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EXECUTIVE SUMMARY

1.0 Executive Summary

The purpose of this report is to perform a structural and seismic assessment of the 2118 Milvia Street (here forth “Milvia”) in Berkeley, CA. The structural assessment includes a limited study of available architectural and structural drawings for potential use as community college building.

The structural assessment is to identify decay or weakening of existing structural materials (when visible), to identify structural and seismic deficiencies based on our experience with existing buildings, and to identify and provide concept structural/seismic upgrades as required to convert the subject building to a DSA compliant building, meeting the requirements of the Field Act, and capable of being used to staff and students, for the Peralta Community College District, as governed by the Division of the State Architect (DSA) SS/CC portion of the California Building Code (CBC) Chapter 3417: Design Objectives 3417.5.

The building at 2118 Milvia is a three-story reinforced concrete masonry unit (CMU) building constructed in 1966, approximately 28,390 square feet and is located approximately 1-2 kilometers west from the Hayward Fault near Shattuck Avenue in Berkeley.

The site is assumed to have a soil classification S_D in accordance with the default site class in ASCE 7-10 and the 2013 CBC.

Geologic hazards at the site include a high seismicity. Other hazards, including liquefaction, settlement, etc. are unknown, and will be required to be assessed later when a geotechnical engineer is retained by the District. As such, this report excludes an assessment for these potential unknown conditions.

The building is proposed to act as an educational occupancy (Occupancy Group E): thus evaluated as an Occupancy Category III with a 1.25 Importance Factor under 2013 CBC.

KPW Structural Engineers (KPW) had performed a review of existing drawings as made available by the Peralta CCD District Facility Office as well as reviewed the recent May 13th report by Thorton Tomasetti. Our office awaits the opportunity to visit the site in order to confirm our understanding of current construction/demising wall configuration.

The national guideline document ASCE 31-03, American Society of Civil Engineers, “Seismic Evaluation of Existing Buildings,” printed in 2003, is the basis of our qualitative seismic evaluation methods to identify the structural element deficiencies. The seismic performance levels included in ASCE-31-03 allow the engineer the choice to achieve the Life Safety Performance Level or the Immediate Occupancy Performance Level. We have based our evaluation of college buildings on the Life Safety Performance Level for which is defined as “the...
building performance that includes significant damage to both structural and nonstructural components during a design earthquake, such that (a) partial or total structural collapse does not occur, or (b) damage to not structural components is non-life threatening.”

The results of our evaluation are that Milvia has potential life-safety seismic hazards. KPW recommends that a more rigorous analysis be performed for these buildings and potentially that seismic strengthening retrofit be considered. The results of the evaluation can be found in Section 9.0 and recommendations can be found in Section 10.0.

2118 Milvia has been given a Building Seismic Hazard Rating of 3 – “Partial building collapse is possible following a major earthquake; significant life safety risk to occupants” (see Figure 2): the Building Seismic Hazard Rating (BSHR) system is described in Section 12.0 and Figure 3.

Non-structural building elements can pose a life safety hazard in any of the buildings regardless of the adequacy of the structural systems. Non-structural building hazards are described in Section 13.0 and mitigation of non-structural building hazards should be given strong consideration in all of the buildings. It is very possible that a building will not be available for post-earthquake occupancy if non-structural building elements have failed and/or fallen from ceilings or roofs.

1.1 Building Summary

<table>
<thead>
<tr>
<th>Building ID</th>
<th>Year Constructed</th>
<th>No. Stories</th>
<th>Approx. Gross Square Footage (sf)</th>
<th>BSHR Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>2118 Milvia St.</td>
<td>1966</td>
<td>3</td>
<td>28,390</td>
<td>3</td>
</tr>
</tbody>
</table>

1.2 List of Deficiencies

Each building is given a “Building Seismic Hazard Rating (BSHR)” based on a scale between 1 and 10, which is described in Figure 3. BSHR ratings are listed in Section 1.1 and Figure 2.

Building Structural Deficiencies

- Inadequate vertical shear elements dispersed across each building floor
- Original CMU piers are inadequately reinforced with limited footing capacity
- Seismic upgrade (Fratessa 1995) has insufficient shear/uplift capacity as well as non-ductile connections to address current code base shear as Occupancy Group E.
- Horizontal (diaphragm) elements require modifications to address drag
line required at CMU piers

- Insufficient collector lines at shear elements (wood, CMU and braced-frames)
- Re-entrant corner reinforcement required at horizontal diaphragm penetrations
- Diaphragm (2\textsuperscript{nd}, 3\textsuperscript{rd} and roof) capacity need to be improved to address current code base shear as Occupancy Group E.

Note that non-structural elements, such as partitions and ceilings are addressed in section 13.0. In general, most are expected to be replaced in their entirety due to the tenant improvement design by Noll & Tam.

### 1.3 Conclusions/Recommendations

Based on our review, and our extensive experience, it is our opinion that this building can be converted to meet the requirements of the Field Act and be DSA compliant. Extensive structural modifications will be required. This modifications can be readily accomplished given the extensive interior tenant improvements proposed conceptually by Noll & Tam Architects, as all interior finishes will be removed, allowing easy structural access to the improvements.

A limited summary of the mitigation measures are anticipated as follows:

- A comprehensive testing and inspection program by a Testing and Materials company to validate certain existing hidden conditions, material properties, and unobservable details, such as concrete strength, reinforcing steel properties, etc.
- Sub-diaphragm nailing program @ all floors.
- Mechanical connections at CMU piers @ all floors and roof.
- Coil strapping at collector dragline @ all floors.
- Alignment of shearwall/shearlines to primary coordinate between floors (Line 2.0, B.0, 6.4 and F.0)
- Modifying (E) brace frames (Line 2.0 & B.0) at lower floor and extending brace frames to second floor-level.
SEISMIC ASSESSMENT REPORT

2.0 Introduction

The purpose of this report is to perform a structural and seismic assessment of the 2118 Milvia building in Berkeley, CA. The structural assessment included a limited study of available architectural and structural drawings. The purpose of the structural assessment is to identify readily visually accessible decay or weakening of existing structural materials, to identify structural deficiencies based on our experience with existing buildings, and to identify eminent structural life-safety hazards with the change of occupancy to Group E from Group B, as well as to identify structural improvements required by the Field Act to have a DSA compliant building.

We performed a limited study of available architectural and structural drawings. The general structural condition of the building and any structural deficiencies that were apparent during the review of existing drawings as documented in this report. No numerical seismic analysis was performed on any buildings.

3.0 Description of 2118 Milvia Building

Milvia is currently a three-story office building constructed as follows:

- 8” Reinforced CMU perimeter walls
- Steel-framed (primary) with wood infill (roof and floors) joist framing and plywood horizontal assembly.
- Second and third floor diaphragm is covered with concrete topping slab.
- Founded upon isolated spread footings with ground floor slab-on-grade.
- Cold-Formed Steel (CFS) interior wall assembly

The exterior perimeter (8” CMU) walls with window penetrations along south and west building face openings and interior floor space without interior partitions.
4.0 Site Seismicity

The site has a soil classification S_D in accordance with the default site class in ASCE 7-10 and the 2013 CBC.

The building is located at a distance of 1-2 kilometers west from the Hayward fault near Shattuck Avenue in Berkeley.

The Milvia was constructed in 1966 and many of the building’s have classic seismic deficiencies, that have been studied for the past 60 years and have been evolving to greater degrees in each decade since. Over the years, the science of seismic design of buildings has improved and the record of past earthquakes and their effects has grown.

Over the years since the original Milvia building design, the Uniform/International Building seismic criteria’s has evolved as follows:

- L.L. Freels and Associates (1966) 0.108 * W – Zone 3
- Paul F. Fratessa Associates (1995) 0.138 * W – Zone 4 28% increase
- 2013 CBC, Part 10 (2014) 0.179 * W – Eq. A.1-4 65% increase

The special concentric braced-frame, intermediate reinforced masonry and plywood shear walls have a seismic response modification factor R of 6, 3.5 and 6.5 respectively. The 2013 CBC utilizes a Design Basis Earthquake (DBE) ground motion, 2/3 of the Maximum Considered Earthquake at any site, which approximates an earthquake with a 10% chance of exceedance in a 50-year period or an earthquake having a 475-year recurrence period. The Maximum Considered Earthquake (MCE) approximates an earthquake with a 2% chance of exceedance in a 50-year period or an earthquake having a 2500-year recurrence period.

The site seismicity and the seismic design coefficient are used to provide a basis for the visual identification of deficient elements in the building lateral force resisting systems.

5.0 List of Available Documents

- L.L. Freels and Associates (12.16.1966) architectural-structural
- Paul F. Fratessa Associates (09.20.1995) seismic upgrade
- Todd Jersey Architecture (07.25.2000) tenant improvement

6.0 Site Visits
KPW visited the site on June 17, 2014, to review the existing conditions. The site visit was brief, limited to under 2 hours, and only readily observable conditions were viewed. The emphasis was on the location / presence of lateral resisting elements.

### 7.0 Review of Existing Drawings

Milvia is currently a three-story office building constructed with 8” Reinforced CMU perimeter walls, steel-framed (primary) with plywood horizontal assembly over wood infill (roof and floors) joist framing; 2nd and 3rd floor diaphragm is covered with concrete topping slab, cold-formed steel (CFS) interior wall assembly and foundation comprising of isolated spread footings with ground floor slab-on-grade.

The exterior perimeter (8” CMU) walls with window penetrations along south and west building face openings and interior floor space without interior partitions.

The current seismic system capacity is limited in multiple ways:

- **Roof Level**
  - CMU piers lack mechanical ties into roof diaphragm (masonry tie w/ strap)
  - Diaphragm ties at roof penetrations (strapping)
  - Diaphragm continuity (E-W) across intermediate I-members (strap)
  - Diaphragm continuity (N-S) across perpendicular joist (solid blocking w/ strap)
  - Diaphragm capacity (N-S & E-W) inadequate for demand-level (diaphragm nailing)
  - CMU piers (Lines C.5/D.0/5.0/5.4) inadequate for demand-level loads (Abandon)
  - Lateral system deficient in both N-S & E-W direction (CFS w/ plywood shear)
  - Sub-diaphragm ties at CMU perimeter walls (masonry ties w/ enhanced nailing)
  - CMU piers lack confinement capacity under lateral deformation (fibre wrap)

- **Second Floor Level**
  - CMU piers lack mechanical ties into floor diaphragm (masonry tie w/ strap)
  - Diaphragm penetration in-filled (Line 5.0-6.0/C.1-C.9) with ties.
  - Diaphragm continuity (E-W) across intermediate I-members (strap).
  - Diaphragm continuity (N-S) across perpendicular joist (solid blocking w/ strap)
  - Diaphragm capacity (N-S & E-W) inadequate for demand-level (diaphragm nailing)
  - CMU piers (Lines C.5/D.0/5.0/5.4) inadequate for demand-level (Abandon - Line C.5/D.0 – transfer load to shotcrete panel at Line F.0 & Line 5.0/5.4 – transfer load to new braced frame at Line 6.0)
  - Lateral system deficient in both N-S & E-W direction (shotcrete & braced frame as noted above and extend existing brace frame to second floor level at Line 2.0 & B.0).
  - Sub-diaphragm ties at CMU perimeter walls (masonry ties w/ enhanced nailing)
  - CMU piers lack confinement capacity under lateral deformation (fibre wrap)
First Floor Level
- CMU piers (Lines C.5/D.0/5.0/5.4) inadequate for demand-level (Abandon - Line C.5/D.0 – transfer load to shotcrete panel at Line F.0 & Line 5.0/5.4 – transfer load to new braced frame at Line 6.0))
- BF/C MU foundation inadequate for demand–level requirements (supplement footings)
- Existing BF’s deficient in both N-S & E-W direction (Line 2.0 & B.0) and need to reconstructed.
- CMU piers lack confinement capacity under lateral deformation (fibre wrap)

8.0 Basis of Structural Evaluation

The national guideline document ASCE 31-03, American Society of Civil Engineers, “Seismic Evaluation of Existing Buildings,” printed in 2003, is the basis of our qualitative seismic evaluation methods to identify the structural element deficiencies. The seismic performance levels included in ASCE 31-03 allow the engineer the choice to achieve the Life Safety Performance Level or the Immediate Occupancy Performance Level. We have based our evaluation of Milvia on the Life Safety Performance Level for which is defined as “the building performance that includes significant damage to both structural and nonstructural components during a design earthquake, such that
(a) Partial or total structural collapse does not occur, or
(b) Damage to not structural components is “non-life threatening.”

Because mitigation strategies for rehabilitating buildings found to be deficient are not included in the ASCE 31-03 document, the California Building Code (CBC 2013) is used as the basis of our qualitative seismic evaluation methods and strategies for seismic strengthening recommendations of college buildings. The scope of our structural evaluation was not to validate every member and detail, but to focus on those elements of the structures determined by ASCE 31-03 to be critical and which could pose life safety hazards. Element strengthening not addressed in the California Building Code are qualitatively based on the document ASCE 41-06, American Society of Civil Engineers, “Seismic Rehabilitation of Existing Buildings” 2006.

9.0 List of Structural Deficiencies

Building deficiencies listed below have corresponding recommendations identified and listed in Section 10.0, which follow the same order as the itemized list of deficiencies identified below. Each building is given a “Building Seismic Hazard Rating (BSHR)” based on a scale between 1 and 10, which is described in Figure 3. BSHR ratings are listed in Figure 2. BSHR ratings between 1 to 3, identify the potential for building collapses, partial building collapses or life-safety hazards, respectively, if the buildings were subjected to potential major earthquake ground motions. The potential for major earthquake ground motions in the region have been well documented by the USGS due to earthquake faults such as the Hayward Fault and the San
Andreas Fault among others in the region. It is strongly recommended that life safety hazards are mitigated by implementing the recommendations listed below.

### Building Structural Deficiencies

**2118 Milvia St.**

- Inadequate vertical shear elements dispersed across each building floor
- Original CMU piers are inadequately reinforced with limited footing capacity
- Seismic upgrade (Fratessa 1995) has insufficient shear/uplift capacity as well as non-ductile connections to address current code base shear as Occupancy Group E.
- Horizontal (diaphragm) elements require modifications to address drag line required at CMU piers
- Insufficient collector lines at shear elements (wood, CMU and braced-frames)
- Re-entrant corner reinforcement required at horizontal diaphragm penetrations
- Diaphragm (2nd, 3rd and roof) capacity need to be improved to address current code base shear as Occupancy Group E.

Note that non-structural elements, such as partitions and ceilings are addressed in section 13.0. In general, most are expected to be replaced in their entirety due to the tenant improvement design by Noll & Tam.

#### 10.0 Recommendations

Items listed below follow the same order as the itemized list of deficiencies identified in section 9.0 above.

<table>
<thead>
<tr>
<th>Building</th>
<th>Recommended Remediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2118 Milvia St</td>
<td>Seismic study should be performed and seismic retrofit schemes should be developed to strengthen building.</td>
</tr>
</tbody>
</table>

#### 11.0 (not used)

#### 12.0 Building Seismic Hazard Rating System (BSHR)
This report has a Building Seismic Hazard Rating system (BSHR) based on a scale of 1 to 10 with 1 being the most severe and 10 having the seismic performance of a current code compliant building. The BSHR ratings are described in Figure 3.

A BSHR Rating is assigned to each building based on visual observations, a review of drawings, ASCE-31 evaluation procedures and KPWSE engineering experience. A BSHR rating of 1 to 3 is assigned if the elements of the building’s seismic force resisting system are woefully inadequate. A BSHR rating of 1 to 3 may indicate potential that a building experience a collapse, a partial building collapse, or have serious life-safety falling hazards if the building were subjected to major earthquake ground motion.

A BSHR rating of 4 to 6 may indicate a potential that a building experience a small local partial building collapse, or could experience severe structural damage if the building were subjected to major earthquake ground motion. The severity of building damage is less for a BSHR rating of 6.

A BSHR rating of 7 to 10 may indicate a potential that a building experience moderate to minor structural damage if the building were subjected to major earthquake ground motion. We anticipate that the building will not pose serious life-safety structural hazards.

13.0 Non-structural Building Elements

All campus buildings could experience non-structural building damage if the buildings are subjected to major or moderate earthquake ground motion. The degree of structural damage experienced by buildings could cause them to be not fit for resumed occupancy following a major seismic event. Life safety hazards can be posed to occupants from falling non-structural elements.

Typical non-structural seismic issues of Milvia include the following:

- Lateral bracing of suspended ceilings. Damage could include the collapse and falling of suspended ceiling systems. Falling hazards could be life safety hazards.
- Strength and lateral bracing and of non-structural partition walls. Damage could include portions of non-structural walls falling. Falling hazards could be life safety hazards.
- Anchorage or bracing of mechanical equipment, electrical equipment, plumbing, piping, conduit and/or ducts (MEP). Damage could include portions of MEP equipment falling or shifting and could impede continued use. Falling hazards could be life safety hazards.
- MEP conduit, plumbing, piping or ducts traveling between adjacent buildings. Damage could include portions of MEP equipment falling or pulling away from one building and could impede continued use. Gas pipes could rupture or cause fire. Falling hazards could be life safety hazards.
• Lateral bracing of building ornaments. Damage could include the falling of building ornaments. Falling hazards could be life safety hazards.
• Attachment of glazing and glazing systems and allowable inter-story drift or slippage before binding. Damage could include broken and falling glass and/or glazing systems. Falling hazards could be life safety hazards.
• Anchorage of furniture or appurtenances. Tall bookcases, casework, or equipment such as TV’s, or video equipment could tip over and/or fall. Falling hazards could be life safety hazards.

The evaluation of non-structural systems is exhaustive and has not been performed in this evaluation. Non-structural elements could potentially be falling hazards and could cause life safety hazards to building occupants. Non-structural hazards have not been factored into the BSHR ratings included in this report.

14.0 Conclusions

Based on our review, and our extensive experience, it is our opinion that this building can be converted to meet the requirements of the Field Act and be DSA compliant. Extensive structural modifications will be required. This modifications can be readily accomplished given the extensive interior tenant improvements proposed conceptually by Noll & Tam Architects, as all interior finishes will be removed, allowing easy structural access to the improvements.

A limited summary of the mitigation measures would encompass:
• A comprehensive testing and inspection program by a Testing and Materials company to validate certain existing hidden conditions, material properties, and unobservable details, such as concrete strength, reinforcing steel properties, etc.
• Sub-diaphragm nailing program @ all floors.
• Mechanical connections at CMU piers @ all floors and roof.
• Coil strapping at collector dragline @ all floors.
• Alignment of shearwall/shearlines to primary coordinate between floors (Line 2.0, B.0, 6.4 and F.0)
• Modifying (E) brace frames (Line 2.0 & B.0) at lower floor and extending brace frames to second floor-level.
• Additional two-story brace frame (Line 6.0)
• Foundation enhancements at brace frames (Line 2.0 & B.0) as well as new foundation construction at new brace frame (Line 6.0)
• Shotcrete (two-story) application (Line F.0) along with associated foundation enhancements.
• Interior and exterior 3rd floor shearwall [plywood panels applied over (E) or (N) CFS stud wall framing - Line 2.0, 3.0, 6.4, B.0, C.0/C.1 & D.0]

Given the vintage of the buildings, some elements and details of the existing construction will not meet the provisions of the current building codes. However, in our opinion, based on the limited qualitative building evaluation, the building will be able to meet the Field Act and DSA requirements for a compliant building, if the seismic deficiencies identified in Section 9.0 are corrected in accordance with the recommendations presented in Section 10.0.

Any proposed expansion, renovation or modernization of the buildings should include the recommended seismic strengthening presented in Section 10.0.

15.0 Limitations and Disclaimer

This report does not include a qualitative and visual evaluation of 2118 Milvia. Gravity structural element or seismic structural element deficiencies that could be identified from review of available drawings have been documented in this report. Elements of the structures determined to be critical and which could pose life-safety hazards have been identified and documented in this report.

Users of this report must accept the fact that potential structural deficiencies may exist in the building structures that were not identified in this limited evaluation. These deficiencies may only be evaluated by a more detailed numerical seismic analyses of buildings, were not documented in full or could be from construction, which differs from documented design drawings. Our services have consisted of providing our professional opinions, conclusions, and recommendations based on generally accepted structural engineering principles and practices.
Figure 1: Site Map
## Structural & Seismic Evaluation of 2118 Milvia Street

<table>
<thead>
<tr>
<th>No.</th>
<th>ID</th>
<th>Drawing</th>
<th>Date</th>
<th>No. of Stories</th>
<th>Area (gsf)</th>
<th>Structural System</th>
<th>Lateral Force System</th>
<th>Foundation System</th>
<th>BSHR</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Milvia</td>
<td>1966</td>
<td>3</td>
<td>28,390</td>
<td>A,B &amp; C</td>
<td>E, F &amp; G</td>
<td>H &amp; I</td>
<td>D</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

### Notes:
1. BSHR = Building Seismic Hazard Rating. See Section 12.0 of the Report and Figure 3 for Description.

### Structural Systems:
- **A.** Reinforced Concrete Masonry Construction (walls)
- **B.** Wood SW with CFS Framed Construction
- **C.** Steel Framed (WF beams) @ Floors/Roof

### Foundation Systems:
- **D.** Spread Footings w/ slab-on-grade at ground floor

### Seismic System (Vertical Elements):
- **E.** Reinforced concrete masonry shear walls
- **F.** Plywood shear walls
- **G.** Steel Concentric Braced Frame

### Seismic System (Horizontal Diaphragms):
- **H.** Plywood roofs
- **I.** Plywood deck w/concrete fill (floors)

### Comments:
1. Inadequate vertical shear elements dispersed across each building floor, original CMU piers are inadequately reinforced with limited footing capacity and seismic upgrade (Fratessa 1995) has insufficient shear/uplift capacity as well as non-ductile connections to address current code base shear as Occupancy Group E. Horizontal (diaphragm) elements require modifications to address drag line required at CMU piers, insufficient collector lines at shear elements (wood, CMU and braced-frames), re-entry corners reinforcement required at horizontal diaphragm penetrations and diaphragm (2nd, 3rd and roof) capacity need to be improved to address current code base shear as Occupancy Group E.

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**Figure 2: Building Evaluation and Rating**
<table>
<thead>
<tr>
<th>BSHR</th>
<th>Description of Anticipated Structural Damage</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing structure is an imminent collapse hazard following a major earthquake and should be closed.</td>
<td>Structural retrofit or replacement strongly recommended.</td>
</tr>
<tr>
<td>2</td>
<td>Total building collapse is possible following a major earthquake; significant life safety risk to occupants.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Partial building collapse is possible following a major earthquake; significant life safety risk to occupants.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Collapse of parts or portions of structures are possible following a major earthquake. Significant retrofit of structure may be required</td>
<td>Detailed structural evaluation recommended if building is modernized. Voluntary seismic retrofit should be implemented.</td>
</tr>
<tr>
<td>5</td>
<td>Collapse of parts or portions of structures are possible following a major earthquake. Retrofit of structure may be required</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Collapse of parts or portions of structures are possible following a major earthquake. Retrofit of part of structure may be required</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Building collapse unlikely following a major earthquake; life safety preserved; damage likely to be moderate.</td>
<td>Existing structure meets life safety requirements.</td>
</tr>
<tr>
<td>8</td>
<td>Significant building damage following a major earthquake may be moderate.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Building damage following a major earthquake should be repairable.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Existing structure complies with 2007 California Building Code. Building damage following a major earthquake should be repairable.</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3:** Building Seismic Hazard Rating System (BSHR)
NEW PLYWOOD SHEAR APPLIED
OVER (E) CFS (EXTERIOR) OR
(N) CFS (INTERIOR) WALL
ASSEMBLY

COIL STRAPING (CSS4x10-0")
OVER 4x FLAT BLOCKING (TYP),
U.A.D.

MASONRY TE (WTH) FROM (E)
CMU PIER TO ST/ST BEAM
BEYOND (RED=5/8" x 7"
ENVIRONMENT EPOXY) GROUT
ANCHOR

MEDIANFRAME
SHORTEE (E) CMU PANEL
EDGE NAILING (E)
BLOCKED DIAMAGRAM

NOTE:

1. SHORTEE (E) CMU (TYP @ ALL PIERS)
2. CFS SHALL BE SIZED, REINFORCED AND PROPOSED TO MATCH STRUCTURAL DESIGN
3. CMU TO BE CEMENTED WITH ENVIRONMENTALLY FRIENDLY EPOXY"