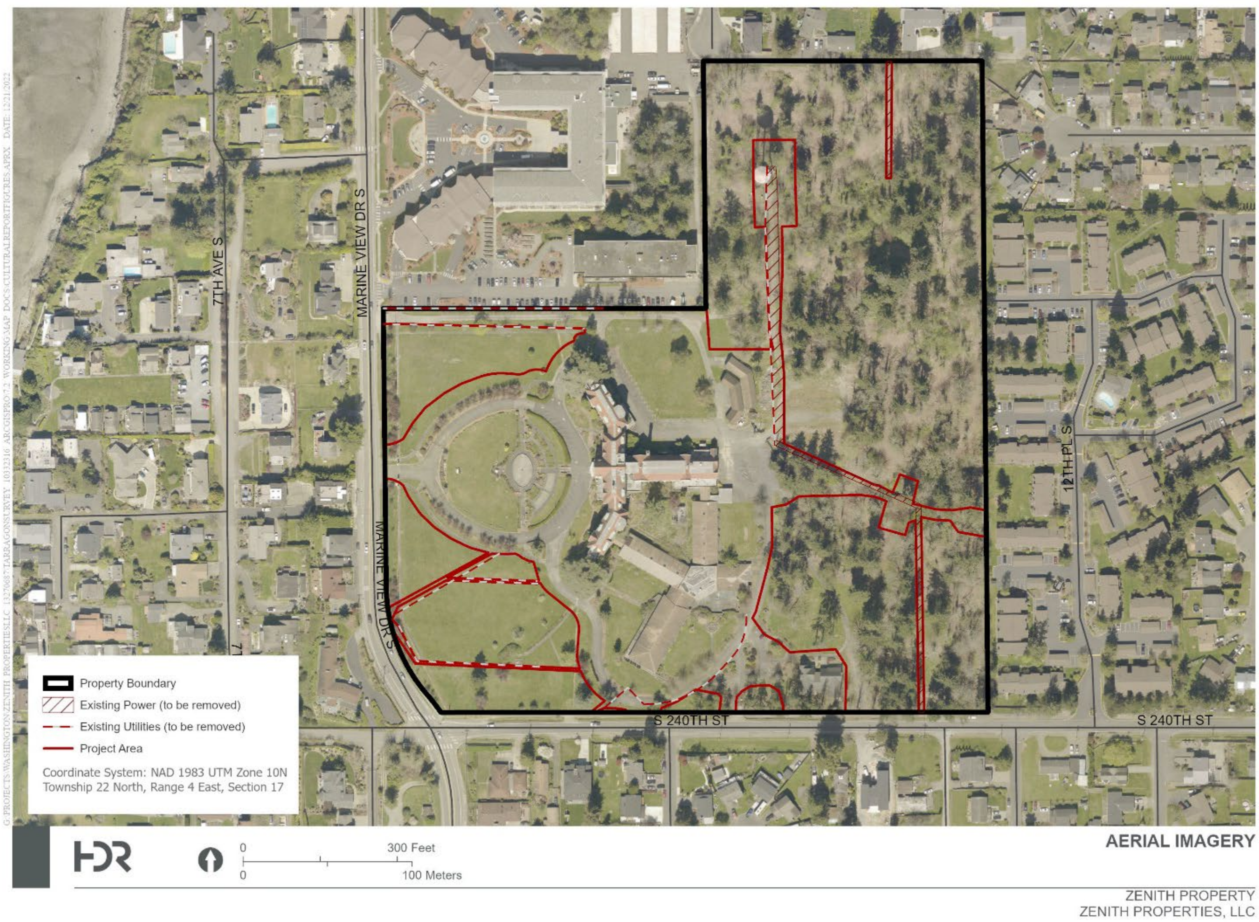


Figure 2. Project area displayed on orthography.

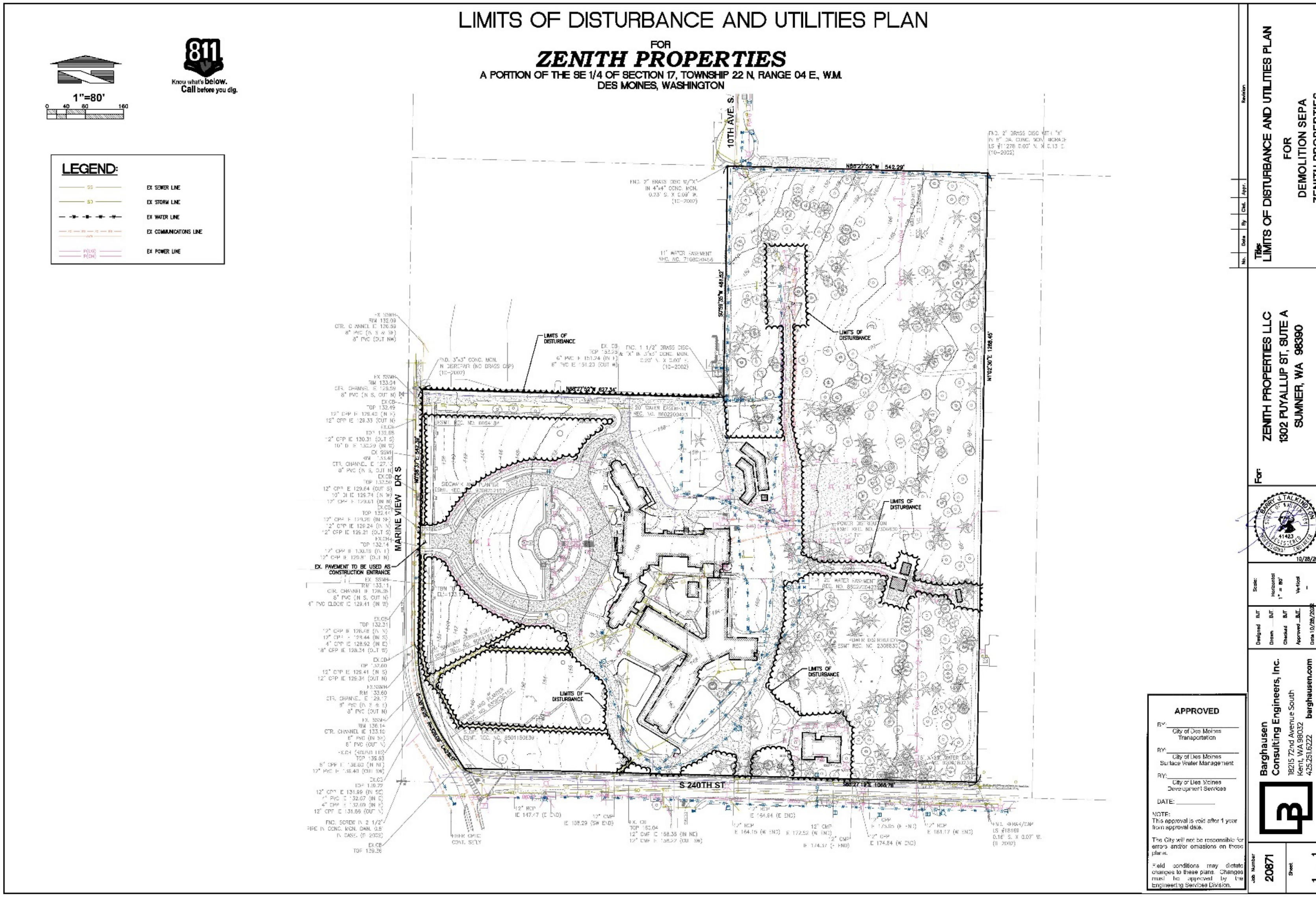


Figure 3. Project Demolition Plan with limits of disturbance marked.

2.0 Guidelines for the Inadvertent Discovery of Archaeological Resources and Human Remains

2.1 Inadvertent Discovery of Archaeological Materials

If, during ground-disturbing Project activities, the construction personnel or any on-site staff believe that they have encountered precontact (including, but not limited to, intact or redeposited clusters of FMR, charcoal, or other evidence of fire-related activities; stone chips or tools; and faunal remains associated with stone chips or tools) or historic-period archaeological materials, ground disturbance will immediately stop—at least temporarily—at that location to protect potential additional resources. The following steps will be taken:

1. The area of the discovery will be marked and stabilized and/or protected until the discovered resource can be evaluated. Protection may include installing a physical barrier (e.g., exclusionary fencing), in addition to prohibiting all machinery, other vehicles, and unauthorized individuals from crossing the barrier.
2. A 50-foot (15.2-meter) perimeter will be implemented around the inadvertent discovery. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating cultural material as set forth in this plan. The construction supervisor may direct work away from cultural resources to work in other areas prior to contacting the concerned parties.
3. Upon discovery, Zenith Properties, its contractor employees, and any subcontractors will comply with applicable laws and regulations including RCW 27.53 (Archaeological Sites and Resources).
4. The Zenith Properties will obtain the services of a professional archaeologist who meets the Secretary of the Interior’s (SOI) professional qualifications standards for archaeology (36 Code of Federal Regulations Part 61).
5. The SOI-qualified archaeologist will conduct an initial evaluation of the resource immediately. If excavation is allowed to continue, the SOI-qualified archaeologist will take notes on the discovery along with overview photographs to formulate a basic description of the characteristics and location of the cultural materials for further investigation during future phases of construction work, to allow for minimal delays.
6. If the SOI-qualified archaeologist concludes that the find is an archaeological resource requiring further evaluation, the discovery will continue to be protected and avoided.
7. Within 12 hours of the initial discovery, if feasible, and once the site has been preliminarily characterized, the SOI-qualified archaeologist will notify DAHP via phone and email regarding the inadvertent discovery. If applicable, a photo of the discovery will be included in the notification.
8. DAHP, Zenith Properties, and the SOI-qualified archaeologist will collaborate to notify the City, King County Historic Preservation Program (HPP), and Indian Tribes, as expeditiously as

possible, and will further consult to determine appropriate treatment including, but not limited to, photography, mapping, and sampling. Any additional disturbance to a precontact or National Register eligible historic archaeological site would require an archaeological excavation permit from the DAHP under RCW 27.53.

9. The SOI-qualified archaeologist will document the inadvertent discovery per DAHP guidelines. Documentation of the inadvertent discovery may include mapping, photography, and/or other activities, as determined appropriate.
10. In the case of an isolated archaeological discovery, construction excavation will likely not halt for more than the time required by the SOI-qualified archaeologist to photograph and record details of the location (e.g., depth below the ground surface, sedimentary context) and other pertinent information about the isolated find.
11. The SOI-qualified archaeologist will coordinate with the DAHP and Zenith Properties upon the findings prior to excavation continuing.
12. Construction excavation may resume in the area when the DAHP, in coordination with the SOI-qualified archaeologist, has notified the Zenith Properties Project Manager and construction manager that this work is complete and that construction may resume.

2.2 Inadvertent Discovery of Human Skeletal Remains, Funerary Objects, and Objects of Cultural Patrimony

Any human skeletal remains, unmarked burial grave or unregistered grave, funerary object, or object of cultural patrimony that is discovered during Project-related excavation will be treated with dignity and respect.

If ground-disturbing Project activities encounter human skeletal remains, unmarked burial grave or unregistered grave, funerary object, or object of cultural patrimony, all Project activity within 100-foot (30.5-meter) of that location must be immediately halted. A STOP WORK will be announced, and the inadvertent discovery must be secured and protected from further disturbance. Efforts will be made to protect the discovery from looting and vandalism, and it will not be removed or otherwise disturbed. On-site personnel will not speak with the media or share any information on social media. The following steps will be taken:

1. The Zenith Properties and its contractor will comply with applicable laws and regulations including RCW Chapter 27.44 (Indian Graves and Records) and RCW Chapter 68.60 (Protection of Historic Graves).
2. Any person who discovers human skeletal remains must notify the county medical examiner and local law enforcement in the most expeditious manner possible (see Contact List in Section 3). DO NOT CALL 911. If on-site personnel are unable to determine whether the remains are human or animal, on-site staff will contact an SOI-qualified archaeologist for confirmation. The SOI-qualified archaeologist will observe the discovery immediately, as feasible, without causing further disturbance.
3. The SOI-qualified archaeologist will ensure that any and all human remains, sacred objects, and objects of cultural patrimony are treated with dignity and respect. Remains will be covered with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed.

4. If the SOI-qualified archaeologist is unable to determine whether the remains are human or animal, the SOI-qualified archaeologist may contact DAHP's physical anthropologist with photographic images:
    a. If the results of the evaluation indicate that the remains are not human and do not have an archaeological association, construction will be permitted to continue.
    b. If the evaluation determines the remains are not human but have an archaeological association, the procedures for Inadvertent Discovery of Archaeological Materials will be followed.
    c. If the results of the evaluation indicate the remains are human, then the on-site Project manager or SOI-qualified archaeologist will notify the medical examiner and local law enforcement.
5. The King County Medical Examiner will assume jurisdiction over the remains and determine if they are forensic or nonforensic.
6. The King County Medical Examiner will retain jurisdiction over forensic remains. The work stoppage in the area will continue until such time that the medical examiner has secured and removed the remains from the discovery site.
7. If the King County Medical Examiner determines the remains are nonforensic, they will report that finding to DAHP who will then take jurisdiction over the remains. DAHP will notify any appropriate cemeteries and all affected Indian Tribes of the find.
8. The DAHP State Physical Anthropologist will make a determination of whether the remains are Indian or non-Indian and report that finding to any appropriate cemeteries and the affected Indian Tribes.
9. The DAHP will then handle all consultation with the affected Indian Tribes, City, Zenith Properties, and other appropriate parties, as to the future preservation, excavation, and disposition of the remains.
10. Zenith Properties and its contractor may resume Project-related activities in the area of the discovery upon receipt of written authorization from either the medical examiner or the DAHP, whoever has jurisdiction under state law.

2.3 Confidentiality

Cultural resources and human remains are of a sensitive nature and sites where cultural resources are discovered can become targets of vandalism and illegal removal activities. All parties shall keep and maintain as confidential all information regarding any discovered cultural resources, particularly the location of known or suspected human remains, and exempt all such information from public disclosure consistent with applicable state regulations (e.g., RCW 42.56.300). All information indicating the location of known suspected cultural resources or human remains from this Project shall be turned over to the DAHP. While any party is in possession of this confidential information, such party shall limit access to these records to authorized persons.

3.0 Contact Information

The Project contacts are listed below. The communication procedures listed in Section 2 will be followed. Any changes in personnel or contact information should be immediately shared with Zenith Properties and included in an updated contact list.

Table 1. Contact information

Property Owner		
Zenith Properties, LLC	Grahm Satterwhite Project Manager	(206) 484-9102 gsatterwhite@tarragon.com
Agencies	**Contact Name and Title**	**Phone Number and Email**
City of Des Moines	Denise Lathrop Planning & Development Services Manager	(206) 870-6563 DLathrop@desmoineswa.gov
Department of Archaeology and Historic Preservation (DAHP)	Stephanie Jolivette State Archaeologist	(360) 628-2755 Stephanie.Jolivette@dahp.wa.gov
	Dr. Guy Tasa State Physical Anthropologist	(360) 790-1633 guy.tasa@dahp.wa.gov
King County Historic Preservation Program (HPP)	Dr. Philippe LeTourneau Archaeologist	206 477-4529 Philippe.LeTourneau@kingcounty.gov
Law Enforcement	**Contact Name and Title**	**Phone Number and Email**
Des Moines Police Department	n/a	(206) 878-3301
King County Medical Examiner	n/a	(206) 731-3232
Indian Tribes	**Contact Name and Title**	**Phone Number and Email**
Duwamish Tribe	Cecile Hansen Chairwoman	(206) 431-1582 cecile@duwamishtribe.org
Muckleshoot Indian Tribe	Laura Murphy Archaeologist	(253) 876-3272 laura.murphy@muckleshoot.nsn.us
Puyallup Tribe of Indians	Brandon Reynon Cultural Resources	(253) 573-7986 brandon.reynon@puyalluptribe-nsn.gov
Snoqualmie Indian Tribe	Steve Mullen-Moses Director, Department of Archeology and Historic Preservation	(425) 292-0249 ext. 2010 steve@snoqualmietribe.us
	Adam Osbekoff Assistant Director, Department of Archeology and Historic Preservation	(425) 292-0249 ext. 2010 adam@snoqualmietribe.us
Stillaguamish Tribe of Indians	Kerry Lyste Tribal Historic Preservation Officer	(360) 572-3072 klyste@stillaguamish.com
Suquamish Tribe	Dennis Lewarch Tribal Historic Preservation Officer	(360) 394-8529 dlewarch@Suquamish.nsn.us
Tulalip Tribes	Richard Young Cultural Resources	(360) 716-2652 ryoung@tulaliptribes-nsn.gov
Contractors	**Contact Name and Title**	**Phone Number and Email**
General Contractor	TBD	TBD

4.0 References Cited

Department of Archaeology and Historic Preservation (DAHP)

2022 Washington State Standards for Cultural Resources Reporting. Available online, https://dahp.wa.gov/sites/default/files/CR%20Update%20March%202022_0.pdf.

Department of Ecology (Ecology)

2021 Inadvertent Discovery Plan and Procedures for the Discovery of Cultural Resources and Human Skeletal Remains. Available online, https://apps.ecology.wa.gov/publications/SummaryPages/ECY070560.html.

Robison-Mathes, Anna, and Jennifer Ferris

2022 Cultural Resources Investigation Report: Zenith Property Des Moines, King County, Washington. Prepared for Zenith Properties, LLC., Seattle, Washington. Prepared by HDR, Inc., Bellevue, Washington. On file, Zenith Properties, LLC., Seattle, Washington.

Appendix A: Photographs of Archaeological Resources (adapted from Ecology 2021)

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.

Stone artifacts from Oregon.

Stone artifacts from Washington.

Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.

Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*

Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.

Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.

Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*

Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.

Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*

Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).

Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.

Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

Potential human remains.

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.

Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*

APPENDIX H WETLAND SITE MEMORANDUM

ESA

819 SE Morrison Street
Suite 310
Portland, OR 97214
503.274.2010 phone
503.274.2024 fax

esassoc.com

memorandum

date September 13, 2023

to Pam Xander, ESA

cc Project file

from Sarah Hartung, Professional Wetland Scientist, ESA

subject Zenith Landmark Project – review of potential wetland problem spot

Introduction

At the request of the City of Des Moines, ESA conducted a wetland determination at the Zenith project site on August 31, 2023 and prepared this memo to document results and conclusions. Prior to the site visit, ESA reviewed previous site information indicating a "problematic" area near an existing water tower (Exhibit 1).

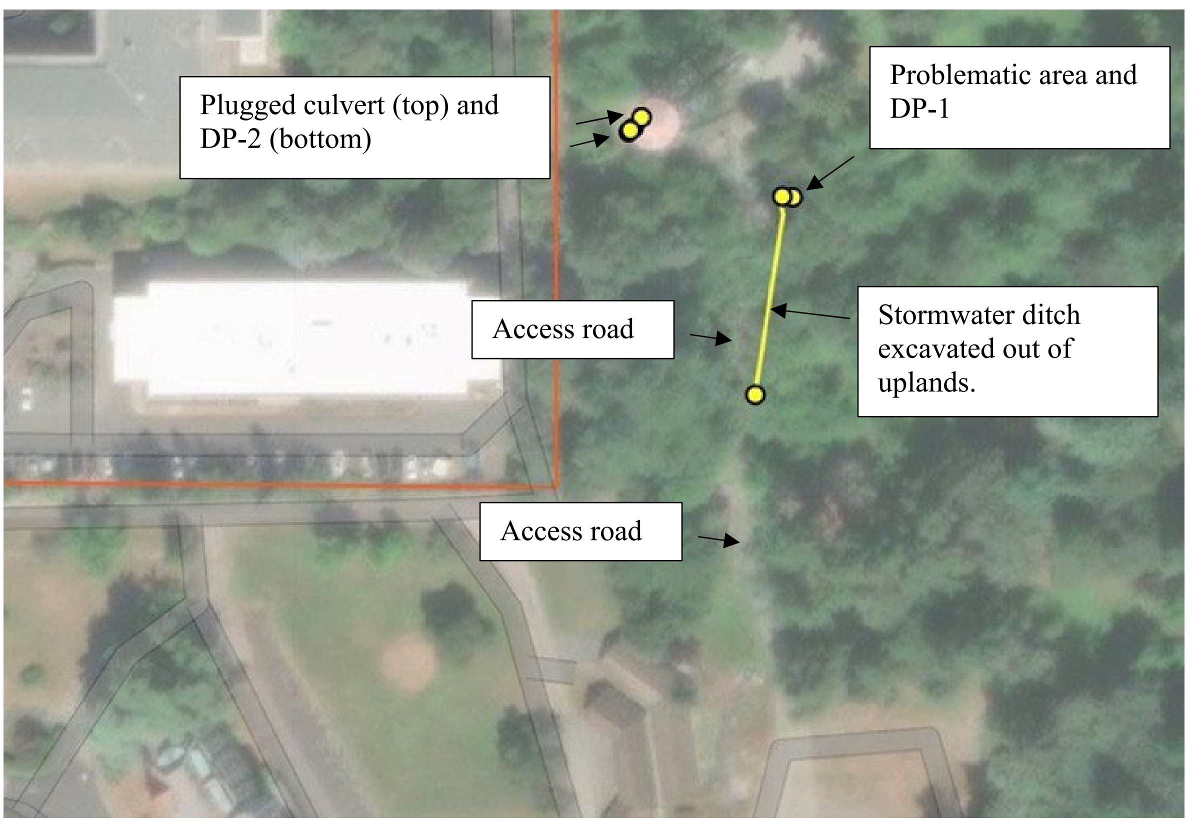


Exhibit 1. Constructed stormwater features are present on-site but no critical areas were found.

Methods

ESA wetland scientists conducted a wetland determination in the northeast portion of the site according to the current Washington Department of Ecology (Ecology) and U.S. Army Corps of Engineers (Corps 2010) methodologies. Study methods consisted of: (1) reviewing existing data sources; (2) conducting a field investigation; and (3) preparing a memo. Wetland determination data sheets are provided in Attachment A.

Results

Two wetland determination data plots were established: one (DP-1, Exhibit 1, Photo 1) adjacent to an excavated pit deemed a problematic area; and one (DP-2) in a short, excavated ditch west of and downslope of DP-1.

Photo 1: Data plot (DP-1), non-wetland. August 31, 2023.

Photo 2: Looking north at a ditch excavated to convey run-off. August 31, 2023.

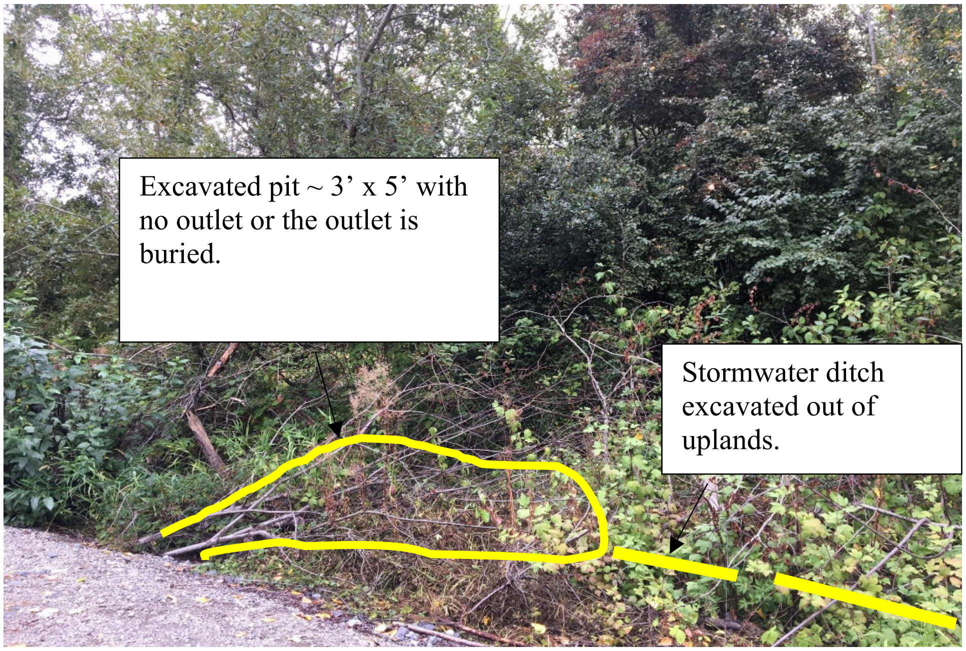


Photo 3: Problematic area near the water tower consisting of an excavated ditch and pit that do not meet the definition of a Water of the U.S. or a critical area. August 31, 2023.

Photo 4: Area surrounding data plot (DP-2), non-wetland. August 31, 2023.

The problematic area depicted in Photo 2 and 3 appears to have been created when the access road was constructed. DP-1 was established just upslope of an excavated pit at the northern terminus of the stormwater ditch along the east side of the access road. DP-1 consisted of a mixed, upland forest dominated by English ivy and sword fern in the understory. This data plot did not meet all three wetland parameters and was determined to be upland.

The area near DP-2 consisted of a mix of hydrophytic and non-hydrophytic vegetation including English ivy (non-hydrophytic) and red-osier dogwood shrubs (hydrophytic). A small patch of soft rush was found near DP-2, but this can indicate disturbed and compacted soil from machinery. No evidence of primary or secondary wetland hydrology indicators were found near DP-2 and the area was concluded to be non-wetland (Attachment A).

Conclusions

The site has been disturbed from past access road development and stormwater management including the excavation of a ditch along the east side of the access road that runs north-south to the water tower. The excavated areas near DP-1 and DP-2 are anticipated to fill up with water during the fall and winter season; however, this does not by itself indicate wetlands. Uplands or non-wetland areas can have hydrology, but the hydrology is anticipated to be intermittent in response to storm events and does not remain on site long enough for wetland conditions to form. While the site has been disturbed, the vegetation communities were considered to reflect “normal” conditions. The vegetation near the data plots did not meet wetland criteria. Additionally, no waterways or wetland mosaics were identified. In summary, no critical areas or buffers were found on site.

Limitations

ESA warrants that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this study was performed, as outlined in *Methods*. The results and conclusions of this report represent the authors’ best professional judgment, based on information provided by the project proponent in addition to that obtained during the course of this study. No other warranty, expressed or implied, is made.

References

Corps (U.S. Army Corps of Engineers). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center. Will

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Attachment A:
Wetland Determination Data

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Zenith | City/County: Des Moines | Sampling Date: 8/31/2023
Applicant/Owner: Zenith | State: Washington | Sampling Point: DP1
Investigator(s): R. Tews, S. Hartung | Section, Township, Range:
Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): None | Slope (%): 3-5
Subregion (LRR): LRR A | Lat: 47.389619 | Long: -122.320421 | Datum: - WGS84
Soil Map Unit Name: Alderwood gravelly sandy loam, 0-8% slopes, non-hydric | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)
Are Vegetation no Soil yes or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation no Soil no or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?	✓	
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks:
Drier than normal conditions, but the lack of rain did not affect the determination of non-wetland.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft/radius)			
1. Malus fusca	50	yes	FAC
2.	0		
3.	0		
4.	0		
= Total Cover	0		
Sapling/Shrub Stratum (Plot size: 30 ft/radius)			
1. Cornus alba	5	yes	FACW
2.	0		
3.	0		
4.	0		
5.	0		
= Total Cover	0		
Herb Stratum (Plot size: 5 ft/radius)			
1. Hedera helix	80	yes	FACU
2. Polystichum munitum	20	yes	FACU
3.	0		
4.	0		
5.	0		
6.	0		
7.	0		
8.	0		
9.	0		
10.	0		
11.	0		
= Total Cover	100		
Woody Vine Stratum (Plot size: 30)			
1.	0		
2.	0		
= Total Cover	0		
% Bare Ground in Herb Stratum: 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1=
FACW species		x 2=
FAC species		x 3=
FACU species		x 4=
UPL species		x 5=
Column Totals:	(A)	(B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:
___ 1-Rapid Test For Hydrophytic Vegetation
___ 2-Dominance Test is >50%
___ 3-Prevalence Index is ≤3.0[1]
___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5-Wetland Non-Vascular Plants[1]
___ 6-Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

Remarks:
Prunus sp in tree stratum assumed FAC; English ivy was providing structure in the herb stratum and was documented accordingly.

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 3/1	100		100			Silt loam	
8 - 18	2.5Y 4/1	85	7.5YR 6/1	15	C	M	Clay loam	
0 - 0		0		0				
0 - 0		0		0				
0 - 0		0		0				
0 - 0		0		0				
0 - 0		0		0				
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): 0

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:
No debris in this plot

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	no	Depth (Inches):	NA
Water Table Present?	no	Depth (Inches):	> 18
Saturation Present? (includes capillary fringe)	no	Depth (Inches):	> 18

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No evidence of primary or secondary wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Zenith | City/County: Des Moines | Sampling Date: 8/31/2023

Applicant/Owner: Zenith | State: Washington | Sampling Point: DP2

Investigator(s): S. Hartung | Section, Township, Range:

Landform (hillslope, terrace, etc.): Ditch/excavated area | Local relief (concave, convex, none): Concave | Slope (%): 5

Subregion (LRR): LRR A | Lat: 47.38960899 | Long: -122.320888975 | Datum: - WGS84

Soil Map Unit Name: Alderwood gravelly sandy loam, 8-15% slopes, non-hydric | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)

Are Vegetation no Soil yes or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

Are Vegetation no Soil no or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	
Hydric Soil Present?	Yes ✓ No ___	**Is the Sampled Area**
Wetland Hydrology Present?	Yes ___ No ✓	**within a Wetland? Yes ___ No X**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft/radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0		
2.	0		
3.	0		
4.	0		
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30 ft/radius)			
1.	0		
2.	0		
3.	0		
4.	0		
5.	0		
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft/radius)			
1. Hedera helix	15	yes	FACU
2. Ranunculus repens	15	yes	FAC
3. Juncus effusus	1	no	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1. Rubus armeniacus	2	no	FAC
2.	0		
	0 = Total Cover		
% Bare Ground in Herb Stratum 0			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1=
FACW species		x 2=
FAC species		x 3=
FACU species		x 4=
UPL species		x 5=
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1-Rapid Test For Hydrophytic Vegetation
___ 2-Dominance Test is >50%
___ 3-Prevalence Index is ≤3.0[1]
___ 4-Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5-Wetland Non-Vascular Plants[1]
___ 6-Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ___ **No** **X**

Remarks:
Most plants dead and matted

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	10YR 3/1	100		100			Silt loam	
5 - 18	2.5Y 5/1	60	7.5YR 5/8	30	C	M	Clay loam	
-			2.5Y 4/1	10	C	M		
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): 18

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Rock refusal, hard pan, and concrete rubble in soil profile

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plants (D1) **(LRR A)**
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) **(LRR A)**
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	no	Depth (Inches):	NA
Water Table Present?	no	Depth (Inches):	> 18
Saturation Present? (includes capillary fringe)	no	Depth (Inches):	> 18

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DP placed in an excavated ditch/swale but no evidence of drainage patterns other than the excavation.

APPENDIX I TREE EVALUATION LOCATIONS

LIMITS OF DISTURBANCE PLAN

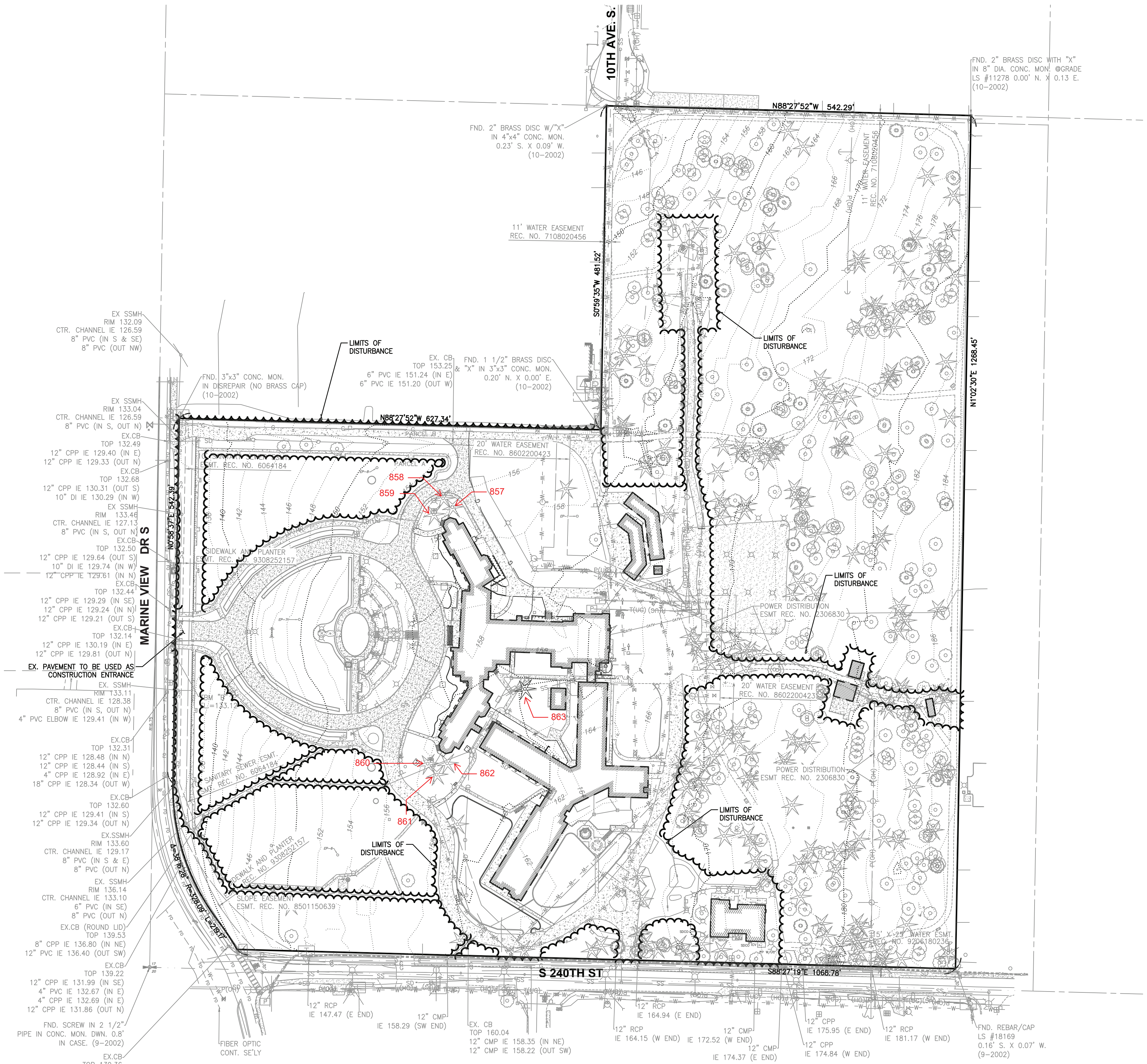
FOR

ZENITH PROPERTIES

A PORTION OF THE SE 1/4 OF SECTION 17, TOWNSHIP 22 N, RANGE 04 E., W.M.
DES MOINES, WASHINGTON

1"=80'
0 40 80 160

811
Know what's below.
Call before you dig.



APPROVED

BY:______________
City of Des Moines Transportation

BY:______________
City of Des Moines Surface Water Management

BY:______________
City of Des Moines Development Services

DATE:__________

NOTE:
This approval is void after 1 year from approval date.

The City will not be responsible for errors and/or omissions on these plans.

Field conditions may dictate changes to these plans. Changes must be approved by the Engineering Services Division.

No.	Date	By	Ckd.	Appr.	Revision

Title: LIMITS OF DISTURBANCE PLAN FOR DEMOLITION SEPA ZENITH PROPERTIES

For: ZENITH PROPERTIES LLC
1302 PUYALLUP ST, SUTE A
SUMNER, WA 98390

BARRY J. TALKINGTON
STATE OF WASHINGTON
41423
REGISTERED PROFESSIONAL ENGINEER
10/26/2023

Scale: Horizontal 1" = 80' Vertical –

Designed BJT Drawn BJT Checked BJT Approved BJT Date 10/26/2023

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 20871
Sheet 1 of 1

BTALKINGTON Xref: -----
File:P:\20000s\20871\preliminary\20871-e2.dwg Date/Time:11/1/2022 9:10 AM Scale:1" = 1'

APPENDIX J AIR QUALITY AND GREENHOUSE GAS EMISSIONS CALCULATIONS

AIR QUALITY APPENDIX

Air quality and greenhouse gas emission calculations conducted by ESA are attached.

TABLE 1: Debris Volume & Truck Trips per Hour

Material	Concrete	Soft Debris	Metals
Total Tons	20,000	2,100	275
Truck Loads	769	84	25
Truck Travel Hours	2100	252	80
Optimal # trucks	12	4	1
Trucks Trips/Hr during peak demo activities	10 entering / 10 exiting		
Tons per load	28	25	10
Destination	Maple Valley	Seattle	Kent

	Destination (miles)				Truck Loads (one way trips)							
	Maple Valley	Seattle	Kent		Concrete	Soft Debris	Metals		Total		Tons	
CO g/mi												
0.318391967	5.221628251	6.081286561	1.846673406	g	8030.86425	1021.656142	92.3336703	g	9144.854063	g	0.010080307	US ton
Nox g/mi												
0.455221966	7.465640244	8.694739553	2.640287403	g	11482.1547	1460.716245	132.0143702	g	13074.88531	g	0.014412352	US ton
VOC g/mi												
0.018754592	0.30757531	0.358212708	0.108776634	g	473.0508266	60.17973502	5.438831699	g	538.6693933	g	0.000593771	US ton
PM10												
0.010173939	0.166852602	0.194322238	0.059008847	g	256.6193026	32.64613602	2.950442361	g	292.215881	g	0.000322107	US ton
PM2.5												
0.009359994	0.153503907	0.178775892	0.054287967	g	236.0890089	30.03434979	2.714398354	g	268.837757	g	0.000296338	US ton

CO2 g/mi												
605.7630255	9934.513618	11570.07379	3513.425548	g	15279281.94	1943772.396	175671.2774	g	17398725.62	g	17.39872562	metric ton
CH4 g/mi												
0.009067544	0.148707716	0.173190084	0.052591753	g	228.7124676	29.09593414	2.629587665	g	260.4379894	g	0.000260438	metric ton
N2O g/mi												
0.001829059	0.029996569	0.034935029	0.010608543	g	46.13472367	5.869084863	0.530427141	g	52.53423568	g	5.25342E-05	metric ton

CO2e Total
17.39903859 metric ton

CH4	N2O	CO2	CO2e	
8.59445E-06	2.1E-07	203.983	203.9830088	metric ton

Year	Month	Day	State	County	Equipment	Fuel	Pollutant	Process	Emission Rate	x4 Excavators		x10 hours day		x5 days a week		x6 months		grams to US tons	grams to Metric tons
2024	6	5	53	53033	Excavators	23	1	THC	1.962571	7.850283	g	31.40113	g	157.0057	g	942.0339	g	0.001038	0.000942034
2024	6	5	53	53033	Excavators	23	2	CO	10.56344	42.25377	g	169.0151	g	845.0754	g	5070.452	g	0.005589	0.005070452
2024	6	5	53	53033	Excavators	23	3	Nox	44.44051	177.7621		711.0482	g	3555.241	g	21331.45	g	0.023513	0.021331447
2024	6	5	53	53033	Excavators	23	5	CH4	0.167647	0.670588	g	2.682354	g	13.41177	g	80.47061	g	8.87E-05	8.04706E-05
2024	6	5	53	53033	Excavators	23	31	SO2	0.14657	0.586281	g	2.345122	g	11.72561	g	70.35366	g	7.76E-05	7.03537E-05
2024	6	5	53	53033	Excavators	23	79	NMHC	1.794926	7.179702	g	28.71881	g	143.594	g	861.5643	g	0.00095	0.000861564
2024	6	5	53	53033	Excavators	23	87	VOC	2.106569	8.426274	g	33.7051	g	168.5255	g	1011.153	g	0.001115	0.001011153
2024	6	5	53	53033	Excavators	23	90	CO2	54736	218944	g	875775.9	g	4378880	g	26273278	g	28.96084	26.27327818
2024	6	5	53	53033	Excavators	23	99	BSFC	17160.26	68641.02	g	274564.1	g	1372820	g	8236922	g	9.0795	8.236922483
2024	6	5	53	53033	Excavators	23	100	PM10 - Total	2.086158	8.344633	g	33.37853	g	166.8927	g	1001.356	g	0.001104	0.001001356
2024	6	5	53	53033	Excavators	23	110	PM2.5 - Total	2.023573	8.094292	g	32.37717	g	161.8858	g	971.315	g	0.001071	0.000971315

CO2e Total
26.27335865 metric ton

CH4	N2O	CO2	CO2e	
2.65553E-06	0	203.983	203.9830027	metric ton

	Maximum Annual Emissions (tons/year)				
	VOC	**NOx**	**CO**	**PM10**	**PM2.5**
Trucks	0.000593771	0.014412352	0.010080307	0.000322107	0.000296338
Off-Road Equipment	0.001114587	0.023513499	0.005589123	0.001103787	0.001070674
Total	0.001708358	0.037925851	0.015669429	0.001425895	0.001367011
De minimis **threshold for P**	**N/A**	**N/A**	**1001**	**1001**	**N/A**

APPENDIX K NOISE

NOISE AND VIBRATION APPENDIX

Construction Noise model outputs conducted by ESA are attached.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/21/2023
Case Description: Zenith Building - Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
240th Street Residences	Residential	55.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	150.0	0.0
Dozer	No	40		81.7	150.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	71.2	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	72.1	68.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.1	70.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Vibration propogation from Construction Equipment

Formula from FTA, 2018 = PPVequip = PPVref x (25/D)^1.5
where

Receptor 1: S 240th Street

		PPV@25ft
PPV refs @ 25 ft =	pile driver (impact)	0.65
	Vibratory Roller	0.21
	Bulldozer (large)	0.089
	Truck(loaded)	0.076
	Jackhammer	0.035
	Dozer (Small)	0.003

Enter distance = 100 Adjacent Buildings

Resultant PPV =	pile driver (impact)	0.08125
	Vibratory Roller	0.02625
	Bulldozer (large)	0.011125
	Truck(loaded)	0.0095
	Jackhammer	0.004375

	Lv@25 ft
pile driver (impact)	104
Vibratory Roller	94
Bulldozer (large)	87
Truck(loaded)	86
Jackhammer	79
Dozer (Small)	53

Formula from FTA 2018 = Lv(D) = Lv(25 ft) – 30log(D/25)

Resultant Lv =	pile driver (impact)	85.9382
	Vibratory Roller	75.9382
	Bulldozer (large)	68.9382
	Truck(loaded)	67.9382
	Jackhammer	60.9382
	Dozer (Small)	34.9382