NEW SAN DIEGO CENTRAL COURTHOUSE

FOR THE SUPERIOR COURT OF CALIFORNIA, COUNTY OF SAN DIEGO:

FINAL ENVIRONMENTAL IMPACT REPORT

SCH # 2000021015

Issue Date: December 2010

VOLUME II: TECHNICAL APPENDICES

Prepared For:

Judicial Council of California
Administrative Office of the Courts
455 Golden Gate Avenue
San Francisco, California 94102-4272

Prepared By:

RBF Consulting
9755 Clairemont Mesa Blvd., Suite 100
San Diego, California 92124
RBF JN 25-104231.001

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APPENDIX A

EXPANDED NOTICE OF PREPARATION (NOP) / PUBLIC RESPONSES RECEIVED

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NOTICE OF PREPARATION

and

Public Scoping Meeting Notice

REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

for the New San Diego Central Courthouse Project (SCH #2000021015)

THIS NOTICE INFORMS INTERESTED PARTIES THAT the State of California (the "State") Administrative Office of the Courts (the "AOC"), staff agency to the Judicial Council of California, as Lead Agency under the California Environmental Quality Act ("CEQA"), has prepared an Expanded Notice of Preparation ("NOP") for a Revised Draft Environmental Impact Report (the "EIR") for the proposed New San Diego Central Courthouse Project ("proposed project").

The County of San Diego (the "County") initially issued a NOP (SCH #2000021015) for a San Diego County Courthouse Replacement Project (the "2000 County Project") in 2000 for the Superior Court of California, County of San Diego (the "Superior Court"). Due to changes to State law regarding responsibility for construction, operation and maintenance of all State trial court facilities (including the Superior Court) since 2000, the AOC has acquired the County-owned courthouse site, secured State authorization and funding for feasibility studies for a new courthouse, and secured related agreements between the AOC and the County. Due to these actions, the AOC is now the lead agency for construction and operation of the proposed new courthouse. This Expanded NOP includes an updated project description, exhibits, phasing information, anticipated permits/approvals, and an overview of the potential impacts for the EIR.

<u>Project Title</u>: New San Diego Central Courthouse Project

<u>Project Location</u>: The preferred location for the New San Diego Central Courthouse Project is an approximately 1.4-acre site in downtown San Diego between West "C" Street, Union Street, West "B" Street, and State Street; refer to Figure 1, "Regional/Local Vicinity Map" and Figure 2, "Proposed Improvements." Some parties refer to the preferred site as the "Stahlman Block."

Following construction of the new courthouse, the AOC (or its assignee) will demolish the existing County Courthouse, Old Jail, and attached pedestrian bridges at a future date. These facilities are between West Broadway, Union Street, West B Street, and Front Street (see Figure 2).

<u>Project Description</u>: The AOC will construct and operate a new courthouse for the Superior Court. The facility will include as much as approximately 750,000 square feet for 71 courtrooms and other improved facilities. Construction of the New San Diego Courthouse will require approximately 28 months to complete from mid 2014 to 2016. The project will: (1) enhance the security and efficiency of judicial operations; (2) improve public access; (3) provide consolidated space for the Superior Court's staff and operations; (4) preserve or improve the operational efficiency of the Superior Court, the District Attorney, and San Diego Sheriff by linking the County's Central Jail and possibly the Hall of Justice with the new courthouse; and (5) remove existing facilities that lack adequate seismic safety, security, and public access and contain potential health hazards.

Background: As stated previously, the County initiated the 2000 County Project, prepared a NOP in 2000 (SCH #2000021015), and circulated a Draft EIR for public review and comments. The purpose of the 2000 County Project was to enable site acquisition for future use of the property as a new location for a replacement courthouse facility. The County did not propose actual construction of a new courthouse, but recognized that construction would be required at some point in the future to provide new courthouse space in the downtown San Diego.

Before and after the County initiated the 2000 County Project, the State began making major financial and structural changes to the Superior Court system. In 1997, the Lockyer-Isenberg Trial Court Funding Act (Stats. 1997, ch. 850; Assembly Bill 233) made funding of court operations a State responsibility and provided the courts with their first statewide funding system. In 2001, the State's Task Force on Court Facilities recommended that the State assume full maintenance and operational responsibility for all trial court facilities in the State, and the subsequent Trial Court Facilities Act of 2002 (Stats. 2002, ch. 1082, Senate Bill 1732) codified the State's responsibility for court facilities and placed the responsibility with the Judicial Council of California and its staff agency, the AOC. In 2008, the California Legislature enacted provisions (and in 2009 amended) authorizing up to $5 billion in bond funding for new and renovated court facilities using court user fees rather than the State's general fund (Stats. 2008, ch. 311, Senate Bill 1407, and Stats. 2009, ch. 10, Senate Bill X2-12; hereafter referred to as "SB 1407"). A new San Diego central courthouse is identified as one of 41 trial court construction projects initially authorized to proceed under SB 1407. This preliminary authorization and funding enables the AOC to proceed with feasibility studies and preliminary plans required as a prerequisite for the construction of a new courthouse similar to the replacement courthouse that the County envisioned and initiated in 2000 with its 2000 County Project.

Purpose of this Notice: The purpose of this notice is (1) to serve as the Notice of Preparation to potential Responsible Agencies, agencies involved in funding or approving the project, and Trustee Agencies responsible for natural resources affected by the project pursuant to Section 15082 of the CEQA Guidelines; and (2) to advise and solicit comments and suggestions from any interested parties regarding the preparation of the EIR, environmental issues to be addressed in the EIR, and any related issues . The AOC requests that any potential Responsible or Trustee Agency responding to this NOP respond in a manner consistent with CEQA Guidelines Section 15082(b).

This Expanded NOP is available from the AOC's project website, (http://www.courtinfo.ca.gov/programs/occm/projects_sandiego.htm), is on file at the AOC at the address provided below, and is also available at the government documents section of the City of San Diego Public Library–Central Branch, 820 E Street, San Diego, California, 92101.

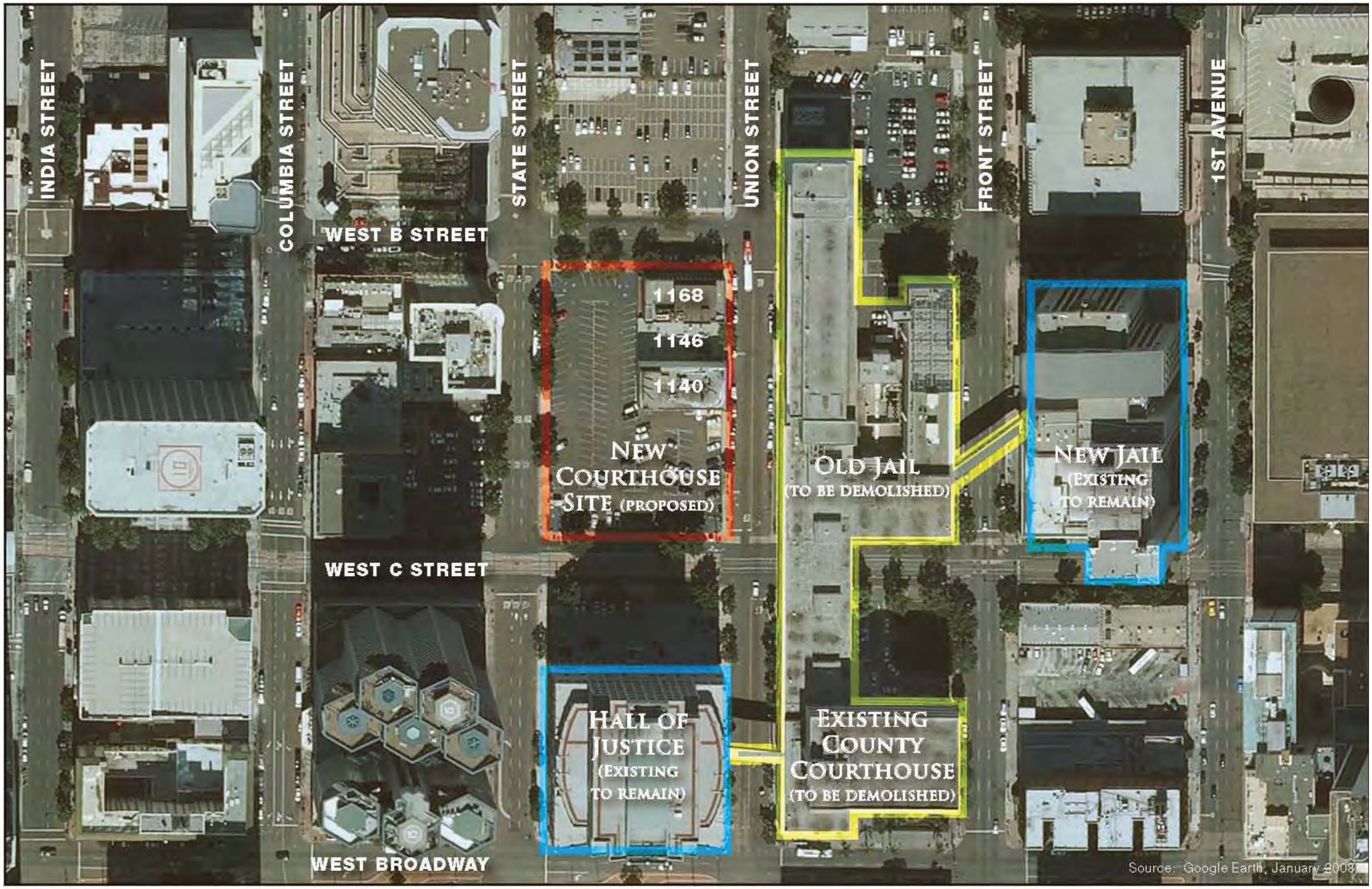
30-Day NOP Review Period: In accordance with CEQA, the AOC requests that interested agencies and parties provide a written response to this NOP within the 30-day NOP review period between Tuesday May 4, 2010 and Wednesday June 2, 2010. Written comments must be postmarked no later than Wednesday June 2, 2010. The

RBF CONSULTING

1140, 1146, & 1168 Union Street
San Diego, California
RBF April 2010

NEW SAN DIEGO
CENTRAL COURTHOUSE
REGIONAL / LOCAL VICINITY MAP
Figure 1

SDMac: 25104231figure(let-port).indd



RBF CONSULTING

N
Not to Scale

SD Mac: 25104231 figure(at-land).indd

NEW SAN DIEGO
CENTRAL COURTHOUSE
PROPOSED IMPROVEMENTS
Figure 2

deadline for e-mailed or faxed comments is 5:00 p.m. on June 2. Please indicate a contact person and send your response to the following contact:

Mr. Jerome Ripperda
Office of Court Construction and Management
Administrative Office of the Courts
2860 Gateway Oaks, Suite 400
Sacramento, California 95833

Phone: (916) 263-8865
Facsimile: (916) 263-8140
E-mail: Jerry.Ripperda@jud.ca.gov

If any party wishes to be placed on the AOC's mailing list for the proposed project, has questions about the project, or need additional information, please contact Mr. Ripperda.

Public Scoping Meeting: The AOC will hold a public scoping meeting to provide an overview of the project, a summary of the environmental process and issues, and an opportunity for interested parties to submit input regarding environmental issues and the suggested scope and content of the EIR. The AOC will hold the scoping meeting at the address, date, and time shown below:

Date: May 18, 2010

Time: 4:00 p.m. to approximately 5:30 p.m.

Place: Downtown Information Center, 193 Horton Plaza (above CVS/pharmacy), San Diego, CA

The Downtown Information Center's web address is:
http://www.ccdc.com/index.cfm/fuseaction/resources.info

If a party needs special accommodations for the meeting, please contact Mr. Ripperda.

Attachment

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Attachment to the Notice of Preparation of an Environmental Impact Report for the State of California Administrative Office of the Courts

New San Diego Central Courthouse Project

New San Diego Central Courthouse Project Location

The proposed site for the New San Diego Central Courthouse ("proposed project") is approximately 0.5 mile east of the B Street and Broadway Piers on San Diego Bay and approximately 0.5 mile north of Harbor Drive and the San Diego Convention Center (see Figure 1). Balboa Park is approximately one mile northeast of the site, and Interstate 5 (I-5) is less than 0.5 mile to the north of the project site.

The areas potentially affected by the New San Diego Central Courthouse Project include:

- Proposed New San Diego Central Courthouse site—The preferred proposed courthouse facility's site is in downtown San Diego and is a one-block parcel with "B" Street on the north, Union Street on the east, "C" Street on the south, and State Street on the west; refer to Figure 2, "Proposed Improvements."

  Three buildings occupy the northeast portion of the site and face Union Street, and a paved parking lot occupies the remainder of the site. Currently, approximately 75 percent of the property is used for surface parking. The remaining 25 percent of the site, occupying the northeast corner of the lot, contains three multi-level buildings housing a restaurant, offices, and bail bond use.

- Existing County Courthouse/Old Jail—This AOC-owned courthouse building's address is 220 West Broadway; the Courthouse extends northward from Broadway to the block north of "B" Street with bridges over "C" and "B" Streets (see Figure 2, "Proposed Improvements"). The Old Jail is connected to the courthouse.
- Hall of Justice—This County-owned building is located along Broadway Street and extends from Union Street west to State Street.
- Madge Bradley Building—This County-owned facility is located at 1409 Fourth Avenue at the northeast corner of Ash Street and Fourth Avenue.
- Family Court—This County-owned facility is at 1501-1555 Sixth Avenue. The facility extends from Beech Street northward to Cedar Street.
- Kearney Mesa—This County-owned facility is at 8950 Clairemont Mesa Blvd.

Project Description

The preferred New San Diego Central Courthouse site is an approximately 1.4-acre site; refer to Figure 2, "Proposed Improvements". The State of California, acting by and through the Judicial Council of California, currently owns the proposed courthouse site, the existing County Courthouse, and the Old Jail.

The proposed project will construct a courthouse building with approximately 20 stories and two basement levels. The AOC has developed only a preliminary site plan for the project; however, the AOC expects that the building will be approximately 420 feet tall with approximately 750,000 building gross square feet. The main public entrance to the courthouse will be along “C” Street.

The new courthouse will include 71 courtrooms with associated judicial chambers and operational areas. The new courthouse will support felony and misdemeanor judicial activities, and it will also support other judicial activities that may include civil, probate, and family law functions. To maximize functional flexibility, all of the courtrooms will have holding capability for in-custody detainees and space for juries. The facility’s lowest floors will provide an entrance, security screening facilities, and lobby on the first floor; additional public areas, support offices, and high volume courtrooms on the lower floors; and other courtrooms and judicial facilities on the upper floors. The building will also provide space for administrative and staff offices, juror assembly area, and building support space. To promote security inside the new courthouse, the building will provide separate corridors and elevators for movement of in-custody detainees, judicial staff, and visitors.

The project will connect the proposed courthouse with adjacent facilities. The AOC will construct a pedestrian inmate transportation tunnel (the “Inmate Tunnel”) between the new courthouse and the County’s Central Jail which is located approximately 325 feet east of the proposed courthouse site. After completion of the courthouse, the AOC will transfer title to the Inmate Tunnel to the County. In addition, to improve operational efficiency, the project may include construction of a bridge over “C” Street to connect the new courthouse to the Hall of Justice. The AOC presumes that the bridge will potentially be approximately 45 feet above the street and approximately 20 feet wide, 16 feet high, and 150 feet long.

The proposed building’s upper basement level will include in-custody detainee handling facilities that connect via the Inmate Tunnel to the County Central Jail. The basement will also include support space for mechanical equipment and building operational support needs. The lower basement will provide approximately 115 secured parking spaces for judicial officers and judicial executives, and it may also have additional building support areas.

The preferred project site currently provides approximately 170 public surface parking spaces, and a private party manages the parking operation. There are also approximately 10 on-street parking spaces located on the western side of Union Street, which are adjacent to the project site. The project will eliminate the public on-site parking spaces and will only provide secured on-site parking for judicial officers and Superior Court executives. The project will not construct any additional public parking facilities. Since the project will reserve adjacent on-street parking spaces for use by public law enforcement vehicles, the project will also eliminate the on-street public parking spaces on the western side of Union Street.

Metropolitan Transit System’s buses currently park in on-street parking spaces that are adjacent to the project site on the eastern side of Front Street and the south side of “B” Street. The project’s security measures will limit all adjacent on-street parking spaces to use by law enforcement vehicles, and therefore, the project will eliminate the Metropolitan Transit System's on-street bus waiting spaces.

After construction of the new courthouse is complete, the Superior Court will re-locate existing staff and operations from the County Courthouse, Madge Bradley Building, Family Court, and portions of the Kearny Mesa Facility into the new courthouse. The Superior Court will abandon its space in the County Courthouse, Madge Bradley Building, and Family Court. After the Superior Court relocates its operations from the Madge Bradley Building and Family Court, the County or another party will occupy the vacated space. The proposed new courthouse will add one new courtroom and will transfer the staff and operations of a small claims department from the Kearny Mesa Facility to the proposed new courthouse.

The project includes demolition of the existing County Courthouse, Old Jail, and bridges that extend from the County's Central Jail to the County Courthouse and from the Hall of Justice to the County Courthouse; however, since the AOC does not currently have funding for demolition of the County Courthouse, Old Jail and the bridges, the demolition work will occur at an unknown date in the future. When the AOC proceeds with the demolitions, the AOC will replace chilled water supply and related connections that extend from the County's Central Plant through the County Courthouse to other County facilities.

The project will also make several improvements in the area surrounding the proposed project. To improve pedestrian safety at the intersections of Union Street and Front Street with "B" Street and "C" Street, the AOC will add pedestrian corner-crossing enhancements.

The AOC's design will incorporate features that conform to standards of a Leadership in Energy and Environmental Design (LEED) silver-certified building. The building's design will include features to reduce energy consumption by at least 15% from the levels of the California Building Code.

The State of California is not subject to local governments' land use planning and zoning authorities. Government Code Section 70391 gives the Judicial Council of California full responsibility, jurisdiction, control, and authority over trial court facilities including property acquisition, planning, construction and disposal of property. The California Trial Court Facilities Standards,[1] which the Judicial Council of California published in April 2006, provide direction for development of trial court facilities; however, the State is coordinating closely with the City and Centre City Development Corporation to ensure that the proposed project is generally compatible with local land use plans and policies.

The AOC is the Lead Agency for the project, and the Administrative Director of the Courts is responsible for approving the project. The City of San Diego will be a responsible agency because the AOC will need to acquire one or more easements or other similar real property rights from the City to allow for construction and operation of the Inmate Tunnel and necessary property rights for a possible new bridge over "C" street connecting the Hall of Justice and the new courthouse. Since the AOC may

[1] Available at http://www.courtinfo.ca.gov/programs/occm/documents/06_April_Facilities_Standards-Final-Online.pdf

potentially include a bridge over "C" Street to connect the Hall of Justice and the new Central Courthouse, the County will also be a responsible agency. No other agency must make a discretionary approval of the real estate, construction, or operational portions of the proposed project.

Summary of Key Environmental Issues

The County's 2000 Notice of Intent to prepare a Draft Program EIR, available at http://www.courtinfo.ca.gov/programs/occm/projects_sandiego.htm, concluded that implementation of the 2000 County Project might have included potentially significant effects for traffic/circulation, land use/visual quality, and cultural/historical resources. The County also concluded that the 2000 County Project had no potential effects on biological resources, hazards, public services, and utilities and services. After reviewing the County's 2000 Notice of Intent and comparing the proposed project to the 2000 County Project, the AOC concludes that impacts of the proposed project will have no potential effects to biological resources, public services, and utilities and services, and the project will also have no potential effects to agricultural resources or mineral resources. The following paragraphs provide the AOC's analysis for the effect of the proposed project on other resources.

Aesthetics/Visual Resources

Future construction of the replacement Courthouse might create significant aesthetic impacts regarding urban design in the downtown area. Construction of the courthouse's as much as approximately 750,000 square feet of development (up to 20 stories in height) and supporting facilities might conflict with aesthetics. The EIR will evaluate the potential for the project design to conflict with surrounding aesthetic resources and potential impacts caused by shading effects.

Land Use and Relevant Planning

The State of California is not subject to City of San Diego land use approvals for construction or operation of proposed development projects. However, the AOC will evaluate the proposed project's consistency with adopted plans, policies, and regulations.

The proposed project's consistency with the plans and policies of the City, the Center City Development Corporation, the Federal Aviation Administration, and the Comprehensive Land Use Plan for Lindbergh Field represents a potentially significant land use planning impact. Potentially significant impacts might occur if project design plans exceed height limitations established by the Federal Aviation Administration for structures within the airport planning area for Lindbergh Field.

The AOC anticipates that planned uses are consistent with the Centre City Community Plan designation (Commercial/Office Land Use Emphasis) that permits governmental and judicial facilities and emphasizes the use of the area as a regional center for government, businesses, professional offices, and associated activities. The AOC expects that conversion of the existing land uses on the preferred project site to the new courthouse will not significantly divide or disrupt the arrangement of land uses in the downtown project area because the project is located in an urban environment with mixed commercial, residential, and governmental uses already existing in the area.

Noise

Future development of the project site as a courthouse complex might expose people to potentially significant construction noise or vibration levels that will exceed the allowable limits of the City of San Diego Noise Element of the General Plan, City of San Diego Noise Ordinance, San Diego Municipal Code, or other applicable Federal, State, or local noise control regulations as they apply to development within the City of San Diego Centre City Community Plan area. The project does not propose any uses that will expose people residing or working in the area to long-term excessive noise levels. The EIR will evaluate the project's noise effects, and the AOC will recommend mitigation measures to avoid, reduce, or offset project impacts when appropriate.

Air Quality/Climate Change

The analysis within the EIR will provide discussion of potential project impacts on climate change and air quality including project operations associated with energy consumption. The EIR's analysis of short-term air quality impacts will focus on dust generation, construction vehicle emissions, and possible odors from construction equipment. The EIR will analyze air quality-related construction impacts in relation to San Diego Air Pollution Control District thresholds and local requirements.

In addition, the EIR will evaluate project consistency with local and regional planning programs. The EIR will model construction-related dust and vehicle emissions and long-term operational emissions. This section of the EIR will evaluate the potential energy demand and impacts associated with implementation of the project.

Once construction is complete, the AOC expects that the project will not create new substantial increases in traffic volumes, but the EIR will evaluate whether the project will substantially affect levels of long-term mobile source emissions. The EIR will also evaluate long-term impacts such as climate change.

Traffic/Parking

Future development of the site might degrade the level of service on roadways within the downtown San Diego area. Development of the project site will include a new high-rise building with up to 20 stories and as much as approximately 750,000 square feet of space. The trip generation associated with the proposed new facility might significantly affect existing levels of service, but the AOC recognizes that the proposed project includes demolition of existing buildings that partially offset the new facility's trip generation. In addition, incremental traffic impacts of the project have the potential to be cumulatively significant. The AOC will prepare a traffic analysis to evaluate potentially significant traffic issues and discuss the project's traffic effects in the EIR.

The project's net trip generation may also create potential off-street parking shortfalls. The EIR will include a parking study as a component of the traffic analysis to ensure evaluation of applicable parking potential impacts.

Geology/Soils

The EIR will consider existing available regional geology information and hazards, areas potentially subject to significant seismic hazards, existing topography, landform modifications, and potential for wind and/or water erosion impacts for the project. The project site is not located in a hazard zone identified by the Alquist-Priolo Earthquake Fault Zoning Act, Special Publication 42, Revised 1 994, *Fault-Rupture Hazards Zones in California.* Based on a preliminary geotechnical investigation, the courthouse site does not have any features that would indicate fault rupture, seismic ground shaking or failure, rockfall, landslides, or the potential for liquefaction; however, the project site is located within a seismically active region. An active fault line is the east of the site under the existing Central Courthouse and Old Jail. The EIR will evaluate potential impacts related to geology and soils.

The EIR will consider temporary construction activities related to grading and the exposure of loose topsoil and erosion. In addition, the EIR will identify best management practices and erosion controls to minimize potential erosion and reduce potential sedimentation impacts to area storm drains.

Historical/ Archaeological/Paleontological Resources

The Bay Point Formation, which has a moderate potential for the occurrence of paleontological resources, underlies the project site. In addition, various uses have occurred on the preferred proposed project site since the 1870's, and the potential for significant historic resources for the proposed project site and the existing Courthouse and Old Jail. The AOC will prepare Historic Resources Assessment and Cultural Resources Assessment for the proposed project. The EIR will evaluate potential impacts to historical, archaeological, and paleontological resources.

Hazards/Hazardous Materials

The AOC anticipates that the future courthouse and related uses proposed for the project site will not contain, handle, or store any potential sources of chemicals or compounds that will present a significant risk of accidental explosion or release of hazardous substances. Since the proposed site has been previously disturbed and the project will include future demolition of the existing County Courthouse and Old Jail, the EIR will evaluate the proposed project's potential effects for hazards/hazardous materials.

Cumulative Impacts

As required by CEQA, the EIR will evaluate potential cumulative impacts of the project when added to all other reasonably foreseeable projects in the vicinity.

Project Alternatives

As required by CEQA Guidelines Section 15126.6, the EIR will evaluate a range of reasonable alternatives to the project that will feasibly attain most of the basic objectives of the project but will avoid or substantially lessen any of significant effects. The comparative evaluation of alternatives within the EIR may include the following: (1) No Project Alternative; (2) Alternate Downtown Site Alternative; and, (3) Relocate

Courthouse Operations to Existing Facilities Alternative. The AOC may consider other alternatives as a result of scoping or agency input.

ENVIRONMENTAL REVIEW PROCESS

Following completion of the 30-day Notice of Preparation public review period, AOC will incorporate relevant information including results of public scoping and technical studies into the Revised Draft EIR. The AOC will circulate the Revised Draft EIR for public review and comment for the required 45-day public review period. The AOC will send a Notice of Availability for the Revised Draft EIR to all interested parties that indicate their desire for future review of the document. In addition, the Draft EIR and related materials will be available for review on AOC's website (http://www.courtinfo.ca.gov/programs/occm/projects_sandiego.htm), at the City of San Diego Public Library - Central Branch (address given above), and at the Administrative Office of the Courts, 2860 Gateway Oaks, Suite 400, Sacramento, California 95833. Following receipt of all written comments on the Revised Draft EIR, the AOC will provide responses to comments as part of the Final EIR. The AOC will provide notification of future public meetings for this project to parties that have requested future notification for the project's CEQA compliance.

If interested parties have any questions or comments regarding this Notice of Preparation, please contact Mr. Jerome Ripperda, Administrative Office of the Courts at (916) 263-8865 or via email at Jerry.Ripperda@jud.ca.gov.

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THE CITY OF SAN DIEGO

May 27, 2010

Administrative Office of the Courts
Mr. Jerome Ripperda
2860 Gateway Oaks, Suite 400
Sacramento, CA 95833-3509

Submitted via email to: Jerry.Ripperda@jud.ca.gov
Hard copy to follow via mail

Subject: **CITY OF SAN DIEGO COMMENTS ON THE NOTICE OF PREPARATION FOR THE NEW SAN DIEGO CENTRAL COURTHOUSE**

The City of San Diego ("City") has received and reviewed the Notice of Preparation (NOP) for the above project and appreciates this opportunity to provide comments to the Administrative Office of the Courts. In response to the NOP, the City has identified potential environmental issues that may result in a significant impact to the environment. Continued coordinated planning between the City, the Administrative Office of the Courts, and other local, regional, state, and federal agencies will be essential.

Staff from the Development Services Department ("DSD"), the Storm Water Departmnt, and the Environmental Services Department (ESD) have reviewed the DEIR and have the following comments regarding the content of the DEIR:

DEVELOPMENT SERVICES DEPARTMENT:
ANN GONSALVES (619) 446-5294 AGONSLAVES@SANDIEGO.GOV
KAMRAN KHALIGH AT (619) 446-5357, KKHALIGH@SANDIEGO.GOV

A traffic impact analysis should be conducted as part of the EIR to evaluate project impacts, and to identify any required project mitigation. The excerpts of the traffic impact analysis should be included and discussed in the EIR and any other relevant documents. The traffic impact study and the EIR should also include and discuss parking analysis, and circulation.

The traffic impact analysis should be prepared based on the current City of San Diego guidelines and procedures. All project driveways and the fronting and nearby street segments, intersections, freeway segments, and ramps should be evaluated in the study.

The parking analysis should include an in depth discussion and calculation of the project parking demand, and how it would be accommodated on site. The project's parking demand should not only fulfill the project's employee parking demand, but also most of its customers, and visitors parking

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demand. None of the on-street parking spaces could be counted as part of the project's needed parking spaces. We also do not recommend loss of any on-street parking space along the project frontages.

STORM WATER DEPARTMENT
RUTH KOLB, PROGRAM MANAGER, RKOLB@SANDIEGO.GOV (858-541-4328)

The DEIR should include the impacts to storm water in the hydrology/water quality section of the EIR.

ENVIRONMENTAL SERVICES DEPARTMENT
LISA WOOD, SENIOR PLANNER (858)-573-1236 OR LWOOD@SANDIEGO.GOV

The City of San Diego Environmental Services Department is responsible for the operation of the Miramar Landfill, and for waste reduction programs. Projects that generate more than 60 tons of waste may have significant impact on solid waste facilities and waste reduction programs. The Environmental Services Department would like language in the scope of the project included with list of "key environmental issues" that mentions addressing the solid waste impacts associated with the project."

Please contact the appropriate above-named individual(s) if you have any questions on the submitted comments. The City respectfully requests that you please address the above comments in the FEIR and provide four copies of the document for distribution to the commenting department. If you have any additional questions regarding the City's review of the DEIR, please contact Myra Herrmann, Senior Planner at 619-446-5372 or via email at mherrmann@sandiego.gov.

Sincerely,

Myra Herrmann

for Cecilia Gallardo, AICP
Assistant Deputy Director
Development Services Department

cc: Myra Herrmann, Senior Planner, Development Services
Ruth Kolb, Program Manager, Storm Water Department
Ann Gonsalves, Senior Traffic Engineer, Development Services Department
Kamran Khligh, Associate Traffic Engineer, Development Services Department
Lisa Wood, Senior Planner, Environmental Services Department
Review and Comment online file

APRIL F. HEINZE, P.E.
Director
(858) 694-2527
FAX (858) 694-8929

County of San Diego

DEPARTMENT OF GENERAL SERVICES
5555 OVERLAND AVE., STE. 2240, SAN DIEGO, CA 92123-1294

FACILITIES OPERATIONS
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(858) 694-3018
PROJECT MANAGEMENT
(858) 694-2040
REAL ESTATE SERVICES
(858) 694-2291

June 2, 2010

Mr. Jerome Ripperda
Office of Court Construction and Management
Administrative Office of the Courts
2860 Gateway Oaks, Suite 400
Sacramento, CA 95833

RE: Response to the Notice of Preparation for the New San Diego Central Courthouse Project *(SCH #2000021015)*

Dear Mr. Ripperda,

The County of San Diego Department of General Services (County DGS), on behalf of the County of San Diego Sheriff's Department, thanks you and your team for your time and ongoing consultation with regard to the proposed New San Diego Central Courthouse project (SCH#2000021015).

The Administrative Office of the Courts (AOC) Notice of Preparation (NOP) states that:

"The project will connect the proposed courthouse with adjacent facilities. The AOC will construct a pedestrian inmate transportation tunnel (the "Inmate Tunnel") between the new courthouse and the County's Central Jail which is located approximately 325 feet east of the proposed courthouse site. After completion of the courthouse, the AOC will transfer title to the Inmate Tunnel to the County. In addition, to improve operational efficiency, the project may include construction of a bridge over "C" Street to connect the new courthouse to the Hall of Justice. The AOC presumes that the bridge will potentially be approximately 45 feet above the street and approximately 20 feet wide, 16 feet high, and 150 feet long."

Both the Inmate Tunnel and the potential pedestrian bridge would be designed to connect to County-owned facilities. The physical nexus to County facilities and areas of responsibility establishes the County as a Responsible Agency under the California Environmental Quality Act (CEQA). As a Responsible Agency, the County will engage in consultation with the AOC and will review and comment on the project CEQA documents (CEQA Guidelines Section 15082). We appreciate the AOC's recognition of the County's Responsible Agency status and your consultation with us to date.

At this time, we recommend the potential CEQA issues enumerated below be addressed in conjunction with consultation with the County.

1. **Project Description**- The project description should note the displacement of non-court-related County services operating out of the existing courthouse, as well as lost functional space within the jail as a result of the inmate tunnel construction.

2. **Inmate Tunnel Description**- The tunnel shall include adequate security components, including reinforced construction (see "Geologic Assessment" comments), security cameras, panic alarm and intercom system, and a secure separation barrier to allow for two-way movement of inmates at any given time. The tunnel shall be accessible per the Americans with Disabilities Act and be sufficiently wide to support movement of a variety of prisoners. The specifics of these and any other features shall be addressed through further consultation with the County.

3. **Traffic and Parking Analysis-** Ensure that the traffic analysis considers all potential impacts and mitigations associated with relevant features required by the Sheriff, such as; points of ingress and egress for large vehicles (potentially buses) on the side or rear of the new courthouse, a secure pull-through sally port, and associated staff parking.

4. **Construction Impacts –** Consider temporary environmental and operational impacts associated with the continuous and secure transport of inmates by vehicle during the inmate tunnel construction. Ensure that schedule estimates for the tunnel construction are conservative to account for potential delays associated with geologic or other issues. Address any operational impacts to the jail associated with the interim period between courthouse and tunnel construction.

5. **Geologic Assessment-** Perform a thorough geologic assessment to ensure that the tunnel facility is designed and constructed to necessary safety and security standards, and to minimize impacts associated with seismic activity.

6. **Potential Future Pedestrian Bridge-** Carefully consider all potential impacts of the pedestrian bridge to connect the Hall of Justice and the new courthouse. A thorough analysis may include impacts associated with visual or aesthetic issues, circulation, planning, and public safety- particularly due to concerns regarding anti-terrorism security.

The County of San Diego Sheriff Department is preparing more detailed information regarding the Sheriff's program and operational requirements. We will provide this information to you as soon as possible within the month of June. We look forward to continued discussions with you regarding specific facility and operations issues.

Thank you for your consideration of the comments in this letter and of any subsequent comments that may be provided during consultation. We appreciate your support in meeting the County's program requirements with the design and development of this important new public facility.

Sincerely,

APRIL F. HEINZE, P.E.
Director

APPENDIX B

AIR QUALITY ANALYSIS DATA

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: H:\PDATA\Urbemis\25-104231\Copy of Copy of SD Courthouse.urb924

Project Name: San Diego Courthouse

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (tons/year unmitigated)	0.79	8.19	3.71	0.01	11.68	0.33	12.01	2.44	0.30	2.75	1,599.37
2014 TOTALS (tons/year mitigated)	0.79	8.19	3.71	0.01	1.34	0.33	1.67	0.29	0.30	0.59	1,599.37
Percent Reduction	0.00	0.00	0.00	0.00	88.49	0.00	86.06	88.29	0.00	78.54	0.00
2015 TOTALS (tons/year unmitigated)	0.38	1.92	3.00	0.00	0.01	0.12	0.13	0.01	0.11	0.11	545.17
2015 TOTALS (tons/year mitigated)	0.38	1.92	3.00	0.00	0.01	0.12	0.13	0.01	0.11	0.11	545.17
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2016 TOTALS (tons/year unmitigated)	2.99	1.74	2.88	0.00	0.01	0.10	0.12	0.01	0.10	0.10	544.56
2016 TOTALS (tons/year mitigated)	2.73	1.74	2.88	0.00	0.01	0.10	0.12	0.01	0.10	0.10	544.56
Percent Reduction	8.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2017 TOTALS (tons/year unmitigated)	0.24	1.53	1.65	0.00	0.06	0.08	0.13	0.01	0.07	0.08	329.34

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2017 TOTALS (tons/year mitigated)	0.24	1.53	1.65	0.00	0.06	0.08	0.13	0.01	0.07	0.08	329.34
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.30	0.30	0.53	0.00	0.00	0.00	361.13

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.30	0.15	1.28	0.00	0.38	0.07	221.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.60	0.45	1.81	0.00	0.38	0.07	583.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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2014	0.79	8.19	3.71	0.01	11.68	0.33	12.01	2.44	0.30	2.75	1,599.37
Demolition 06/02/2014-06/06/2014	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Demo Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
Mass Grading 08/01/2014-10/30/2014	0.76	7.94	3.57	0.01	11.64	0.32	11.96	2.44	0.29	2.73	1,567.78
Mass Grading Dust	0.00	0.00	0.00	0.00	11.59	0.00	11.59	2.42	0.00	2.42	0.00
Mass Grading Off Road Diesel	0.24	1.88	1.17	0.00	0.00	0.09	0.09	0.00	0.08	0.08	229.55
Mass Grading On Road Diesel	0.52	6.06	2.36	0.01	0.04	0.23	0.27	0.01	0.21	0.23	1,332.16
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.06
Fine Grading 11/01/2014-11/28/2014	0.02	0.15	0.08	0.00	0.04	0.01	0.05	0.01	0.01	0.01	18.54
Fine Grading Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.02	0.15	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93
Trenching 12/01/2014-01/30/2015	0.01	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.62
Trenching Off Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.90
Trenching Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71

2015	0.38	1.92	3.00	0.00	0.01	0.12	0.13	0.01	0.11	0.11	545.17
Building 01/01/2015-12/30/2016	0.38	1.84	2.96	0.00	0.01	0.11	0.13	0.01	0.11	0.11	534.06
Building Off Road Diesel	0.31	1.57	1.26	0.00	0.00	0.10	0.10	0.00	0.09	0.09	211.57
Building Vendor Trips	0.02	0.19	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	66.05
Building Worker Trips	0.04	0.08	1.51	0.00	0.01	0.01	0.02	0.00	0.01	0.01	256.44
Trenching 12/01/2014-01/30/2015	0.01	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.11
Trenching Off Road Diesel	0.01	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.43
Trenching Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
2016	2.99	1.74	2.88	0.00	0.01	0.10	0.12	0.01	0.10	0.10	544.56
Building 01/01/2015-12/30/2016	0.34	1.70	2.81	0.00	0.01	0.10	0.12	0.01	0.09	0.10	534.03
Building Off Road Diesel	0.29	1.46	1.23	0.00	0.00	0.09	0.09	0.00	0.08	0.08	211.57
Building Vendor Trips	0.02	0.17	0.18	0.00	0.00	0.01	0.01	0.00	0.01	0.01	66.05
Building Worker Trips	0.04	0.08	1.41	0.00	0.01	0.01	0.02	0.00	0.01	0.01	256.41
Coating 01/01/2016-11/30/2016	2.65	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84
Architectural Coating	2.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84
Asphalt 05/01/2016-05/31/2016	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71

2017	0.24	1.53	1.65	0.00	0.06	0.08	0.13	0.01	0.07	0.08	329.34
Demolition 01/01/2017-04/30/2017	0.12	0.83	0.77	0.00	0.05	0.04	0.09	0.01	0.04	0.05	140.80
Fugitive Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.12	0.80	0.70	0.00	0.00	0.04	0.04	0.00	0.04	0.04	121.59
Demo On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.32
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.88
Trenching 05/01/2017-09/30/2017	0.04	0.31	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	55.55
Trenching Off Road Diesel	0.04	0.31	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	52.14
Trenching Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
Building 10/01/2017-12/31/2017	0.08	0.39	0.67	0.00	0.00	0.02	0.03	0.00	0.02	0.02	132.99
Building Off Road Diesel	0.06	0.34	0.30	0.00	0.00	0.02	0.02	0.00	0.02	0.02	52.69
Building Vendor Trips	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.45
Building Worker Trips	0.01	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.85

Phase Assumptions

Phase: Demolition 6/2/2014 - 6/6/2014 - Demolition of Stahlman Block Buidlings

Building Volume Total (cubic feet): 5100

Building Volume Daily (cubic feet): 1021.38

On Road Truck Travel (VMT): 14.19

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 1 hours per day

Phase: Demolition 1/1/2017 - 4/30/2017 - Future Work

Building Volume Total (cubic feet): 175112.2

Building Volume Daily (cubic feet): 2925

On Road Truck Travel (VMT): 40.62

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

4 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 11/1/2014 - 11/28/2014 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.4

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 8/1/2014 - 10/30/2014 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0.4

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1817.95 cubic yards/day; Offsite Cut/Fill: 179 cubic yards/day

On Road Truck Travel (VMT): 8059.18

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 16 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 14 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 14 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 14 hours per day

Phase: Trenching 12/1/2014 - 1/30/2015 - Default Trenching Description

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 5/1/2017 - 9/30/2017 - Future Work

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 5/1/2016 - 5/31/2016 - Default Paving Description

Acres to be Paved: 0

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2015 - 12/30/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 10/1/2017 - 12/31/2017 - Installation of new machinery; testing; clean-up

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2016 - 11/30/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014	0.79	8.19	3.71	0.01	1.34	0.33	1.67	0.29	0.30	0.59	1,599.37
Demolition 06/02/2014-06/06/2014	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
Demo Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16

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Mass Grading 08/01/2014-10/30/2014	0.76	7.94	3.57	0.01	1.33	0.32	1.65	0.28	0.29	0.58	1,567.78
Mass Grading Dust	0.00	0.00	0.00	0.00	1.29	0.00	1.29	0.27	0.00	0.27	0.00
Mass Grading Off Road Diesel	0.24	1.88	1.17	0.00	0.00	0.09	0.09	0.00	0.08	0.08	229.55
Mass Grading On Road Diesel	0.52	6.06	2.36	0.01	0.04	0.23	0.27	0.01	0.21	0.23	1,332.16
Mass Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.06
Fine Grading 11/01/2014-11/28/2014	0.02	0.15	0.08	0.00	0.01	0.01	0.02	0.00	0.01	0.01	18.54
Fine Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.02	0.15	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93
Trenching 12/01/2014-01/30/2015	0.01	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.62
Trenching Off Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.90
Trenching Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
2015	0.38	1.92	3.00	0.00	0.01	0.12	0.13	0.01	0.11	0.11	545.17
Building 01/01/2015-12/30/2016	0.38	1.84	2.96	0.00	0.01	0.11	0.13	0.01	0.11	0.11	534.06
Building Off Road Diesel	0.31	1.57	1.26	0.00	0.00	0.10	0.10	0.00	0.09	0.09	211.57
Building Vendor Trips	0.02	0.19	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	66.05
Building Worker Trips	0.04	0.08	1.51	0.00	0.01	0.01	0.02	0.00	0.01	0.01	256.44
Trenching 12/01/2014-01/30/2015	0.01	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.11
Trenching Off Road Diesel	0.01	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.43
Trenching Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68

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2016	2.73	1.74	2.88	0.00	0.01	0.10	0.12	0.01	0.10	0.10	544.56
Building 01/01/2015-12/30/2016	0.34	1.70	2.81	0.00	0.01	0.10	0.12	0.01	0.09	0.10	534.03
Building Off Road Diesel	0.29	1.46	1.23	0.00	0.00	0.09	0.09	0.00	0.08	0.08	211.57
Building Vendor Trips	0.02	0.17	0.18	0.00	0.00	0.01	0.01	0.00	0.01	0.01	66.05
Building Worker Trips	0.04	0.08	1.41	0.00	0.01	0.01	0.02	0.00	0.01	0.01	256.41
Coating 01/01/2016-11/30/2016	2.38	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84
Architectural Coating	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84
Asphalt 05/01/2016-05/31/2016	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.01	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71

2017	0.24	1.53	1.65	0.00	0.06	0.08	0.13	0.01	0.07	0.08	329.34
Demolition 01/01/2017-04/30/2017	0.12	0.83	0.77	0.00	0.05	0.04	0.09	0.01	0.04	0.05	140.80
Fugitive Dust	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.01	0.00	0.01	0.00
Demo Off Road Diesel	0.12	0.80	0.70	0.00	0.00	0.04	0.04	0.00	0.04	0.04	121.59
Demo On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.32
Demo Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.88
Trenching 05/01/2017-09/30/2017	0.04	0.31	0.21	0.00	0.00	0.01	0.01	0.00	0.01	0.01	55.55
Trenching Off Road Diesel	0.04	0.31	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	52.14
Trenching Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
Building 10/01/2017-12/31/2017	0.08	0.39	0.67	0.00	0.00	0.02	0.03	0.00	0.02	0.02	132.99
Building Off Road Diesel	0.06	0.34	0.30	0.00	0.00	0.02	0.02	0.00	0.02	0.02	52.69
Building Vendor Trips	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.45
Building Worker Trips	0.01	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.85

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2014 - 11/28/2014 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 8/1/2014 - 10/30/2014 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2016 - 11/30/2016 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.02	0.30	0.25	0.00	0.00	0.00	360.62
Hearth							
Landscape	0.02	0.00	0.28	0.00	0.00	0.00	0.51
Consumer Products	0.00						
Architectural Coatings	0.26						
TOTALS (tons/year, unmitigated)	0.30	0.30	0.53	0.00	0.00	0.00	361.13

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
New SD Courthouse	0.30	0.15	1.28	0.00	0.38	0.07	221.87
TOTALS (tons/year, unmitigated)	0.30	0.15	1.28	0.00	0.38	0.07	221.87

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
New SD Courthouse		0.55	1000 sq ft	247.00	135.85	1,218.98
					135.85	1,218.98

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.9	0.0	100.0	0.0
Light Truck < 3750 lbs	7.2	0.0	98.6	1.4
Light Truck 3751-5750 lbs	23.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
New SD Courthouse				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: H:\PDATA\Urbemis\25-104231\Copy of Copy of SD Courthouse.urb924

Project Name: San Diego Courthouse

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	19.47	203.63	91.48	0.32	298.42	8.17	306.59	62.46	7.52	69.98	40,199.46
2014 TOTALS (lbs/day mitigated)	19.47	203.63	91.48	0.32	34.22	8.17	42.39	7.28	7.52	14.80	40,199.46
2015 TOTALS (lbs/day unmitigated)	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
2015 TOTALS (lbs/day mitigated)	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
2016 TOTALS (lbs/day unmitigated)	25.27	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
2016 TOTALS (lbs/day mitigated)	23.06	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
2017 TOTALS (lbs/day unmitigated)	2.80	19.47	20.56	0.03	1.25	0.93	2.17	0.26	0.85	1.11	4,092.03
2017 TOTALS (lbs/day mitigated)	2.80	19.47	20.56	0.03	1.25	0.93	2.17	0.26	0.85	1.11	4,092.03

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.57	1.65	1.38	0.00	0.00	0.00	1,976.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.25	0.94	6.73	0.01	2.10	0.41	1,135.39

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	2.82	2.59	8.11	0.01	2.10	0.41	3,111.39

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/2/2014-6/6/2014 Active Days: 5	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Demolition 06/02/2014-06/06/2014	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Fugitive Dust	0.00	0.00	0.00	0.00	0.43	0.00	0.43	0.09	0.00	0.09	0.00
Demo Off Road Diesel	0.47	3.37	2.71	0.00	0.00	0.19	0.19	0.00	0.18	0.18	451.25
Demo On Road Diesel	0.02	0.27	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	60.13
Demo Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16

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Time Slice 8/1/2014-10/30/2014 Active Days: 78	19.47	**203.63**	**91.48**	**0.32**	**298.42**	**8.17**	**306.59**	**62.46**	**7.52**	**69.98**	**40,199.46**
Mass Grading 08/01/2014-10/30/2014	19.47	203.63	91.48	0.32	298.42	8.17	306.59	62.46	7.52	69.98	40,199.46
Mass Grading Dust	0.00	0.00	0.00	0.00	297.28	0.00	297.28	62.08	0.00	62.08	0.00
Mass Grading Off Road Diesel	6.21	48.22	29.95	0.00	0.00	2.29	2.29	0.00	2.11	2.11	5,886.01
Mass Grading On Road Diesel	13.22	155.36	60.55	0.32	1.14	5.88	7.01	0.37	5.41	5.78	34,158.05
Mass Grading Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Time Slice 11/3/2014-11/28/2014 Active Days: 20	1.88	14.99	8.45	0.00	4.00	0.66	4.67	0.84	0.61	1.45	1,853.85
Fine Grading 11/01/2014-11/28/2014	1.88	14.99	8.45	0.00	4.00	0.66	4.67	0.84	0.61	1.45	1,853.85
Fine Grading Dust	0.00	0.00	0.00	0.00	4.00	0.00	4.00	0.84	0.00	0.84	0.00
Fine Grading Off Road Diesel	1.87	14.95	7.86	0.00	0.00	0.66	0.66	0.00	0.61	0.61	1,760.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.24
Time Slice 12/1/2014-12/31/2014 Active Days: 23	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching 12/01/2014-01/30/2015	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching Off Road Diesel	0.89	7.61	3.63	0.00	0.00	0.36	0.36	0.00	0.33	0.33	947.92
Trenching Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16

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Time Slice 1/1/2015-1/30/2015 Active Days: 22	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Trenching 12/01/2014-01/30/2015	0.85	6.90	3.93	0.00	0.00	0.34	0.34	0.00	0.31	0.31	1,010.07
Trenching Off Road Diesel	0.84	6.88	3.57	0.00	0.00	0.34	0.34	0.00	0.31	0.31	947.92
Trenching Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.15
Time Slice 2/2/2015-12/31/2015 Active Days: 239	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Time Slice 1/1/2016-4/29/2016 Active Days: 86	24.76	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	22.14	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	22.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 5/2/2016-5/31/2016 Active Days: 22	**25.27**	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
Asphalt 05/01/2016-05/31/2016	0.50	3.20	3.81	0.00	0.01	0.20	0.20	0.00	0.18	0.18	608.55
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.48	3.15	2.95	0.00	0.00	0.19	0.19	0.00	0.18	0.18	453.19
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.37
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	22.14	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	22.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Time Slice 6/1/2016-11/30/2016 Active Days: 131	24.76	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	22.14	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	22.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 12/1/2016-12/30/2016 Active Days: 22	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Time Slice 1/2/2017-4/28/2017 Active Days: 85	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Demolition 01/01/2017-04/30/2017	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Fugitive Dust	0.00	0.00	0.00	0.00	1.23	0.00	1.23	0.26	0.00	0.26	0.00
Demo Off Road Diesel	2.71	18.86	16.50	0.00	0.00	0.90	0.90	0.00	0.83	0.83	2,861.02
Demo On Road Diesel	0.05	0.53	0.21	0.00	0.01	0.02	0.02	0.00	0.02	0.02	172.19
Demo Worker Trips	0.04	0.08	1.43	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.64
Time Slice 5/1/2017-9/29/2017 Active Days: 110	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching 05/01/2017-09/30/2017	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching Off Road Diesel	0.73	5.55	3.50	0.00	0.00	0.24	0.24	0.00	0.22	0.22	947.92
Trenching Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.14
Time Slice 10/2/2017-12/29/2017 Active Days: 65	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building 10/01/2017-12/31/2017	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.12	1.14	1.27	0.00	0.02	0.05	0.06	0.01	0.04	0.05	506.16
Building Worker Trips	0.28	0.54	10.07	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.67

Phase Assumptions

Phase: Demolition 6/2/2014 - 6/6/2014 - Demolition of Stahlman Block Buidlings

Building Volume Total (cubic feet): 5100

Building Volume Daily (cubic feet): 1021.38

On Road Truck Travel (VMT): 14.19

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 1 hours per day

Phase: Demolition 1/1/2017 - 4/30/2017 - Future Work

Building Volume Total (cubic feet): 175112.2

Building Volume Daily (cubic feet): 2925

On Road Truck Travel (VMT): 40.62

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

4 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 11/1/2014 - 11/28/2014 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.4

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 8/1/2014 - 10/30/2014 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0.4

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1817.95 cubic yards/day; Offsite Cut/Fill: 179 cubic yards/day

On Road Truck Travel (VMT): 8059.18

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 16 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 14 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 14 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 14 hours per day

Phase: Trenching 12/1/2014 - 1/30/2015 - Default Trenching Description

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 5/1/2017 - 9/30/2017 - Future Work

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 5/1/2016 - 5/31/2016 - Default Paving Description

Acres to be Paved: 0

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2015 - 12/30/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 10/1/2017 - 12/31/2017 - Installation of new machinery; testing; clean-up

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2016 - 11/30/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 6/2/2014-6/6/2014 Active Days: 5	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Demolition 06/02/2014-06/06/2014	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Fugitive Dust	0.00	0.00	0.00	0.00	0.43	0.00	0.43	0.09	0.00	0.09	0.00
Demo Off Road Diesel	0.47	3.37	2.71	0.00	0.00	0.19	0.19	0.00	0.18	0.18	451.25
Demo On Road Diesel	0.02	0.27	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	60.13
Demo Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16
Time Slice 8/1/2014-10/30/2014 Active Days: 78	19.47	**203.63**	**91.48**	**0.32**	34.22	**8.17**	42.39	7.28	**7.52**	14.80	**40,199.46**
Mass Grading 08/01/2014-10/30/2014	19.47	203.63	91.48	0.32	34.22	8.17	42.39	7.28	7.52	14.80	40,199.46
Mass Grading Dust	0.00	0.00	0.00	0.00	33.07	0.00	33.07	6.91	0.00	6.91	0.00
Mass Grading Off Road Diesel	6.21	48.22	29.95	0.00	0.00	2.29	2.29	0.00	2.11	2.11	5,886.01
Mass Grading On Road Diesel	13.22	155.36	60.55	0.32	1.14	5.88	7.01	0.37	5.41	5.78	34,158.05
Mass Grading Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Time Slice 11/3/2014-11/28/2014 Active Days: 20	1.88	14.99	8.45	0.00	0.91	0.66	1.58	0.19	0.61	0.80	1,853.85
Fine Grading 11/01/2014-11/28/2014	1.88	14.99	8.45	0.00	0.91	0.66	1.58	0.19	0.61	0.80	1,853.85
Fine Grading Dust	0.00	0.00	0.00	0.00	0.91	0.00	0.91	0.19	0.00	0.19	0.00
Fine Grading Off Road Diesel	1.87	14.95	7.86	0.00	0.00	0.66	0.66	0.00	0.61	0.61	1,760.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.24
Time Slice 12/1/2014-12/31/2014 Active Days: 23	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching 12/01/2014-01/30/2015	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching Off Road Diesel	0.89	7.61	3.63	0.00	0.00	0.36	0.36	0.00	0.33	0.33	947.92
Trenching Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16

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Time Slice 1/1/2015-1/30/2015 Active Days: 22	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Trenching 12/01/2014-01/30/2015	0.85	6.90	3.93	0.00	0.00	0.34	0.34	0.00	0.31	0.31	1,010.07
Trenching Off Road Diesel	0.84	6.88	3.57	0.00	0.00	0.34	0.34	0.00	0.31	0.31	947.92
Trenching Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.15
Time Slice 2/2/2015-12/31/2015 Active Days: 239	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Time Slice 1/1/2016-4/29/2016 Active Days: 86	22.55	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	19.93	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 5/2/2016-5/31/2016 Active Days: 22	23.06	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
Asphalt 05/01/2016-05/31/2016	0.50	3.20	3.81	0.00	0.01	0.20	0.20	0.00	0.18	0.18	608.55
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.48	3.15	2.95	0.00	0.00	0.19	0.19	0.00	0.18	0.18	453.19
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.37
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	19.93	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Time Slice 6/1/2016-11/30/2016 Active Days: 131	22.55	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	19.93	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 12/1/2016-12/30/2016 Active Days: 22	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Time Slice 1/2/2017-4/28/2017 Active Days: 85	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Demolition 01/01/2017-04/30/2017	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Fugitive Dust	0.00	0.00	0.00	0.00	1.23	0.00	1.23	0.26	0.00	0.26	0.00
Demo Off Road Diesel	2.71	18.86	16.50	0.00	0.00	0.90	0.90	0.00	0.83	0.83	2,861.02
Demo On Road Diesel	0.05	0.53	0.21	0.00	0.01	0.02	0.02	0.00	0.02	0.02	172.19
Demo Worker Trips	0.04	0.08	1.43	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.64
Time Slice 5/1/2017-9/29/2017 Active Days: 110	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching 05/01/2017-09/30/2017	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching Off Road Diesel	0.73	5.55	3.50	0.00	0.00	0.24	0.24	0.00	0.22	0.22	947.92
Trenching Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.14
Time Slice 10/2/2017-12/29/2017 Active Days: 65	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building 10/01/2017-12/31/2017	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.12	1.14	1.27	0.00	0.02	0.05	0.06	0.01	0.04	0.05	506.16
Building Worker Trips	0.28	0.54	10.07	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.67

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2014 - 11/28/2014 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 8/1/2014 - 10/30/2014 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2016 - 11/30/2016 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.12	1.65	1.38	0.00	0.00	0.00	1,976.00
Hearth							
Landscaping - No Winter Emissions							
Consumer Products	0.00						
Architectural Coatings	1.45						
TOTALS (lbs/day, unmitigated)	1.57	1.65	1.38	0.00	0.00	0.00	1,976.00

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
New SD Courthouse	1.25	0.94	6.73	0.01	2.10	0.41	1,135.39
TOTALS (lbs/day, unmitigated)	1.25	0.94	6.73	0.01	2.10	0.41	1,135.39

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
New SD Courthouse		0.55	1000 sq ft	247.00	135.85	1,218.98
					135.85	1,218.98

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.9	0.0	100.0	0.0
Light Truck < 3750 lbs	7.2	0.0	98.6	1.4
Light Truck 3751-5750 lbs	23.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
New SD Courthouse				2.0	1.0	97.0

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: H:\PDATA\Urbemis\25-104231\Copy of Copy of SD Courthouse.urb924

Project Name: San Diego Courthouse

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	19.47	203.63	91.48	0.32	298.42	8.17	306.59	62.46	7.52	69.98	40,199.46
2014 TOTALS (lbs/day mitigated)	19.47	203.63	91.48	0.32	34.22	8.17	42.39	7.28	7.52	14.80	40,199.46
2015 TOTALS (lbs/day unmitigated)	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
2015 TOTALS (lbs/day mitigated)	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
2016 TOTALS (lbs/day unmitigated)	25.27	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
2016 TOTALS (lbs/day mitigated)	23.06	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
2017 TOTALS (lbs/day unmitigated)	2.80	19.47	20.56	0.03	1.25	0.93	2.17	0.26	0.85	1.11	4,092.03
2017 TOTALS (lbs/day mitigated)	2.80	19.47	20.56	0.03	1.25	0.93	2.17	0.26	0.85	1.11	4,092.03

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AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.69	1.67	2.93	0.00	0.01	0.01	1,978.81

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	1.87	0.78	7.12	0.01	2.10	0.41	1,255.87

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.56	2.45	10.05	0.01	2.11	0.42	3,234.68

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/2/2014-6/6/2014 Active Days: 5	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Demolition 06/02/2014-06/06/2014	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Fugitive Dust	0.00	0.00	0.00	0.00	0.43	0.00	0.43	0.09	0.00	0.09	0.00
Demo Off Road Diesel	0.47	3.37	2.71	0.00	0.00	0.19	0.19	0.00	0.18	0.18	451.25
Demo On Road Diesel	0.02	0.27	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	60.13
Demo Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16

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Time Slice 8/1/2014-10/30/2014 Active Days: 78	19.47	**203.63**	**91.48**	**0.32**	**298.42**	**8.17**	**306.59**	**62.46**	**7.52**	**69.98**	**40,199.46**
Mass Grading 08/01/2014-10/30/2014	19.47	203.63	91.48	0.32	298.42	8.17	306.59	62.46	7.52	69.98	40,199.46
Mass Grading Dust	0.00	0.00	0.00	0.00	297.28	0.00	297.28	62.08	0.00	62.08	0.00
Mass Grading Off Road Diesel	6.21	48.22	29.95	0.00	0.00	2.29	2.29	0.00	2.11	2.11	5,886.01
Mass Grading On Road Diesel	13.22	155.36	60.55	0.32	1.14	5.88	7.01	0.37	5.41	5.78	34,158.05
Mass Grading Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Time Slice 11/3/2014-11/28/2014 Active Days: 20	1.88	14.99	8.45	0.00	4.00	0.66	4.67	0.84	0.61	1.45	1,853.85
Fine Grading 11/01/2014-11/28/2014	1.88	14.99	8.45	0.00	4.00	0.66	4.67	0.84	0.61	1.45	1,853.85
Fine Grading Dust	0.00	0.00	0.00	0.00	4.00	0.00	4.00	0.84	0.00	0.84	0.00
Fine Grading Off Road Diesel	1.87	14.95	7.86	0.00	0.00	0.66	0.66	0.00	0.61	0.61	1,760.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.24
Time Slice 12/1/2014-12/31/2014 Active Days: 23	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching 12/01/2014-01/30/2015	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching Off Road Diesel	0.89	7.61	3.63	0.00	0.00	0.36	0.36	0.00	0.33	0.33	947.92
Trenching Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16

Time Slice 1/1/2015-1/30/2015 Active Days: 22	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Trenching 12/01/2014-01/30/2015	0.85	6.90	3.93	0.00	0.00	0.34	0.34	0.00	0.31	0.31	1,010.07
Trenching Off Road Diesel	0.84	6.88	3.57	0.00	0.00	0.34	0.34	0.00	0.31	0.31	947.92
Trenching Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.15
Time Slice 2/2/2015-12/31/2015 Active Days: 239	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Time Slice 1/1/2016-4/29/2016 Active Days: 86	24.76	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	22.14	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	22.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 5/2/2016-5/31/2016 Active Days: 22	**25.27**	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
Asphalt 05/01/2016-05/31/2016	0.50	3.20	3.81	0.00	0.01	0.20	0.20	0.00	0.18	0.18	608.55
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.48	3.15	2.95	0.00	0.00	0.19	0.19	0.00	0.18	0.18	453.19
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.37
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	22.14	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	22.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Time Slice 6/1/2016-11/30/2016 Active Days: 131	24.76	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	22.14	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	22.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 12/1/2016-12/30/2016 Active Days: 22	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Time Slice 1/2/2017-4/28/2017 Active Days: 85	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Demolition 01/01/2017-04/30/2017	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Fugitive Dust	0.00	0.00	0.00	0.00	1.23	0.00	1.23	0.26	0.00	0.26	0.00
Demo Off Road Diesel	2.71	18.86	16.50	0.00	0.00	0.90	0.90	0.00	0.83	0.83	2,861.02
Demo On Road Diesel	0.05	0.53	0.21	0.00	0.01	0.02	0.02	0.00	0.02	0.02	172.19
Demo Worker Trips	0.04	0.08	1.43	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.64
Time Slice 5/1/2017-9/29/2017 Active Days: 110	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching 05/01/2017-09/30/2017	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching Off Road Diesel	0.73	5.55	3.50	0.00	0.00	0.24	0.24	0.00	0.22	0.22	947.92
Trenching Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.14
Time Slice 10/2/2017-12/29/2017 Active Days: 65	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building 10/01/2017-12/31/2017	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.12	1.14	1.27	0.00	0.02	0.05	0.06	0.01	0.04	0.05	506.16
Building Worker Trips	0.28	0.54	10.07	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.67

Phase Assumptions

Phase: Demolition 6/2/2014 - 6/6/2014 - Demolition of Stahlman Block Buidlings

Building Volume Total (cubic feet): 5100

Building Volume Daily (cubic feet): 1021.38

On Road Truck Travel (VMT): 14.19

Off-Road Equipment:

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 1 hours per day

Phase: Demolition 1/1/2017 - 4/30/2017 - Future Work

Building Volume Total (cubic feet): 175112.2

Building Volume Daily (cubic feet): 2925

On Road Truck Travel (VMT): 40.62

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

4 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 11/1/2014 - 11/28/2014 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 0.4

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 8/1/2014 - 10/30/2014 - Default Mass Site Grading/Excavation Description

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Total Acres Disturbed: 0.4

Maximum Daily Acreage Disturbed: 0.4

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 1817.95 cubic yards/day; Offsite Cut/Fill: 179 cubic yards/day

On Road Truck Travel (VMT): 8059.18

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 16 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 14 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 14 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 14 hours per day

Phase: Trenching 12/1/2014 - 1/30/2015 - Default Trenching Description

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Trenching 5/1/2017 - 9/30/2017 - Future Work

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Paving 5/1/2016 - 5/31/2016 - Default Paving Description

Acres to be Paved: 0

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Building Construction 1/1/2015 - 12/30/2016 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 10/1/2017 - 12/31/2017 - Installation of new machinery; testing; clean-up

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 1/1/2016 - 11/30/2016 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

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Time Slice 6/2/2014-6/6/2014 Active Days: 5	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Demolition 06/02/2014-06/06/2014	0.50	3.67	3.21	0.00	0.43	0.20	0.64	0.09	0.19	0.28	573.53
Fugitive Dust	0.00	0.00	0.00	0.00	0.43	0.00	0.43	0.09	0.00	0.09	0.00
Demo Off Road Diesel	0.47	3.37	2.71	0.00	0.00	0.19	0.19	0.00	0.18	0.18	451.25
Demo On Road Diesel	0.02	0.27	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	60.13
Demo Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16
Time Slice 8/1/2014-10/30/2014 Active Days: 78	19.47	**203.63**	**91.48**	**0.32**	34.22	**8.17**	42.39	7.28	**7.52**	14.80	**40,199.46**
Mass Grading 08/01/2014-10/30/2014	19.47	203.63	91.48	0.32	34.22	8.17	42.39	7.28	7.52	14.80	40,199.46
Mass Grading Dust	0.00	0.00	0.00	0.00	33.07	0.00	33.07	6.91	0.00	6.91	0.00
Mass Grading Off Road Diesel	6.21	48.22	29.95	0.00	0.00	2.29	2.29	0.00	2.11	2.11	5,886.01
Mass Grading On Road Diesel	13.22	155.36	60.55	0.32	1.14	5.88	7.01	0.37	5.41	5.78	34,158.05
Mass Grading Worker Trips	0.03	0.05	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.40
Time Slice 11/3/2014-11/28/2014 Active Days: 20	1.88	14.99	8.45	0.00	0.91	0.66	1.58	0.19	0.61	0.80	1,853.85
Fine Grading 11/01/2014-11/28/2014	1.88	14.99	8.45	0.00	0.91	0.66	1.58	0.19	0.61	0.80	1,853.85
Fine Grading Dust	0.00	0.00	0.00	0.00	0.91	0.00	0.91	0.19	0.00	0.19	0.00
Fine Grading Off Road Diesel	1.87	14.95	7.86	0.00	0.00	0.66	0.66	0.00	0.61	0.61	1,760.61
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.24
Time Slice 12/1/2014-12/31/2014 Active Days: 23	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching 12/01/2014-01/30/2015	0.90	7.63	4.02	0.00	0.00	0.36	0.36	0.00	0.33	0.33	1,010.08
Trenching Off Road Diesel	0.89	7.61	3.63	0.00	0.00	0.36	0.36	0.00	0.33	0.33	947.92
Trenching Worker Trips	0.01	0.02	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.16

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Time Slice 1/1/2015-1/30/2015 Active Days: 22	3.72	21.02	26.59	0.03	0.11	1.22	1.33	0.04	1.12	1.16	5,102.46
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Trenching 12/01/2014-01/30/2015	0.85	6.90	3.93	0.00	0.00	0.34	0.34	0.00	0.31	0.31	1,010.07
Trenching Off Road Diesel	0.84	6.88	3.57	0.00	0.00	0.34	0.34	0.00	0.31	0.31	947.92
Trenching Worker Trips	0.01	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.15
Time Slice 2/2/2015-12/31/2015 Active Days: 239	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building 01/01/2015-12/30/2016	2.88	14.12	22.66	0.03	0.11	0.88	0.99	0.04	0.81	0.84	4,092.39
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.15	1.45	1.47	0.00	0.02	0.06	0.08	0.01	0.05	0.06	506.13
Building Worker Trips	0.33	0.63	11.57	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,965.07
Time Slice 1/1/2016-4/29/2016 Active Days: 86	22.55	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	19.93	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

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Time Slice 5/2/2016-5/31/2016 Active Days: 22	23.06	16.26	25.55	0.03	0.12	0.98	1.10	0.04	0.90	0.94	4,732.84
Asphalt 05/01/2016-05/31/2016	0.50	3.20	3.81	0.00	0.01	0.20	0.20	0.00	0.18	0.18	608.55
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.48	3.15	2.95	0.00	0.00	0.19	0.19	0.00	0.18	0.18	453.19
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.02	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.37
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	19.93	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Time Slice 6/1/2016-11/30/2016 Active Days: 131	22.55	13.07	21.75	0.03	0.11	0.79	0.90	0.04	0.72	0.76	4,124.28
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Coating 01/01/2016-11/30/2016	19.93	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11
Architectural Coating	19.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.11

Time Slice 12/1/2016-12/30/2016 Active Days: 22	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building 01/01/2015-12/30/2016	2.62	13.06	21.57	0.03	0.11	0.78	0.90	0.04	0.72	0.76	4,092.17
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.13	1.28	1.37	0.00	0.02	0.05	0.07	0.01	0.05	0.05	506.14
Building Worker Trips	0.30	0.58	10.80	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.83
Time Slice 1/2/2017-4/28/2017 Active Days: 85	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Demolition 01/01/2017-04/30/2017	2.80	19.47	18.15	0.00	1.25	0.93	2.17	0.26	0.85	1.11	3,312.84
Fugitive Dust	0.00	0.00	0.00	0.00	1.23	0.00	1.23	0.26	0.00	0.26	0.00
Demo Off Road Diesel	2.71	18.86	16.50	0.00	0.00	0.90	0.90	0.00	0.83	0.83	2,861.02
Demo On Road Diesel	0.05	0.53	0.21	0.00	0.01	0.02	0.02	0.00	0.02	0.02	172.19
Demo Worker Trips	0.04	0.08	1.43	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.64
Time Slice 5/1/2017-9/29/2017 Active Days: 110	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching 05/01/2017-09/30/2017	0.74	5.57	3.82	0.00	0.00	0.24	0.25	0.00	0.23	0.23	1,010.06
Trenching Off Road Diesel	0.73	5.55	3.50	0.00	0.00	0.24	0.24	0.00	0.22	0.22	947.92
Trenching Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.14
Time Slice 10/2/2017-12/29/2017 Active Days: 65	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building 10/01/2017-12/31/2017	2.38	12.09	20.56	0.03	0.11	0.71	0.82	0.04	0.64	0.68	4,092.03
Building Off Road Diesel	1.98	10.41	9.21	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,621.20
Building Vendor Trips	0.12	1.14	1.27	0.00	0.02	0.05	0.06	0.01	0.04	0.05	506.16
Building Worker Trips	0.28	0.54	10.07	0.02	0.09	0.06	0.15	0.03	0.05	0.08	1,964.67

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 11/1/2014 - 11/28/2014 - Default Fine Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

The following mitigation measures apply to Phase: Mass Grading 8/1/2014 - 10/30/2014 - Default Mass Site Grading/Excavation Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2016 - 11/30/2016 - Default Architectural Coating Description

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.12	1.65	1.38	0.00	0.00	0.00	1,976.00
Hearth							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	1.45						
TOTALS (lbs/day, unmitigated)	1.69	1.67	2.93	0.00	0.01	0.01	1,978.81

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
New SD Courthouse	1.87	0.78	7.12	0.01	2.10	0.41	1,255.87
TOTALS (lbs/day, unmitigated)	1.87	0.78	7.12	0.01	2.10	0.41	1,255.87

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2017 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
New SD Courthouse		0.55	1000 sq ft	247.00	135.85	1,218.98
					135.85	1,218.98

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	50.9	0.0	100.0	0.0
Light Truck < 3750 lbs	7.2	0.0	98.6	1.4
Light Truck 3751-5750 lbs	23.2	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	44.8	55.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
New SD Courthouse				2.0	1.0	97.0

Operational Changes to Defaults

Construction Emissions

Year 2014

Demolition

Duration (days): 5

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Excavators	119.6	0.0134	0.0031	6	1	119.6	0.0134	0.0031	1.7940	0.0002	0.0000
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	1	2	133.6	0.0184	0.0034	0.3340	0.0000	0.0000
NA	0.0	0.0000	0.0000	0	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions for Mass Grading									2.1280	0.0002	0.0001

Mass Grading

Duration (days): 78

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Excavators	119.6	0.0134	0.0031	16	2	239.2	0.0268	0.0062	149.2608	0.0167	0.0039
Rubber Tired Dozers	239.1	0.0305	0.0062	14	1	239.1	0.0305	0.0062	130.5486	0.0167	0.0034
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	14	1	66.8	0.0092	0.0017	36.4728	0.0050	0.0009
Off-Highway Trucks	260.1	0.0224	0.0067	14	1	260.1	0.0224	0.0067	142.0146	0.0122	0.0037
Total Emissions for Mass Grading									458.2968	0.0506	0.0118

Fine Grading

Duration (days): 20

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Rubber Tired Dozers	239.1	0.0305	0.0062	6	1	239.1	0.0305	0.0062	14.3460	0.0018	0.0004
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	7	1	66.8	0.0092	0.0017	4.6760	0.0006	0.0001
Other Construction Equipment	122.8	0.0095	0.0032	8	1	122.8	0.0095	0.0032	9.8240	0.0008	0.0003
NA	0.0	0.0000	0.0000	0	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions for Mass Grading									28.8460	0.0032	0.0007

Trenching

Duration (days): 23

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Other General Industrial Equipment	152.2	0.0166	0.0040	8	1	152.2	0.0166	0.0040	14.0024	0.0015	0.0004
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	6.1456	0.0008	0.0002
NA	0.0	0.0000	0.0000	0	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions for Mass Grading									20.1480	0.0024	0.0005

Total Construction Emissions - Year 2014

tons/year	509.42	0.06	0.01
metric tons/year	462.14	0.05	0.01
metric tons CO_2 eq/year	462.14	15.88	0.25

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2015

Trenching (Underground work)
Duration (days): 22

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Other General Industrial Equipment	152.2	0.0166	0.0040	8	1	152.2	0.0166	0.0040	13.3936	0.0015	0.0004
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	5.8784	0.0008	0.0001
NA	0.0	0.0000	0.0000	0	0	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions for Trenching									19.2720	0.0023	0.0005

Building Construction
Duration (days): 261

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Cranes	128.7	0.0144	0.0033	6	1	128.7	0.0144	0.0033	100.7721	0.0113	0.0026
Forklifts	54.4	0.0062	0.0014	6	2	108.8	0.0124	0.0028	85.1904	0.0097	0.0022
Generator Sets	61.0	0.0087	0.0016	8	1	61.0	0.0087	0.0016	63.6840	0.0091	0.0017
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	69.7392	0.0096	0.0018
Welders	25.6	0.0073	0.0007	8	3	76.8	0.0219	0.0021	80.1792	0.0229	0.0022
Total Emissions for Building Construction									399.5649	0.0625	0.0104

Total Construction Emissions - Year 2015

tons/year	418.84	0.06	0.01
metric tons/year	379.96	0.06	0.01
metric tons CO_2 eq/year	379.96	18.23	0.21

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2016

Building

Duration (days): 261

Equipment	Emission Factors (pounds/hour) CO_2	Emission Factors (pounds/hour) CH_4	Emission Factors (pounds/hour) N_2O	Hours/day	Quantity	Emissions (pounds/hour) CO_2	Emissions (pounds/hour) CH_4	Emissions (pounds/hour) N_2O	Emissions (tons/year) CO_2	Emissions (tons/year) CH_4	Emissions (tons/year) N_2O
Cranes	128.7	0.0144	0.0033	6	1	128.7	0.0144	0.0033	100.7721	0.0113	0.0026
Forklifts	54.4	0.0062	0.0014	6	2	108.8	0.0124	0.0028	85.1904	0.0097	0.0022
Generator Sets	61.0	0.0087	0.0016	8	1	61.0	0.0087	0.0016	63.6840	0.0091	0.0017
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	69.7392	0.0096	0.0018
Welders	25.6	0.0073	0.0007	8	3	76.8	0.0219	0.0021	80.1792	0.0229	0.0022
Total Emissions for Building Construction									399.5649	0.0625	0.0104

Asphalt Paving

Duration (days): 22

Equipment	Emission Factors (pounds/hour) CO_2	Emission Factors (pounds/hour) CH_4	Emission Factors (pounds/hour) N_2O	Hours/day	Quantity	Emissions (pounds/hour) CO_2	Emissions (pounds/hour) CH_4	Emissions (pounds/hour) N_2O	Emissions (tons/year) CO_2	Emissions (tons/year) CH_4	Emissions (tons/year) N_2O
Cement and Mortar Mixers	7.2	0.0009	0.0002	8	4	28.8	0.0036	0.0008	2.5344	0.0003	0.0001
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	5.8784	0.0008	0.0001
NA	0.0	0.0000	0.0000	8	1	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
NA	0.0	0.0000	0.0000	8	1	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
NA	0.0	0.0000	0.0000	8	1	0.0	0.0000	0.0000	0.0000	0.0000	0.0000
Total Emissions for Asphalt Paving									8.4128	0.0011	0.0002

Total Construction Emissions - Year 2016

tons/year	407.98	0.06	0.01
metric tons/year	370.11	0.06	0.01
metric tons CO_2 eq/year	370.11	17.90	0.20

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Construction Emissions

Year 2017

Demolition

Duration (days): 85

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Concrete/Industrial Saws	58.5	0.0114	0.0015	8	1	58.5	0.0114	0.0015	19.8900	0.0039	0.0005
Excavators	119.6	0.0134	0.0031	8	2	239.2	0.0268	0.0062	81.3280	0.0091	0.0021
Rubber Tired Dozers	239.1	0.0305	0.0062	6	1	239.1	0.0305	0.0062	60.9705	0.0078	0.0016
Skid Steer Loaders	30.3	0.0062	0.0008	8	4	121.2	0.0248	0.0032	41.2080	0.0084	0.0011
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	6	1	66.8	0.0092	0.0017	17.0340	0.0023	0.0004
								Total Emissions for Demolition	220.4305	0.0315	0.0057

Trenching

Duration (days): 110

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Other General Industrial Equipment	152.2	0.0166	0.0040	8	1	152.2	0.0166	0.0040	66.9680	0.0073	0.0018
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	29.3920	0.0040	0.0007
								Total Emissions for Trenching	96.3600	0.0114	0.0025

Building (machinery installation)

Duration (days): 65

Equipment	Emission Factors (pounds/hour)			Hours/day	Quantity	Emissions (pounds/hour)			Emissions (tons/year)		
	CO_2	CH_4	N_2O			CO_2	CH_4	N_2O	CO_2	CH_4	N_2O
Cranes	128.7	0.0144	0.0033	6	1	128.7	0.0144	0.0033	25.0965	0.0028	0.0006
Forklifts	54.4	0.0062	0.0014	6	2	108.8	0.0124	0.0028	21.2160	0.0024	0.0005
Generator Sets	61.0	0.0087	0.0016	8	1	61.0	0.0087	0.0016	15.8600	0.0023	0.0004
Tractors/Loaders/Backhoes	66.8	0.0092	0.0017	8	1	66.8	0.0092	0.0017	17.3680	0.0024	0.0004
Welders	25.6	0.0073	0.0007	8	3	76.8	0.0219	0.0021	19.9680	0.0057	0.0005
								Total Emissions for Building (machinery installation)	99.5085	0.0156	0.0026

Total Construction Emissions - Year 2017

tons/year	416.30	0.06	0.01
metric tons/year	377.66	0.05	0.01
metric tons CO_2 eq/year	377.66	16.44	0.21

Notes:
Construction Equipment Emission Factor Source: Provided by SCAQMD.
Refer to the URBEMIS 2007 assumptions and model output for construction equipment assumptions

Emissions From Natural Gas Consumed By Land Uses

Land Use	*Amount*	Cubic feet per unit/square feet/customer per month	*CO* 2.00E+01	*ROG* 5.30E+00	*NO_X* *Residential* 8.00E+01	*NO_X* *Non-Residential* 1.20E+02	*SO_X* negligible	*PM_{10}* 2.00E-01	*CO_2* 0.12	*N_2O* 2.20E-06	*CH_4* 2.30E-06
Residential											
Single Family Units		6,665	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Multi-Family Units		4,011.5	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
NonResidential											
Indutsrial		241,611	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Hotel/Motel		4.8	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Retail/Shopping Center		2.9	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Office		2.0	0.00	0.00	0.00	0.00	--	0.00	0.00	0.00	0.00
Blank	247,000	0.5	6,767.12	1,793.29	27,068.49		--	67.67	487.50	0.01	0.01
TOTAL - pounds per day	--	--	**6.77E+03**	**1.79E+03**	**2.71E+04**	**0.00E+00**	--	**6.77E+01**	**487.50**	**0.01**	**0.01**
TOTAL - tons per year	--	--	**1.24E+03**	**3.27E+02**	**4.94E+03**	**0.00E+00**	--	**1.24E+01**	**88.9688**	**0.0016**	**0.0017**
TOTAL - metric tons per year	--	--	**1.12E+03**	**2.97E+02**	**4.48E+03**	**0.00E+00**	--	**1.12E+01**	**8.07E+01**	**1.48E-03**	**1.55E-03**

	CO_2	N_2O	CH_4
metric tons per year	80.71	0.00	0.00
metric tons CO_2eq per year	80.71	0.46	0.03

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993, Table A9-12.

Emissions From Electricity Consumed By Land Uses

Land Use	Amount	kilowatt-hours per year[1]	CO 2.00E-04	ROG 1.00E-05	NO_X 1.15E-03	SO_X 1.20E-04	PM_{10} 4.00E-05	CO_2 0.772	N_2O 6.59E-06	CH_4 4.04E-05
Residential (Dwelling Units)		5626.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food Store (SF)		53.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restaurant (SF)		47.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals (SF)		21.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail (SF)		13.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
College/University (SF)		11.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High School (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elementary School (SF)		5.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Office (SF)		12.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hotel/Motel (SF)		9.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Warehouse (SF)		4.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous (SF)		10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Blank	247,000	9.07	1.23	0.06	7.06	0.74	0.25	4,738.37	0.04	0.25
TOTAL - pounds per day	--	--	**1.23E-03**	**6.14E-02**	**7.06E+00**	**7.37E-01**	**2.46E-01**	**4,738.37**	**0.04**	**0.25**
TOTAL - tons per year	--	--	**2.24E-04**	**1.12E-02**	**1.29E+00**	**1.34E-01**	**4.48E-02**	**864.75**	**0.01**	**0.05**
TOTAL - metric tons per year	--	--	**2.03E-04**	**1.02E-02**	**1.17E+00**	**1.22E-01**	**4.06E-02**	**784.49**	**0.01**	**0.04**

	CO_2	N_2O	CH_4
metric tons per year	784.49	0.01	0.04
metric tons CO_2eq per year	784.49	2.08	0.86

Notes:

1. Usage rate; average for SCE and LADWP.

Source:

South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993, Table A9-11.

Source for greenhouse gas emissions rates:

U.S. Energy Information Administration, *Domestic Electricity Emissions Factors 1999-2002*, October 2007. http://www.eia.doe.gov/oiaf/1605/techassist.html

Water Consumption Indirect Emissions

	Acre Feet per year	Electricity Usage kWh/year	Units	*CO*	*ROG*	*NO_X*	*SO_X*	*PM_{10}*	*CO_2*	*N_2O*	*CH_4*
				2.00E-04	**1.00E-05**	**1.15E-03**	**1.20E-04**	**4.00E-05**	**0.772**	**6.59E-06**	**4.04E-05**
Project Demand	138.34	8.30	pounds/yr	1.66E-03	8.30E-05	9.55E-03	9.96E-04	3.32E-04	6.41E+00	5.47E-05	3.35E-04
			tons/yr	8.30E-07	4.15E-08	4.77E-06	4.98E-07	1.66E-07	3.20E-03	2.73E-08	1.68E-07
			mt/yr	7.53E-07	3.76E-08	4.33E-06	4.52E-07	1.51E-07	2.91E-03	2.48E-08	1.52E-07
								$MTCO_2EQ$	0.00	0.00	0.00

Energy Factor 1,666 kWh/acre-foot

Based on energy usage factors for water conveyance from the California Energy Commission, Water Energy Use in California, Accessed May 2009.
http://www.energy.ca.gov/research/iaw/industry/water.html

Mobile Source Emissions Calculations

	Total	Breakdown		Emission Factor		Total Emis Passenger	Total Emis Delivery	Passnger	Delivery	Total Emissions	
	VMT	Passnger	Delivery	Passnger	Delivery	pounds/day		tons/year	tons/year	tons/year	metric tons/year
CO	1,219	1158.05	60.95	0.00709228	0.01407778	8.21	0.86	1.50	0.16	1.66	1.50
NO_X	1,219	1158.05	60.95	0.00071158	0.01577311	0.82	0.96	0.15	0.18	0.33	0.30
N_2O[1]	1,219	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.02	0.01
ROG	1,219	1158.05	60.95	0.00074567	0.00206295	0.86	0.13	0.16	0.02	0.18	0.16
SO_X	1,219	1158.05	60.95	0.00001072	0.00002682	0.01	0.00	0.00	0.00	0.00	0.00
PM_{10}	1,219	1158.05	60.95	0.00009067	0.00059956	0.11	0.04	0.02	0.01	0.03	0.02
$PM_{2.5}$	1,219	1158.05	60.95	0.00005834	0.00050174	0.07	0.03	0.01	0.01	0.02	0.02
CH_4	1,219	1158.05	60.95	0.00006707	0.00009703	0.08	0.01	0.01	0.00	0.02	0.01
CO_2	1,219	1158.05	60.95	1.10087435	2.78163459	1274.87	169.54	232.66	30.94	263.60	239.14

	CO_2	N_2O	CH_4
metric tons per year	239.14	0.01	0.01
metric tons CO_2eq per year	239.14	4.47	0.29

Notes:

1. VMT based upon URBEMIS 2007 model output.
2. Emission Factor based upon EMFAC 2007 (version 2.3), *Highest (Most Conservative) Emission Factors fo On-Road Passenger Vehicles and Delivery Trucks* .
3. Breakdown of Passenger and Delivery Trucks assumes 95% auto and 5% truck.
4. Emission Factor for N_2O based upon a conversion ratio of 0.04873 from NO_X to N_2O. Based upon California Air Resources Board: *Estimates of Nitrous Oxide*

New San Diego Central Courthouse
RBF JN 25-104231.001
Construction Questionnaire

In order to accurately customize the air quality program for the project, the following information regarding site construction is requested.

2014 DEMOLITION OF STAHLMAN BLOCK BUILDINGS

Anticipated construction schedule (June 2, 2014 through June 6, 2014); 5 working days per week.

If actual buildings will be demolished, the following is needed:

- Total volume of all buildings to be demolished – expressed in total width (ft), length (ft) and height (ft) to equal total cubic feet

5,100 c.y.[1]

- Maximum daily volume of buildings to be demolished – expressed in total width (ft), length (ft) and height (ft) to equal total volume in cubic feet

1,020 c.y./day

- Total volume of demolition time in days to demolish structures

5 days

DEMO EQUIPMENT

Equipment Type	# pieces of equipment	# hours/day each piece
Concrete Industrial Saw		
Excavator	*1*	*6*
Tractor/Loader/Backhoe	*1*	*1*

MASS SITE GRADING

Anticipated construction schedule (August 1, 2014 through October 30, 2014) ; 6 working days per week.Site Grading Mobile Equipment:

- From the following choices of equipment, please estimate the # of pieces of each type and # hours/day (these are the only equipment choices provided by the model)

Equipment Type	# pieces of equipment	# hours/day each piece
Bore/Drill Rig		
Concrete/industrial Saw		
Crane		
Crawler Tractor		

[1] Building 1: 94*46*36*.35=2061, Building 2: 108*44.5*12*.35=748, & Building 3: 100*49*36*.35= 2287; total cubic yards = approximately 5,100

Equipment Type	# pieces of equipment	# hours/day each piece
Crushing/Processing Equipment		
Excavators	*2*	*16*
Graders		
Off-Highway Tractors		
Off-Highway Trucks		
Pavers		
Paving Equipment		
Rollers		
Rough Terrain Forklift		
Rubber Tired Dozers	*1*	*14*
Rubber Tired Loaders		
Scrapers		
Signal Boards		
Skid Steer Loaders		
Surfacing Equipment		
Tractors/Loaders/Backhoes	*1*	*14*
Trenchers		
Roller		
Motor Grader		
Miscellaneous		
Other Equipment (Please Describe)	*Water Truck (1)*	*14*

Fugitive Dust:

- Estimate of maximum daily amount of site grading expressed in acres

0.40-acre daily, 0.4 acres total

- Annual days that earth moving will occur

3 months (6 days a week, 78 days)

- Estimated amount of cut/fill (cubic yards per day)

1,795 c.y. cut and 179 c.y. import (total 64,000 c.y. cut and 14,000 c.y import)

FINE GRADING

Anticipated construction schedule (November 1, 2014 through November 28, 2014) ; 5 working days per week.

FINE GRADING MOBILE EQUIPMENT:

- From the following choices of equipment, please estimate the # of pieces of each type and # hours/day (these are the only equipment choices provided by the model)

Equipment Type	# pieces of equipment	# hours/day each piece
Bore/Drill Rig		
Concrete/industrial Saw		
Crane		
Crawler Tractor		
Crushing/Processing Equipment		
Excavators		
Graders		
Off-Highway Tractors		
Off-Highway Trucks		
Pavers		
Paving Equipment		
Rollers		
Rough Terrain Forklift		
Rubber Tired Dozers	*1*	*6*
Rubber Tired Loaders		
Scrapers		
Signal Boards		
Skid Steer Loaders		
Surfacing Equipment		
Tractors/Loaders/Backhoes	*1*	*7*
Trenchers		
Roller		
Motor Grader		
Miscellaneous		
Other Equipment (Please Describe)	*Water Truck (1)*	*8*

TRENCHING

Anticipated construction schedule (First Trenching Phase – Tunnel – December 1, 2014 through January 30, 2015; Second Trenching Phase – Relocate Utilities – May 1, 2017 through September 30, 2017); 5 working days per week.

TRENCHING MOBILE EQUIPMENT:

- From the following choices of equipment, please estimate the # of pieces of each type and # hours/day (these are the only equipment choices provided by the model)

Equipment Type	# pieces of equipment	# hours/day each piece
Bore/Drill Rig		
Concrete/industrial Saw		
Crane		
Crawler Tractor		
Crushing/Processing Equipment		
Excavators		
Graders		
Off-Highway Tractors		
Off-Highway Trucks		
Pavers		
Paving Equipment		
Rollers		
Rough Terrain Forklift		
Rubber Tired Dozers		
Rubber Tired Loaders		
Scrapers		
Signal Boards		
Skid Steer Loaders		
Surfacing Equipment		
Tractors/Loaders/Backhoes	1	8
Trenchers		
Roller		
Motor Grader		
Miscellaneous		

Equipment Type	# pieces of equipment	# hours/day each piece
Other Equipment (Please Describe)	*Other General Industrial Equipment (1)*	*8*

BUILDING CONSTRUCTION EQUIPMENT

- Please provide the following information as it relates to construction of proposed land uses:

Equipment Type	# pieces of equipment	# hours/day each piece
Bore/Drill Rig		
Concrete/industrial Saw		
Crane	*1*	*6*
Crawler Tractor		
Crushing/Processing Equipment		
Excavators		
Graders		
Off-Highway Tractors		
Off-Highway Trucks		
Pavers		
Paving Equipment		
Rollers		
Rough Terrain Forklift		
Rubber Tired Dozers		
Rubber Tired Loaders		
Scrapers		
Signal Boards		
Skid Steer Loaders		
Surfacing Equipment		
Tractors/Loaders/Backhoes	*1*	*8*
Trenchers		
Roller		
Motor Grader		
Miscellaneous		

Equipment Type	# pieces of equipment	# hours/day each piece
Other Equipment (Please Describe)	*Forklifts (2)* *Welders (3)* *Generator Sets (1)*	*6* *8* *8*

ARCHITECTURAL COATINGS

Duration – 10 Months

Low VOC coatings

(URBEMIS2007 default all phases)

PAVING

Anticipated construction schedule (May 1, 2016 through May 31, 2016); 5 working days per week.

- Acres to be paved (total)

0.00 acre

- Total # days paving would occur

5 months

Paving Equipment:

- From the following choices of equipment, please estimate the # of pieces of each type and # hours/day (these are the only equipment choices provided by the model)

Equipment Type	# pieces of equipment	# hours/day each piece
Bore/Drill Rig		
Concrete/industrial Saw		
Crane		
Crawler Tractor		
Crushing/Processing Equipment		
Excavators		
Graders		
Off-Highway Tractors		
Off-Highway Trucks		
Pavers		
Paving Equipment		
Rollers		

Equipment Type	# pieces of equipment	# hours/day each piece
Rough Terrain Forklift		
Rubber Tired Dozers		
Rubber Tired Loaders		
Scrapers		
Signal Boards		
Skid Steer Loaders		
Surfacing Equipment		
Tractors/Loaders/Backhoes	*1*	*8*
Trenchers		
Roller		
Motor Grader		
Miscellaneous		
Other Equipment (Please Describe)	*Cement and Mortar Mixers (4)*	*8*

2017 DEMOLITION OF COUNTY COURTHOUSE and OLD JAIL

Anticipated construction schedule (January 1, 2017 through April 30, 2017) ; 5 working days per week.

If actual buildings will be demolished, the following is needed:

- Total volume of all buildings to be demolished – expressed in total width (ft), length (ft) and height (ft) to equal total cubic feet

175,000 c.y.

- Maximum daily volume of buildings to be demolished – expressed in total width (ft), length (ft) and height (ft) to equal total volume in cubic feet

2,917 c.y./day

- Total volume of demolition time in days to demolish structures

60 days

DEMO EQUIPMENT

Equipment Type	# pieces of equipment	# hours/day each piece
Concrete Industrial Saw	*1*	*8*
Excavator	*2*	*8*

Equipment Type	# pieces of equipment	# hours/day each piece
Skid Steer loaders	*4*	*8*
Rubber-tired Loader	*1*	*6*
Tractor/Loader/Backhoe	*1*	*6*

Inputs	
Acres	1.4
PM10 Exhaust (pounds/day)	1.93
Construction Months	6

Inputs For Screen 3	
Emissions Rate (g/s-m**2)	1.7884E-06
Source Relase Height =	3 meters
Length of Larger Side (m) =	75.27
Length of Smaller Side (m) =	75.27
Receptor Ht. Above Ground =	1.5 meters
Urban/Rural Option = Urban	Urban
Search Through Range = Y	Y
Choice of Meterology = 1	1
Automated Dist. Array = Y	Y
Min Dist =	1
Max Dist =	1000

AC/day to meters**2 conversion	
1 acre = 4046.873 m**2	
Acres	1.4
Meters**2	5,665.62
Length of Each Side	75.27032749
PM10 Exhaust (pounds/day)	1.93
Conversion to grams/second	0.010132321
grams/second/m**2	1.78839E-06

Enter Screen 3 Results (μg/m3)	
	23

Risk Calculation	
Inhalation Chronic Risk	0.0069
Inhalation Cancer Risk	0.155053848

Fwind	1
EMFAC	23
URF70 year exposure	3.00E-04
Dilution	1

Info for SCREEN3 Assumptions Sheet	
Conversion to grams/second	1.0132E-02
grams/second/m**2	1.7884E-06
Area of Project Site (m**2)	5,665.62

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 ******  SCREEN3 MODEL  ******
 **** VERSION DATED 96043 ****

ENTER TITLE FOR THIS RUN (UP TO 79 CHARACTERS):
San Diego Courthouse Excelerated Schedule

ENTER SOURCE TYPE: P    FOR POINT
                   F    FOR FLARE
                   A    FOR AREA
                   V    FOR VOLUME
   ALSO ENTER ANY OF THE FOLLOWING OPTIONS ON THE SAME LINE:

     N    - TO USE THE NON-REGULATORY BUT CONSERVATIVE BRODE 2
            MIXING HEIGHT OPTION,
     nn.n - TO USE AN ANEMOMETER HEIGHT OTHER THAN THE REGULATORY
            (DEFAULT) 10 METER HEIGHT.
     SS   - TO USE A NON-REGULATORY CAVITY CALCULATION ALTERNATIVE
  Example - PN 7.0 SS (entry for a point source)

 ENTER SOURCE TYPE AND ANY OF THE ABOVE OPTIONS:
A
ENTER EMISSION RATE (G/(S-M**2)):
2.7317E-5
ENTER SOURCE RELEASE HEIGHT (M):
3
ENTER LENGTH OF LARGER SIDE FOR AREA (M):
75.27
ENTER LENGTH OF SMALLER SIDE FOR AREA (M):
75.27
ENTER RECEPTOR HEIGHT ABOVE GROUND (FOR FLAGPOLE RECEPTOR) (M):
1.5
ENTER URBAN/RURAL OPTION (U=URBAN, R=RURAL):
u
SEARCH THROUGH RANGE OF DIRECTIONS TO FIND THE MAXIMUM?
ENTER Y OR N:
y
ENTER CHOICE OF METEOROLOGY;
1 - FULL METEOROLOGY (ALL STABILITIES & WIND SPEEDS)
2 - INPUT SINGLE STABILITY CLASS
3 - INPUT SINGLE STABILITY CLASS AND WIND SPEED
1
USE AUTOMATED DISTANCE ARRAY? ENTER Y OR N:
y
ENTER MIN AND MAX DISTANCES TO USE (M):
1
1000

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC             U10M   USTK  MIX HT   PLUME  MAX DIR
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   (DEG)
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     1.   175.7        5     1.0    1.0 10000.0    3.00     45.
   100.   253.9        5     1.0    1.0 10000.0    3.00     45.
   200.   112.9        5     1.0    1.0 10000.0    3.00     45.
   300.   64.29        5     1.0    1.0 10000.0    3.00     45.
   400.   41.81        5     1.0    1.0 10000.0    3.00     43.
   500.   29.65        5     1.0    1.0 10000.0    3.00     43.
   600.   22.34        5     1.0    1.0 10000.0    3.00     40.
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   700.   17.58        5     1.0    1.0 10000.0    3.00     45.
   800.   14.31        5     1.0    1.0 10000.0    3.00     38.
   900.   11.94        5     1.0    1.0 10000.0    3.00     45.
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ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND     1. M:
    62.   351.9        5     1.0    1.0 10000.0    3.00     45.

USE DISCRETE DISTANCES?  ENTER Y OR N:
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     *** SUMMARY OF SCREEN MODEL RESULTS ***
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 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
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SIMPLE TERRAIN      351.9          62.        0.


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** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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DO YOU WANT TO PRINT A HARDCOPY OF THE RESULTS?  ENTER Y OR N:
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APPENDIX C

HISTORIC STRUCTURE ASSESSMENT AND ARCHAEOLOGICAL REVIEW

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HISTORIC STRUCTURE ASSESSMENT AND ARCHAEOLOGICAL REVIEW FOR THE NEW SAN DIEGO CENTRAL COURTHOUSE PROJECT

San Diego, California

Work Authorization No. 302

Submitted to:

State of California
Office of Court Construction and Management
Judicial Council of California – Administrative Office of the Courts
2860 Gateway Oaks Drive, Suite 400
Sacramento, California 95833-3509

Prepared for:

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December 1, 2010

National Archaeological Data Base Information

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Report Date:	December 1, 2010
Report Title:	Historic Structure Assessment and Archaeological Review for the New San Diego Central Courthouse Project, San Diego, California.
Prepared for:	RBF Consulting 9755 Clairemont Mesa Boulevard, Suite 100 San Diego, California 95833-3509
Submitted to:	State of California Office of Court Construction and Management Judicial Council of California Administrative Office of the Courts 2860 Gateway Oaks Drive, Suite 400 Sacramento, California 95833-3509
Lead Agency Identifier:	Work Authorization No. 302
USGS Quadrangle:	*Point Loma, California* (7.5 minute)
Study Area:	Approximately 4.4 acres
Key Words:	New Town; Centre City San Diego; historic building assessment; no CEQA significance; not eligible for listing on the National Register of Historic Places; potential for subsurface archaeological deposits.

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I. INTRODUCTION

This report was prepared by Brian F. Smith and Associates (BFSA) and describes the results of a historic building significance evaluation for the existing San Diego County Courthouse and Jail Complex. The historic structure evaluation followed the provisions of the California Environmental Quality Act (CEQA), and also considered the eligibility of the buildings for listing on the National Register of Historic Places (NR). This study included an assessment of the potential for encountering subsurface archaeological deposits beneath the Courthouse Complex when grading begins for the New San Diego Central Courthouse Project (NSDCC). The two structures studied are the San Diego County Courthouse located at 220 West Broadway and the San Diego County Detention Center (Old Jail) located at 220 West C Street; together these constitute the San Diego County Courthouse Complex. A parking lot adjacent to the Courthouse complex bounded by State Street, Union Street, B Street, and C Street (State Street Parking Lot) is slated for construction of the new San Diego Central Courthouse. The project area is located in the Centre City neighborhood of the City of San Diego, California. Specifically, the project is located in the unsectioned Pueblo Lands of San Diego as depicted on the *Point Loma*, *California* USGS topographic quadrangle (7.5-minute series) (Figures 1 and 2; Plate 1).

Brian F. Smith and Associates (BFSA) previously prepared an evaluation of the San Diego County Detention Center (Pierson 2000) preparatory to a planned remodeling project. Currently, the Administrative Office of the Courts (AOC) of the State of California proposes to demolish the existing San Diego County Courthouse and Detention Center (Old Jail) as part of the current NSDCC Project. The AOC required an historic structure evaluation of the County Courthouse and Detention Center according to CEQA and NR criteria as one of the technical studies that will form a basis for elements of the required Environmental Impact Report. An evaluation of the State Street Parking Lot for the potential of subsurface archaeological deposits/features was also required.

Figure 1

General Location Map

The New San Diego Central Courthouse Project

USGS *San Diego* (1:250,000 series)

Figure 2

Project Location Map

The San Diego Central Courthouse Project

USGS *Point Loma* Quadrangle (7.5 minute series)

II. HISTORY OF THE PROPERTY

In prehistoric times, both Archaic and Late Prehistoric peoples used this coastal region. Moreover, use of San Diego Bay as well as the coastal mesa is documented during the Spanish Colonial, Mexican, and early American periods (Engelhardt 1920; Gallegos et al 1988). Historic development of downtown San Diego, beginning in the 1850s, has impacted the physical evidence of earlier human use; however, intact archaeological resources are known to exist under present structures and peripheral to the disturbed zone. Both prehistoric and historic archaeological sites attributable to human land use have been recorded for this area according to the archaeological record search results. In the downtown area today, archaeological features and deposits that date to the last half of the nineteenth century and the first half of the twentieth century are commonly discovered underneath older standing buildings during construction excavations associated with redevelopment activities. These archaeological discoveries include residential and commercial features and refuse that allow researchers to identify historic lifeways in the early years of downtown San Diego development.

The development of New Town began in the summer of 1850 when William H. Davis and his group of investors, the most ambitious of the New Town developers, imported prefabricated houses for some lots in order to spur sales. The block bounded by present-day Columbia Street, India Street, F Street, and G Street was made a public plaza. Soundings of the bay were taken in 1850 by Andrew Gray (one of the investors) in order to determine the best location for San Diego's first deep-water wharf. Davis then designed and funded the construction of the wharf, the completion of which allowed off-loading of cargo and passengers at the pier, rather than requiring the use of lighters to ferry them to the shore at La Playa (Rolle 1969; Brandes et al. 1985).

Unfortunately, the New Town initially envisioned by Gray and greatly funded by Davis did not succeed. By the end of 1851, the army, as well as businesses, were leaving the area (Garcia 1975; Pourade 1963). Although a railroad terminus appears to have been planned early in the development of San Diego, the failure of the San Diego and Gila Railroad and the Southern Pacific and Arizona Railroad companies, along with the effects of the Civil War, led to a decline in New Town property values. In addition, a fire in San Francisco cost Davis $170,000, which made it difficult for him to continue to invest in San Diego (Schaefer 1999). Only eight houses remained standing in New Town in 1856. In 1860, San Diego consisted primarily of the small settlement at Old Town with a population of 459 (Schaefer 1999). During the 1860s, Davis' deteriorating wharf was dismantled for fuel and firewood (MacMullen 1969).

The area of New Town was revitalized with the arrival of Alonzo E. Horton in 1867. He purchased approximately 800 acres bordering New Town, including Pueblo Lots 1146, 1147, 1156, 1145, 1134, and 1133, for $265.00. Later he realized that a lot (Pueblo Lot 1132) he thought was part of his original purchase had been left out of that transaction. By the time he was able to purchase the additional lot to complete what later became known as "Horton's

Addition," the price had gone up to $25.00 per acre. Factoring in the increased price for the later purchase of Lot 1132 from a private party, Horton bought his addition to New Town, "Horton's Addition," for an average cost of about $4.26 an acre.

The Boom Period of the mid-1880s saw San Diego's population expand at a tremendous rate. The late 1870s to mid-1880s saw the gradual abandonment of private wells and cisterns; by 1905, no windmills could be seen in downtown photographs. Once the wells and cisterns were abandoned, they often became ready-made refuse pits. This factor is partly responsible for the historic archaeological deposits being discovered as New Town is redeveloped.

The population of the city jumped from 7,500 in 1885 to 12,000 in 1886, and between 1886 and 1887, a total of 1853 buildings were constructed (Schaefer 1999). Major wharves had been constructed by the late 1880s, including Culverwell's Wharf (later Jorres' Wharf) and the Babcock and Story Wharf, constructed at the foot of Atlantic Street (now Pacific Highway). John D. Spreckles, a wealthy ship line owner and sugar baron, realized the importance of the relationship between the harbor and the business and financial district, and made San Diego the focus of his business empire. Much of the capital financing for this period of San Diego's development came from Spreckles and his various companies. As early as October of 1887, the Spreckles Brothers' Commercial Company began the construction of a brick warehouse at the foot of Market Street. In January of 1888, their company commenced work on the pilings for a new wharf, the completion of which would occur several years later (MacMullen 1969). Between the shipping and railroad industries, the Centre City area became a focus for the sale and export of agricultural products (Schaefer 1999).

By 1888, the bottom had dropped out of the real estate market, and many people found themselves holding over-priced property. The population of San Diego dropped from 35,000 to 16,000 in six months (Pourade 1964). Twenty towns had been started around San Diego by this time, some of which quickly disappeared. Several major fires destroyed hotels and other businesses, and most of the local steam railroads went out of business (Pourade 1964). Despite the economic depression San Diego was undergoing, a cable car system went into operation in 1889. Also in 1889, the first flume to bring mountain water to the coastal lands was completed (Pourade 1964). Although things had started looking up for the city, the problem of rail access still remained an issue. The connection between Los Angeles and San Diego was not direct enough to benefit San Diego. In 1905, a rail line from San Diego to Yuma, and thus to the rest of the country, was proposed. Although it was not completed until 1919, the anticipation of the new railroad with its direct connection to areas to the east spurred development in San Diego once again. Although the population of the inland county had declined during the 1890s, between 1900 and 1910 it rose by about 70 percent. In downtown, with the arrival of the railroad, three new piers were constructed along San Diego's waterfront at the foot of Sixth, Seventh, and Ninth Avenues (Schaefer 1999).

The first decade of the twentieth century started off with steady development in San Diego; however, by the end of the decade, announcements such as a direct rail connection to the east and plans to hold a World Exposition to celebrate the completion of the Panama Canal had increased the pace of development in the city. The population doubled from 17,700 to 39,578 over the course of the decade (U. S. Bureau of the Census), and a concern about a shortage of rental houses and cottages for either permanent residents or tourists developed into a statement in 1907 that there actually were no residential vacancies left in the city (*San Diego Union*, February 1907). Lumber companies tried to match pace with the demand for housing. The Spreckles Wharf at Pacific and Market Streets became the focus of commercial attention, and soon D Street (Broadway) replaced Fifth Avenue as the main thoroughfare into downtown. The East Village area and the immediately surrounding streets were dominated by warehouses, large mills, and residential dwellings.

During World War I, the wharf at the foot of Fifth Avenue was dismantled. A new wharf was constructed at the west end of Broadway (previously D Street) in 1914 (Brownlee 1984). Anticipation of the opening of the Panama Canal, which would make San Diego the first port-of-call along the U. S. west coast, increased the city's reputation as an import/export hub. On February 18, 1908, headlines reported that construction would begin on a mammoth marine terminal for the San Diego and Arizona Railroad with two huge piers costing upwards of $200,000.

From 1870 to the 1910s, the area peripheral to the wharfs and warehouses at the bayside was developed as largely residential. The main streets of Fifth Avenue and Broadway were the focus of commercial and retail establishments with workers living in the immediately surrounding area. During the 1920s and 1930s, the city began to expand north and east. As the population grew, so did the commercial portion of downtown. Warehouses and other commercial buildings were constructed on land that was formerly given to residences. Workers began to move to the suburbs and commute to their downtown jobs.

The 1930s brought the Depression and a shift in industries to southern California. Development in San Diego was reduced during the Thirties, although the city was not hit as hard as other U. S. cities. At the close of the decade, several of the old harbor and manufacturing industries gave way to a burgeoning aircraft industry, and San Diego's numerous naval installations began to prepare for the possibility of war. The U. S. Navy took control of the waterfront and all shipping. As the economy and job market improved, the city's increased population spread into the residential areas and suburbs away from downtown proper. The focus of downtown San Diego development shifted from mixed residential and commercial use to primarily a commercial and industrial zone of warehouses and factories by World War II (Schaefer 1999). Residential use of downtown has reestablished itself with the establishment of the Centre City Development Corporation (CCDC) in 1975.

Project-Specific History

A San Diego County Courthouse Complex has stood at this location since 1872 (Sanborn Fire Insurance Maps). The present County Courthouse and Detention Center was completed June 30, 1961 according to the San Diego County General Services, Real Estate Division (Snyder 2010). The Courthouse Complex was designed by the firm of Sam W. Hamill, Frank L. Hope, George Lykos, Richard G. Wheeler, and E. L. Freeland Associated Architects & Engineers. The actual architect of record from this firm for the construction project is not known.

The ownership of the County Courthouse and Detention Center was vested in the county until 2010 when title to the property was transferred to the State of California. The block on which the new Superior Court is to be built (west of the expanded County Courthouse additions) was acquired at the same time. The new Superior Court location has three contiguous buildings in the northeast corner of the block, but the majority of the block has been used in recent years as a parking lot.

An archaeological records search update was conducted at the South Coastal Information Center at San Diego State University on May 6, 2010. Thirteen cultural resources are recorded within one-quarter mile of the project area. Eleven of these resources are historic and two are multi-component. Sixty-three previous studies have been conducted within a quarter mile radius of the project, some of which overlap the subject blocks. In addition, there are 66 historic addresses recorded within one-quarter mile of the project area; however, the County Courthouse and Detention Center buildings are not listed.

III. CONSTRUCTION HISTORY

Construction of the County Courthouse and Detention Center occurred together and the completion date is given as June 30, 1961 (County Real Estate Records). Some modifications over the past 49 years to the core structures have affected the integrity of the County Courthouse and Detention Center. Additions to the Courthouse and Detention Center Complex were constructed as budget and needs dictated, and expanded the complex to two and a half blocks. That expansion has impacted the integrity of the original configuration of the 1961 Courthouse Complex.

IV. ARCHITECTURAL EVALUATION

The County Courthouse and Detention Center Complex was completed in 1961, and does not meet the 50-year threshold that is utilized to evaluate the significance of resources under the National Register of Historic Places or the California Register of Historic Resources. Further, under the Guidelines for Evaluating and Nominating Properties That Have Achieved

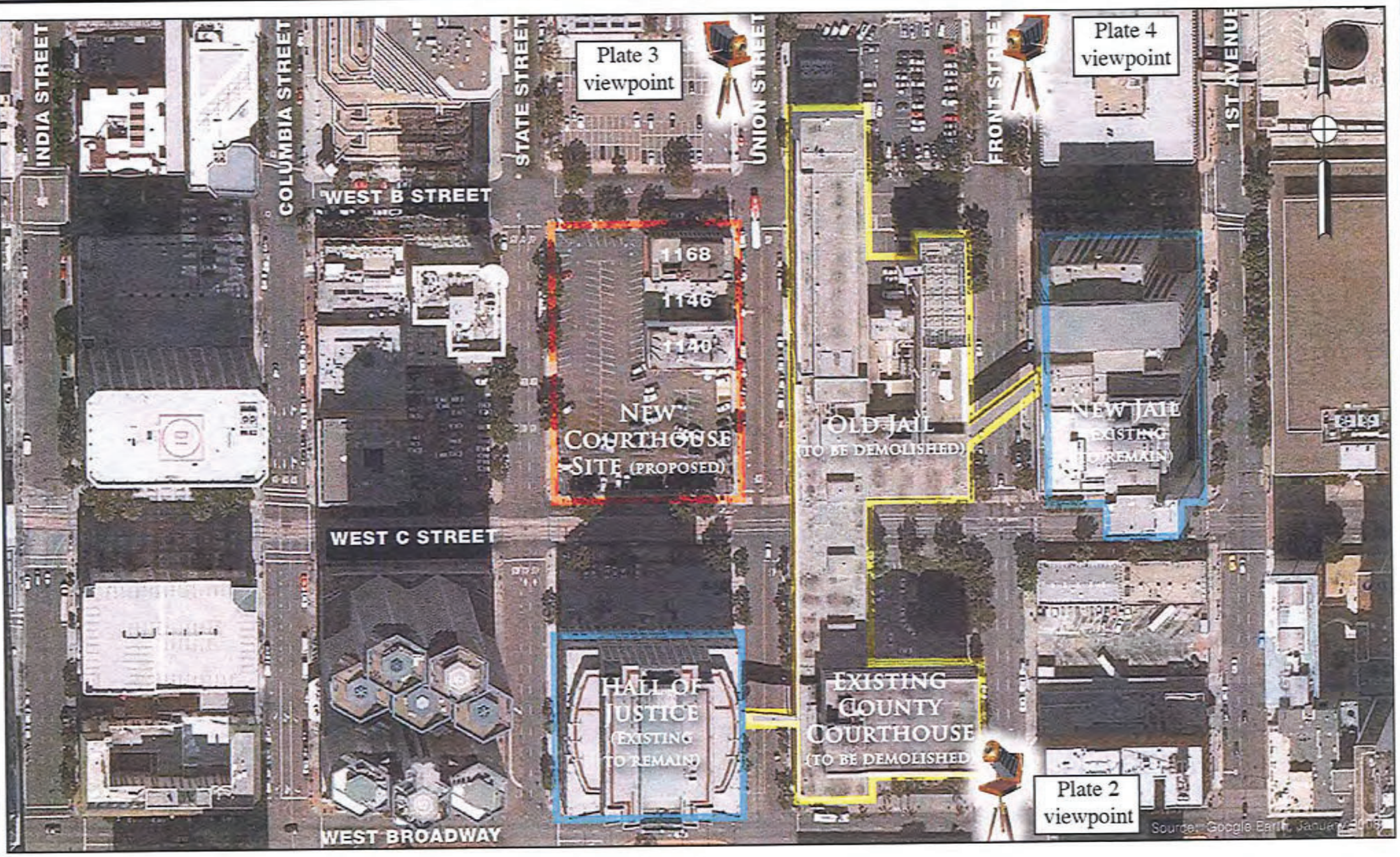

Plate 1

Aerial View of Project Elements Showing Viewpoint Locations for Plates 2, 3 and 4

The New San Diego Central Courthouse Project

Significance Within the Past Fifty Years, the County Courthouse and Old Jail do not convey the "exceptional importance" which would be required for listing in the National Register. In any case, the age threshold may be crossed during the development of the project, and therefore, the building evaluation will be completed under the assumption the structure meets the age threshold. This evaluation of the building complex focuses primarily on the structures' ability to convey any historical significance achieved since they were built in 1961. Since the construction of the County Courthouse and Detention Center in 1961, several modifications and additions have impacted the integrity of the original buildings.

The Courthouse Complex has been the focus of judicial activities for several decades. Also important were records housed at the courthouse such as birth, death, and probate records, which have since been relocated to other County facilities. The activities and persons associated with this complex have not had the high historic profile of those that reach the State Supreme Court or the United States Supreme Court.

The architectural style of the County Courthouse and Detention Center is largely functional and unadorned. The firm of Sam W. Hamill, Frank L. Hope, George Lykos, Richard G. Wheeler, and E.L. Freeland Associated Architects & Engineers designed the Courthouse Complex. Two of the architects, Frank Hope and Sam Hamill, have subsequently been listed as notable architects (City of San Diego 1999). The architect from the firm who actually designed the present County Courthouse Complex is not known. The design of the Courthouse and Detention Center is simple and utilitarian, as are the various additions that expanded the Complex to cover two and a half blocks, suggesting that a high level of architectural expertise was not required for exterior adornment. Alterations to the interior of the core buildings and the additions reflect the changing needs of the County Courthouse and Detention Center through time and the fluctuating budget condition. The utilitarian perspective of the building also functioned to limit expensive and creative design features that would have made the buildings more aesthetically interesting or attractive. The result was a rather plain, functional group of structures and additions resembling boxes of various sizes whose footprint fit in the space allowed and accommodated maximum use of interior space. The materials used were concrete, steel, glass, wood, plastic, and aluminum along with the copper wiring and other materials required for strictly utilitarian purposes. The lack of ingenuity in design and use of common materials were likely the result of constraints placed on the original design and construction to maximize utility and minimize cost.

Building Description

The original concrete and steel County Courthouse building is seven stories tall with a basement. Another addition without windows was later attached to the southwest corner of the original Courthouse. Fixed windows occupy all four sides of the building but exterior vertical panels shade the windows from the sun on the south and west sides. The addition over C Street and on the next block north is of similar style with vertical panels on the west side to block the sun. The Detention Center was originally constructed as a separate building north of the

Courthouse but was later attached to the first Courthouse addition. The windows in the Detention Center are similar to the Courthouse and its subsequent additions but lack the vertical sunscreen panels. The Detention Center is connected to the new jail via an enclosed bridge crossing Front Street. Aside from the sunscreen panels, the exterior of the Courthouse structures is smooth and relatively unadorned. The roofs throughout the structures are flat and tarred, with the exception of where they step up to accommodate changes in story level.

Evaluation Criteria

The significance evaluation criteria applicable for this project include both CEQA and the Natural Register of Historic Places. The specific criteria related to the findings of significance under State of California regulations (CEQA) and under Federal guidelines (National Register of Historic Places) are provided below.

California Environmental Quality Act

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history (CEQA Criteria Section 15064.5).

National Register

- Associated with events that have made a significant contribution to the broad patterns of our history;
- Associated with the lives of significant persons in our past;
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction;
- May have yielded, or may be likely to yield, information important in prehistory or history (NPS Bulletin 15).

Building Evaluation

The San Diego County Courthouse and Detention Center Complex can be characterized as structures with a plain utilitarian form, which lack historical or architectural significance, and do not exhibit character-defining exterior architectural devices. Lacking any distinctive architectural features or other historically noteworthy characteristics, the Complex is determined not to be a significant historic resource under CEQA (which incorporates the provisions for the California Register of Historic Resources). Moreover, the same lack of historic and architectural significance falls short of meeting the criteria needed to qualify for listing on the NR.

Plate 2: View of existing County Courthouse, taken from south side of West Broadway and Front Street, photograph facing north

No events significant in our history were found to be associated with the Courthouse, nor would the plain design convey any such association, as would the Lincoln Memorial for example. The San Diego Courthouse complex also lacks the characteristics necessary to convey any association of persons significant in the history of California or the nation. While two of the architects associated with the firm that designed the structure were locally important, no correlation was found between those individuals of local importance and the design of the existing structure. Furthermore, for the structure to qualify as potentially eligible for the NR, the buildings would need to embody "the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction," and no such characteristics have been given to the San Diego Courthouse Complex. Finally, it is not likely that the Courthouse Complex retains the potential to yield "information important in prehistory or history," although the ground on which the complex sits may have that potential.

V. EXISTING CONDITIONS

The San Diego County Courthouse and Detention Center Complex is aging and exhibits deferred maintenance. The State and County need newer facilities designed for the present conditions and built using modern materials. Moreover, the existing County Courthouse Complex does not make the most efficient use of land in an area of very high real estate values. As a result, the County Courthouse Complex buildings are slated for demolition as part of the development of the New San Diego Central Courthouse. Although nothing in this evaluation identified absolute neglect, as only the exterior of the complex was examined, the overall appearance reflected the age of the buildings with some wear and tear in the form of worn entries, oxidized window frames, and fading exterior building color for example. The overall appearance is less than efficient when compared with the newer Federal Courthouse Complex across Broadway to the south of the project area.

The block slated for the New San Diego Superior Court was first developed as residential beginning in the 1860s. The expanding population and overall size of downtown San Diego resulted in commercial/industrial construction about the time of World War I, replacing the early residential which was displaced north and east. The early commercial/industrial buildings had a minimal impact on the land, which could result in preservation of the cultural deposits from the residential period as it has in locations in the surrounding area. Since the first generation of commercial/industrial buildings were removed, this block has served as a parking lot, further preserving any cultural deposits from the residential period.

Plate 3: View of Detention Center, taken from west side of Union Street, facing northwest

Plate 4: View of Detention Center, taken from east side of Front Street, facing south-southeast

VI. MAINTENANCE REQUIREMENTS

Because no preservation is appropriate or planned as part of this project, no maintenance is appropriate for the County Courthouse and Detention Center Complex. The structures that comprise the Complex will be razed as part of this project.

VII. ARCHAEOLOGY

The New San Diego Superior Court construction site comprises a single city block currently occupied by three contiguous buildings in the northeast corner of the block with the majority of the block having been used in recent years as a parking lot. This block is bounded by State Street, Union Street, B Street, and C Street. According to the Sanborn Fire Insurance Maps and subsequent aerial photographs, there remains some potential for subsurface archaeological features/deposits such as wells and cisterns whose lower portions likely contain refuse dating to the early residential and small business era between 1870 and 1930. The same would be true for the portion of the present Courthouse Complex north of the original one block previously occupied by the earlier generations of the County Courthouse. Experience in downtown and the recent record search results support this evaluation of archaeological potential for the block presently slated for construction of the New San Diego Central Courthouse. The potential for archaeological deposits also includes old privy pits and trash pits nearer to the original land surface than the deeper wells and cistern deposits. Although the presence of this form of archaeological deposit is less likely than wells and cisterns because of subsequent developmental impacts, it must still be considered a potential resource as other such features have been found on nearby blocks. Other archaeological deposits associated with early development downtown are those resulting from casual disposal of refuse between old buildings, disposal on vacant lots, and disposal on the ground around older structures. All of these archaeological resources have the potential to address important research questions with a demonstrated interest among members of the academic community and the public at large. For this reason, the potential for archaeological deposits qualifies the New San Diego Central Courthouse construction block significant under CEQA Criterion 15064.5 (a), (3), (D), "Has yielded, or may be likely to yield, information important in history or prehistory."

Archaeological sites can qualify for listing under NR Criterion D if they "have yielded or may be likely to yield information important in prehistory or history." Information is considered "important" when it is shown to have a significant bearing on a research design that addresses such areas as (1) current data gaps or alternative theories that challenge existing ones, or (2) priority areas identified under a State or Federal agency management plan. The property must have characteristics suggesting the likelihood that it possesses configurations of artifacts, soil strata, structural remains, or other natural or cultural features that make it possible to do the following:

- Test a hypothesis or hypotheses about events, groups, or processes in the past that bear on important research questions in the social or natural sciences or the humanities;

- Corroborate or amplify currently available information suggesting that a hypothesis is either true or false;

- Reconstruct the sequence of archaeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archaeological record for a particular area (NPS Bulletin 15).

Based on previous archaeological discoveries in downtown San Diego, none would achieve the level of information potential required for listing on the NR.

VIII. FINDINGS AND RECOMMENDATIONS

The building evaluation of the County Courthouse and Detention Center Complex determined that the structures do not meet any of the CEQA or NR criteria for historical or architectural significance. Therefore, based upon this evaluation, the demolition of the standing structures will not represent significant impact to any buildings that qualify as significant under CEQA or which may be considered eligible for the National Register. No mitigation measures or structure preservation is recommended as a condition of approval for this project. However, the proposed location for the New San Diego Central Courthouse may contain archaeological resources from the early historic development of New Town San Diego. Any such resources encountered when the existing buildings are removed might be considered significant under CEQA, if the historic deposits represent sources of research potential and retain integrity. For this reason, it is recommended that any excavation associated with the New San Diego Central Courthouse construction be monitored by a qualified archaeologist. A Mitigation Monitoring and Reporting Program (MMRP) would be appropriate for the development of the New San Diego Central Courthouse project. The proposed MMRP is described below:

> This MMRP would be implemented compliance with Section 21081.6 of CEQA and would identify (1) the mitigation measure to be implemented prior to, during, and after construction of the New San Diego Central Courthouse; (2) the individual/agency responsible for that implementation; and (3) criteria for completion of archaeological monitoring measures.

The key element of the MMRP is the requirement that all grading, trenching, or soils investigative work within the first 10 feet below street level or to a depth determined by the consulting archaeologist as the maximum depth where cultural deposits could be found, must be monitored by an archaeologist to ensure that any cultural resource deposits that may be discovered are immediately identified and secured from further disturbance until the discovery can be evaluated and treated according to CEQA requirements.

Sample Archaeological Mitigation Monitoring and Reporting Program

Prior to Preconstruction (Precon) Meeting

1. Plan Check
    a. Prior to the first Precon Meeting, the AOC or authorized designee shall verify that the requirements for Archaeological Monitoring have been noted on the appropriate construction documents.

2. Letters of Qualification have been submitted to the AOC or authorized designee
    a. Prior to the first Precon Meeting, the contractor shall provide a letter of verification to the AOC or authorized designee listing the qualified Archaeologist and archaeological monitors that have been selected to implement the monitoring program. If applicable, individuals involved in the archaeological monitoring program must have completed the 40-hour HAZWOPER training with certification documentation.

3. Records Search Prior to Precon Meeting
    a. At least thirty days prior to the Precon Meeting the qualified Archaeologist shall verify that a records search has been completed and updated as necessary and be prepared to introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/org grading activities. Verification includes, but is not limited to a copy of a confirmation letter from South Coast Information Center, or, if the search was in-house, a letter of verification from the Principal Investigator (PI) stating that the search was completed.

Precon Meeting

1. Monitor Shall Attend Precon Meetings
    a. Prior to beginning any work that requires monitoring, the AOC or authorized designee shall arrange a Precon Meeting that shall include the Archaeologist, Construction Manager and/or Grading Contractor, Building Inspector (BI), if appropriate, and AOC or authorized designee. The qualified Archaeologist shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Archaeological Monitoring program with the Construction Manager and/or Grading Contractor.

b. If the Monitor is not to attend the Precon Meeting, the AOC or authorized designee will schedule a focused Precon Meeting for Monitors, Construction Manager, and appropriate Contractor's representatives to meet and review the job on-site prior to the start of any work that requires monitoring.

2. Units of Measure and Cost of Curation of any Discoveries
   a. Units of measure and cost of curation will be discussed and resolved at the Precon Meeting prior to the start of any work that requires monitoring. It will be the AOC's responsibility to bear the cost of mitigation of any discoveries that are found to be significant under any CEQA criteria.

3. Identify Areas to be Monitored
   a. At the Precon Meeting, the Archaeologist shall submit to AOC or authorized designee a copy of the site/grading plan (reduced to 11x17) that identifies areas to be monitored

4. When Monitoring Will Occur
   a. Prior to the start of work, the Archaeologist shall also submit an annotated construction schedule to AOC or authorized designee indicating when and where monitoring is to be conducted.

During Construction

1. Monitor Shall be Present During Grading/Excavation
   a. The qualified Archaeologist shall be present full-time during grading/excavation of native soils and shall document activity via a daily report signed by a site supervisor.

2. Monitoring of Grading/Excavation
   a. Monitoring of all grading/excavation is required for any activity that impacts native soils one foot deeper than existing as detailed on the plans or in the contract documents identified by drawing number or plan file number. *It is the Construction Manager's responsibility to keep the monitors up-to-date with current plans.*

3. Discoveries
   a. Discovery Process
      (1) In the event of a discovery, and when requested by the Archaeological PI if the Monitor is not qualified as a PI, the AOC or authorized designee (such as the site supervisor) and the OHP, as appropriate, shall be contacted and shall divert, redirect or temporarily halt ground disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant archaeological resources.
   b. Determination of Significance
      (1) The significance of the discovered resources under CEQA Criteria shall be determined by the PI in consultation with the OHP. OHP must concur with the evaluation before grading activities will be allowed to resume. For significant archaeological resources, a Research Design and Data Recovery Program shall be

prepared, approved by OHP and carried out to mitigate impacts before ground disturbing activities in the area of discovery will be allowed to resume.

4. Human Remains

If human remains are discovered, work shall halt in that area and the following procedures set forth in the California Public Resources Code (Sec. 5097.98) and State Health and Safety Code (Sec. 7050.5) shall be undertaken:

a. Notification
   - (1) Archaeological Monitor shall notify the PI, if the Monitor is not qualified as a PI. The PI will notify the OHP.
   - (2) The PI shall notify the Medical Examiner after consultation with the OHP, either in person or via telephone.

b. Isolate Discovery Site

   Work shall be directed away from the location of discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can be made by the Medical Examiner in consultation with the PI concerning the provenience of the remains. The Medical Examiner, in consultation with the PI, shall determine the need for a field examination to determine the provenience.

   If a field examination is not warranted, the Medical Examiner shall determine with input from the PI, if the remains are or are most likely to be of Native American origin or if the remains are evidence of a crime scene.

c. If Human Remains are Determined to be Native American
   - (1) The Medical Examiner shall notify the Native American Heritage Commission (NAHC).
   - (2) The NAHC will contact the PI within 24 or sooner, after Medical Examiner has completed coordination
   - (3) The NAHC will identify the person or persons determined to be the Most Likely Descendent (MLD) and provide information.
   - (4) The PI will coordinate with MLD for additional consultation.
   - (5) Disposition of Native American Human Remains will be determined between the MLD and the PI, if:
     - (a) The NAHC is unable to identify the MLD, OR the MLD failed to make a recommendation within 24 hours after being notified by the Commission; OR,
     - (b) The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097(k) by the NAHC fails to provide measures acceptable to the landowner.

d. If Human Remains are **NOT** Native American
   - (1) The PI shall contact the medical examiner and notify them of the historic era context of the burial.
   - (2) The medical examiner will determine the appropriate course of action with the PI and AOC/OHP staff (PRC 5097.98).
   - (3) If the remains are of historic origin, they shall be appropriately removed and conveyed to the Museum of Man for analysis. The decision for internment of the human remains shall be made in consultation with AOC/OHP and the Museum of Man.

5. Night Work
   a. If night work is included in the contract
      (1) When night work is included in the contract package, the extent and timing shall be presented and discussed at the Precon meeting.
      (2) The following procedures shall be followed.
         (a) No Discoveries
         In the event that nothing was found during night work, the PI will record the information on the Daily Report.
         (b) Minor Discoveries
         All minor discoveries will be processed and documented using the existing procedures under During Construction; 3.c., For Small Historic Discoveries, with the exception in During Construction; 3.c.(1)(a), that the PI will contact AOC or the authorized designee by 9 A.M. the following morning.
         (c) Potentially Significant Discoveries
         If the PI determines that a potentially significant discovery has been made, the procedures under During Construction; 3.a. & b, will be followed, with the exception that in During Construction; 3.a., the PI will contact AOC/OHP by 8 A.M. the following morning to report and discuss the findings.
   b. If night work becomes necessary during the course of construction:
      (1) The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
      (2) The RE, or BI, as appropriate, shall notify MMC immediately.
   c. All other procedures described above shall apply, as appropriate.

6. Notification of Completion
   a. The Archaeologist shall notify AOC or authorized designee, as appropriate, in writing at the end date of the monitoring.

Post Construction

1. Handling and Curation of Artifacts and Letter of Acceptance
   a. The Archaeologist shall be responsible for ensuring that all CEQA significant cultural remains collected are cleaned, catalogued, and permanently curated with an appropriate institution; that a letter of acceptance from the curation institution has been submitted to AOC or authorized designee; that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate.
   b. Curation of artifacts associated with the survey, testing, and/or data recovery for this project shall be completed in consultation with AOC or OHP as applicable.
2. Final Results Reports (Monitoring and Research Design and Data Recovery Program)
   a. Within three months following the completion of monitoring two copies of the Final Results Report (even if negative) and/or evaluation report, if applicable, which describes the results, analysis, and conclusions of the Archaeological Monitoring Program (with appropriate graphics) shall be submitted to the AOC or OHP for approval.

   b. For CEQA significant archaeological resources encountered during monitoring, the Research Design and Data Recovery Program shall be included as part of the Final Results Report.
3. Recording Sites with State of California Department of Park and Recreation
   a. The Archaeologist shall be responsible for recording (on the appropriate State of California Department of park and Recreation forms [DPR 523 A/B]), any CEQA significant or potentially significant resources encountered during the Archaeological Monitoring Program in accordance with CEQA guidelines, and submitting any such forms to the South Coastal information Center with the Final Results Report.

IX. SOURCES CONSULTED

SOURCES	DATE
National Register of Historic Places	Month and Year: May 2010
California Register of Historical Resources	Month and Year: May 2010
City of San Diego Historical Resources Register	Month and Year: May 2010
Archaeological/Historical Site Records: South Coastal Information Center	Month and Year: May 2010
Other Sources Consulted: References Cited in Bibliography in Section X.	

X. BIBLIOGRAPHY

Brandes, Ray, James R. Moriarty III and Susan H. Carrico
1985 *New Town, San Diego, California*. San Diego Science Foundation.

Brownlee, John C.
1984 Bull Strong, Horse High, and Hog Tight: The Work and Character of Edwin M. Capps. *The Journal of San Diego History*, Volume 30, Number 3.

Gallegos, Dennis and Carolyn Kyle
1988 Five Thousand Years of Marine Subsistence at Ballast Point Prehistoric Site SDI-48 (W-164) San Diego, California. Report on file with the South Coastal Information Center, San Diego State University.

Garcia, Mario T.
1975 Merchants and Dons: San Diego's Attempt at Modernization, 1850-1860. *The Journal of San Diego History*, Volume 21, Number 1.

MacMullen, Jerry
1969 *They Came by Sea, A Pictorial History of San Diego Bay*. Ward Ritchie Press and the Maritime Museum Association of San Diego, Los Angeles

Pierson, Larry J.
2000 The Results of a Historic Resources Analysis for the San Diego County Detention Center, San Diego, California. Report on file with the South Coastal Information Center, San Diego State University.

Pourade, Richard F.
1964 *The Glory Years*. Union-Tribune Publishing Company, San Diego.

Rolle, Andrew F.
1969 *California: A History* (Second Edition). Thomas Y. Crowell Company, New York.

Schaefer, Jerry
1999 *San Diego Ballpark Archaeology Management Plan*. Prepared for Centre City Development Corporation. ASM Affiliates, Inc., San Diego.

Snyder, Robin
2010 Personal communication to Larry Pierson.

Maps

Fire Insurance Maps, Sanborn Map Company 1888, 1906, 1921, 1949

San Diego Public Records

San Diego County General Services, Real Estate Division (Robin Snyder, personal communication 2010)

Government Public Records

United States Bureau of the Census

Government Publications

How to Apply the National Register Criteria for Evaluation. National Register Bulletin

CEQA California Environmental Quality Act Statues and Guidelines 1995. Governor's Office of Planning and Research, State of California.

Newspapers

San Diego Union: February 1907

XI. CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief, and have been compiled in accordance with the California Environmental Quality Act (CEQA) criteria as defined in Section 15064.5.

______________________________	December 1, 2010
Larry J. Pierson, RPA	Date
Principal Investigator	

APPENDIX A

Personnel Qualifications

Larry J. Pierson, MA, RPA

Senior Archaeologist and Historian
Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: lpierson@bfsa-ca.com

Education

Master of Arts, Historic Site Interpretation/Archaeology, University of San Diego, California	**1986**
Bachelor of Arts, History/Anthropology (double major), University of San Diego, California	**1979**
Undergraduate Studies in History, Anthropology, Art History, and Earth Sciences, Los Angeles Valley College, California	**1975-1977**

Experience

Senior Archaeologist and Historian **1990–Present**
Brian F. Smith and Associates, Inc.

As Senior Archaeologist and Historian, Mr. Pierson's duties include project management of all phases of archaeological investigations for local, state and federal agencies; field supervisor of all phases of archaeological projects; historic artifact analysis; National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) site evaluations; and authoring and coauthoring of cultural resource management reports primarily for southern California. Serves as the principal monitoring archaeologist for the firm when historic cultural deposits are anticipated. Extensive experience conducting historical structure and site studies, architectural evaluations, and historic research.

Consulting Marine Archaeologist and Electronic Remote Sensing Specialist **1974–Present**

Conducted a large number of cultural evaluations for offshore oil and gas leases, both state and federal, that included electronic systems interpretation for cultural resources, geo-hazards, and bathymetry. Part of the SAIC team that conducted the Southern California Bight Study fro the Bureau of Land Management (1977) and was a principal and author in the PS Associations geomorphological, archaeological, and shipwreck study of the Santa Maria basin and the Southern California Bight for the Minerals Management Service of the Bureau of Land Management (1987).

Consulting Terrestrial Archaeologist and Historian **1978–1990**
Archaeological Consulting Services

Military Service

Journeyman Electronics Technician, United States Air Force, 1954–1957

Professional Accomplishments

Served as chief historian for the Navy Broadway Complex project, performing historical research on structures and architectural recording of sensitive buildings.

Archaeological monitor for several pipeline projects constructed for the City of San Diego. These monitoring projects include Pump Station 24, Sewer and Water Group 608, Pump Station 5, Sewer and Water Group 609, the Miramar Water Pipeline, and continuted infrasctructure replacement projects for the City of San Diego.

Conducted field surveys as field supervisor for the 4S Ranch Cultural Resource Study, including the reconnaissance of over 2,600 acres and analysis of 170 archaeological sites.

Co-principal investigator and general partner of PS Associates' "Archaeological Resource Inventory and Sensitivity Zone Mapping, Morro Bay to Mexico" for the U. S. Department of the Interior, Minerals Management Service, 1986-1987.

While a consultant to Nekton, Inc., performed the majority of cultural evaluations as well as some geohazards and bathymetric interpretations of electronic remote sensing data for federal and state oil and gas lease tracts offshore California, While a consultant to Nekton, Inc., assisted in training federal environmental reviewers in electronic remote sensing systems surveys and systems records interpretation. While a consultant to Nekton, Inc., discovered a Pleistocene/Holocene submerged and buried paleoestuary offshore in the west Santa Barbara Channel (1984). 1982-1985.

Co-investigator of the first pre-Columbian Asiatic shipwreck site offshore North America, 1976-1981.

Conducted the shipwreck portion of the first formal inventory of cultural resources offshore southern California for Science Applications, Inc., and the United States Department of the Interior, Bureau of Land Management, Pacific Outer Continental Shelf Office, 1977.

Designed and conducted the first underwater archaeological surveys in California in response to the California Environmental Quality Act. These studies were conducted for the breakwater project at Port San Luis, California (United States Army Corps of Engineers), and for the Western Liquid Natural Gas Terminal Site near Point Conception (Dames and Moore), 1976-1977.

Co-Producer of the first Computer Compendium of California Shipwrecks, 1972.

Selection of Reports/Papers

Author

2009 A Historical Assessment of 1050 West Washington Avenue Escondido, San Diego County, California APN 228-250-17. Submitted to the City of Escondido.

2009 Report of Archaeological Mitigation Monitoring and Reporting Program for the Johnson Residence 1857 Viking Way, La Jolla, California Site CA-SDI-39/W-1 City Project No. 117991. Submitted to the City of San Diego.

2009 Archaeological Resource Report Form: Mitigation Monitoring of Peñasquitos Views Trunk Sewer San Diego, California W.O. No. 177161. Submitted to the City of San Diego.

2009 Archaeological Resource Report Form: Mitigation Monitoring of Otay II Pipeline Improvements - North Encanto Replacement Project San Diego, CA W.O. No. 186991. Submitted to the City of San Diego.

2009 Archaeological Resource Report Form: Mitigation Monitoring of Grading for the Lansdale Project Del Mar Heights area, San Diego, California PTS# 101623; WO# 428465. Submitted to the City of San Diego.

2009 Archaeological Resource Report Form: Mitigation Monitoring of the Carson Residence Project Building Permit #14705. Submitted to the City of San Diego.

2009 Archaeological Resource Report Form: Archaeological Survey of the Our Lady of Mount Carmel Church Project City Project No. 144972. Submitted to the City of San Diego.

2009 Archaeological and Native American monitoring of the Meadows at Metate Lane Project in Poway, California. Submitted to the City of Poway.

2009 Archaeological Resource Report Form: Mitigation Monitoring of the Dinofia Residence Project; LDR No. 42-0996, Project No. 5596. Submitted to the City of San Diego.

2009 Archaeological Resource Report Form: Mitigation Monitoring of the KSON Tower Project WO No. 430257; Project No. 149041/113159. Submitted to the City of San Diego.

2009 A Historical Assessment of 988 Pepper Drive El Cajon, San Diego County, California APN 388-072-03; TM 5517; Environmental Log No. 06-14-045; Kiva No. 06-006952. Submitted to the County of San Diego.

2008 Archaeological Resource Report Form: Mitigation Monitoring of Construction of Group 3003 (Water Group 743) Project San Diego, California City W.O. No. 187171. Submitted to the City of San Diego.

2008 Archaeological Resource Report Form: Mitigation Monitoring of the Pacifica Mini Warehouse Facility Loma Portal Area, San Diego, California W.O. No. 424526. Submitted to the City of San Diego.

2008 Results of an archaeological survey and monitoring of The Crossing at Anaheim Project.

2008 Historic architectural evaluation of the structure at 1521 Neptune Avenue in Encinitas, California 92024.

2008 Olivenhain CalTrans Encroachment Permit #11-08-6SV-0248, San Diego, California.

2008 Archaeological Resource Report Form: Mitigation Monitoring of the Soumekh Residence at 9566 La Jolla Farms Road Project # 59514. Submitted to the City of San Diego.

2008 5th Avenue Landing Hotel: Mitigation Monitoring & Reporting Program.

2008 Archaeological Resource Report Form: Cultural Resources Survey of the Jacob Health Care Project City of San Diego Project # 146595. Submitted to the City of San Diego.

2008 Archaeological Resource Report Form: Cultural Resources Survey of the Jacob Health Care Project City of San Diego Project # 146595. Submitted to the City of San Diego.

Brian F. Smith, MA

Principal Investigator
Brian F. Smith and Associates, Inc.
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Phone: (858) 484-0915 • Fax: (858) 679-9896 • E-Mail: bsmith@bfsa-ca.com

Education

Master of Arts, History, University of San Diego, California	1982
Bachelor of Arts, History and Anthropology, University of San Diego, California	1975

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc.

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. In the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Brian Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers (USACE), the Bureau of Land Management (BLM), Bureau of Reclamation (BR), the Department of Defense (DOD), and Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts which have added significantly to the body of knowledge concerning the prehistoric lifeways of cultures once present in the southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

<u>Downtown San Diego Mitigation and Monitoring Reporting Programs</u>: Large number of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

<u>Archaeology at the Padres Ballpark</u>: Involved the analysis of historic resources within a seven block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of

pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade. 2000-2007.

The Navy Broadway Complex: Architectural and historical assessment of over 25 structures that comprise the Naval Supply Depot, many of which have been in use since World War I and were used extensively during World War II. The EIR/EIS which was prepared included National Register evaluations of all structures. The archaeological component of the project involved the excavation of backhoe trenches to search for evidence of the remains of elements of the historic waterfront features that characterized the bay front in the latter half of the 19th century. This study was successful in locating portions of wharves and shanties that existed on the site prior to capping of this area after construction of the sea wall in the early 20th century.

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the City of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the City of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs which document this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the City and County of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the City. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the City showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Midbayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the City. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural resources survey and test of sites within the proposed development of the Audie Murphy Ranch, Riverside County, California: Project Manager/Director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural resources evaluation of sites within the proposed development of the Otay Ranch Village 13 Project, San Diego County, California: Project Manager/Director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural resources survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project Manager/Director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural resources survey and test of sites within the proposed development of the Menifee West GPA, Riverside County, California: Project Manager/Director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of a Archaic cultural resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural resources survey and test of sites within the proposed French Valley Specific Plan/EIR, Riverside County, California: Project Manager/Director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural resources survey and test of sites within the proposed Lawson Valley Project, San Diego County, California: Project Manager/Director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural resource survey and geotechnical monitoring for the Mohyi Residence Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced cultural resource survey and evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural resources survey and test of sites within the proposed development of the Menifee Ranch, Riverside County, California: Project Manager/Director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage mitigation of a portion of the San Diego Presidio identified during water pipe construction for the City of San Diego, California: Project Archaeologist/Director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced cultural resource survey and evaluation for the Tyrian 3 Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced cultural resource survey and evaluation for the Lamont 5 Project, Pacific Beach, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced cultural resource survey and evaluation for the Reiss Residence Project, La Jolla, California: Project Manager/Director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage mitigation of a portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and testing of two prehistoric cultural resources for the Airway Truck Parking Project, Otay Mesa, California: Project Archaeologist/Director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural resources Phase I and II investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project along the International Border, San Diego County, California: Project Manager/Director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a prehistoric cultural resource for the Westview High School Project for the City of San Diego, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a prehistoric cultural resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project Archaeologist/Director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of grading for the Herschel Place Project, La Jolla, California: Project Archaeologist/ Monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and testing of an historic resource for the Osterkamp Development Project, Valley Center, California: Project Archaeologist/ Director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and testing of a prehistoric cultural resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project Manager/Director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and evaluation of cultural resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project Archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and evaluation of cultural resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project Manager/Director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural resources Phase I, II, and III investigations for the Immigration and Naturalization Services Triple Fence Project along the International Border, San Diego County, California: Project Manager/Director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II investigations for the Scripps Poway Parkway East Project, Poway California: Project Archaeologist/Project Director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis;

coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological evaluation of cultural resources within the proposed corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project Manager/Director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project Manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor, to over 2,500 cultural resources management publications, a selection of which are presented below.

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological constraints study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an archaeological review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in te City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of archaeological monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

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Professional Memberships

Society for California Archaeology

APPENDIX B

Department of Parks and Recreation (DPR) Forms

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 7 Other

Listings
Review Code Reviewer Date

Page 1 of 3 ***Resource Name or #:** (Assigned by recorder) San Diego County Courthouse & Jail

P1. Other Identifier:

*P2. **Location:** ☐ Not for Publication ☒ Unrestricted

*a. **County** San Diego **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. **USGS 7.5' Quad** Point Loma **Date** 1996 **T** __; **Unsectioned Pueblo Lands of San Diego**

c. Address 220 West Broadway City San Diego Zip 92101

d. UTM: (Give more than one for large and/or linear resources) Zone 11, 484529 mE/ 3619826 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The San Diego County Courthouse with associated jail was constructed in 1961. The complex was designed by the firm of Sam W. Hamill, Frank L. Hope, George Lykos, Richard G. Wheeler, and E.L. Freeland Associated Architects & Engineers. A transfer of Title from San Diego County to the State of California, Administrative Office of the Courts was effective July 1, 2010. Several Additions to the courthouse occurred through time, expanding the County Court complex to include three city blocks.

***P3b. Resource Attributes:** (List attributes and codes) HP14

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #)
Google aerial Ca. 2009

***P6. Date Constructed/Age and Source:** ☒Historic ☐ Prehistoric ☐ Both
49 years old

***P7. Owner and Address:**
State of California, Administrative Office of the Courts, 2860 Gateway Oaks Drive, Suite 400 Sacramento, California 95833-3509

***P8. Recorded by:** (Name, affiliation, and address) Larry J Pierson, RPA
Brian F Smith and Associates
14010 Poway Rd, Suite A
Poway, CA 92064

***P9. Date Recorded:**

***P10. Survey Type:** (Describe)

CEQA/National Register Significance Evaluations

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 7

***Resource Name or #** (Assigned by recorder)

B1. Historic Name: San Diego County Courthouse and Jail

B2. Common Name: Same

B3. Original Use: Courthouse and jail

B4. Present Use: Same

***B5. Architectural Style:** Commercial box with temple front

***B6. Construction History:** (Construction date, alterations, and date of alterations)
Constructed in 1961 with several subsequent additions not documented for this study.

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** ______ **Original Location:**

***B8. Related Features:**
Jail

B9a. Architect: Sam W. Hamill, Frank L. Hope, George Lykos, Richard G. Wheeler, and E.L. Freeland Associated Architects & Engineers b. Builder: Not determined

***B10. Significance: Theme** Court and jail **Area** San Diego, California **Period of Significance** 1961 **Property Type** Public Building **Applicable Criteria** CEQA & National Register Eligibility (Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.) The architectural style is plain with only the required temple front of a courthouse. The temple front is decorative rather than an essential part of the building's structure. Several additions are simple rectilinear boxes that expand the original building complex over three city blocks. The structure was determined not significant due to the plain design and because the complex had not reached the 50 year threshold for historic designation. The integrity of the complex has been compromised as a

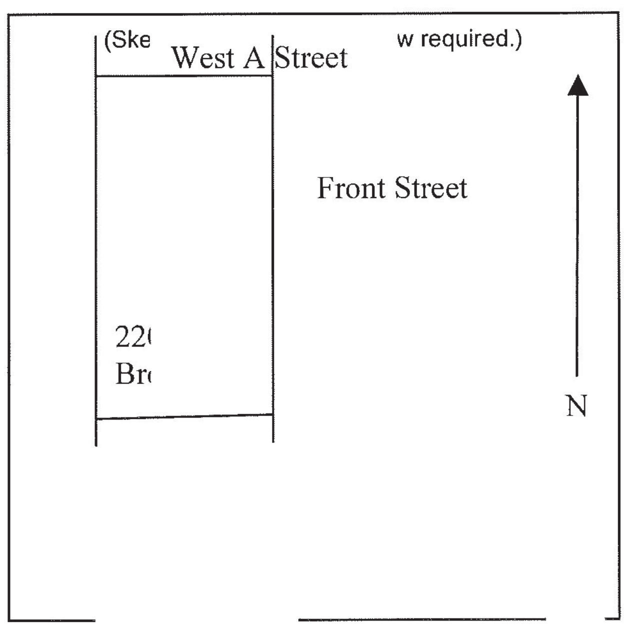
B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**

Robin Snyder, County of San Diego, Department of General Services, Project Management Division.

B13. Remarks:

(This space reserved for official comments.)



APPENDIX D

PALEONTOLOGICAL RESOURCE AND MONITORING ASSESSMENT

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6 May 2010

Mr. Alex H. Jewell
RBF Consulting
9755 Clairemont Mesa Boulevard, # 100
San Diego, California 92124

Subject: Paleontological review and resource and monitoring assessment, new San Diego Central Courthouse project, downtown San Diego, San Diego County, California

Dear Mr. Jewell:

A paleontological review, including paleontological resource and monitoring assessments, has been completed for the new San Diego Central Courthouse project site in downtown San Diego, San Diego County, California (Attachments 1 and 2). The proposed project involves demolition of pre-existing structures on the site, excavation for two levels of underground parking, and construction of an approximately 17 story courthouse building. A tunnel will also be excavated that will connect the new courthouse with the existing ("new") County Jail, as well as additional trenching for relocating existing utility lines, although these are not specifically located on existing site plans. The 1.4 acre courthouse site is owned by the Judicial Council of California.

Location

The general location of the proposed new San Diego Central Courthouse project site is shown on Attachment 2, on the U. S. Geological Survey 7.5-minute, 1:24,000 scale, Point Loma, California, topographic quadrangle, in unsectioned pueblo lands of the City of San Diego. More specifically, the project site encompasses the entire city block bounded on the north by B Street, on the south by C Street, and on the west and east by State and Union Streets (Attachment 3). In addition, the project calls for a new tunnel to connect the new courthouse with the existing San Diego County Jail, currently located between B and C Streets and Front Street and First Avenue.

Basis of assessment

The paleontological assessment herein is based on the most recent published geologic map of the downtown San Diego area (Attachment 4, after M. P. Kennedy, 1975, pl. 3A), subsurface geologic reevaluations of the downtown area based on new stratigraphic and paleontological data derived from numerous newly excavated building sites over the last 12 years, unpublished paleontological monitoring reports for these projects, and analyses of the museum collections themselves. Most of the unpublished reports were written by staff paleontologists of Brian F. Smith and Associates, Inc. (BFSA), in Poway, and the Department of Paleoservices at the San Diego Natural History Museum. The fossil collections made during paleontological monitoring and mitigation programs for downtown San Diego construction projects are currently deposited in three California museums, the San Diego Natural History Museum in Balboa Park (SDNHM), the Natural History Museum of Los Angeles County in Los Angeles (LACMNH), and the University of California Museum of Paleontology in Berkeley (UCMP). Additional specimens have also been deposited in the U. S. National Museum of Natural History (Smithsonian Institution), in Washington, D.C. Collections data are available, at least in part, via the internet for the three California institutions. These represent at least 60 different construction projects and probably 75 or more institutional locality collections. The only published summary of these recent investigations is by G. L. Kennedy and I. D. Browne (2007).

Geologic setting
The most recently published geologic map of the downtown San Diego area (Attachment 4, as shown on the Point Loma 7.5' quadrangle by M. P. Kennedy, 1975, pl. 3A) assigns most of the downtown area to the upper Quaternary (upper Pleistocene) Bay Point Formation ("Qbp"). Much of Cortez Hill and eastward, in the vicinity of San Diego City College, is assigned to the middle to upper Pliocene San Diego Formation ("Tsd"). Areas along the waterfront of San Diego Bay are shown as artificial fill ("Qaf"), but these surficial sediments overlie fossiliferous sediments of the Bay Point Formation at shallow depths. As reinterpreted by Kennedy and Browne (2007), the Bay Point Formation is more properly restricted to estuarine-marine sediments deposited during the sea level highstand of the last interglacial period and thus dating to the period around 120,000 years before present (BP). The Bay Point Formation is thus correlative with outer coast depositional events on the Nestor Terrace, which was eroded into the then existing shoreline during the same sea level highstand (*cf.* T.-L. Ku and J. P. Kern, 1974; D. R. Muhs *et al.*, 1994). The shoreline for the 120,000 year sea level highstand, which was originally about 20 feet higher than modern sea level, has been identified in three project sites in the East Village area by Kennedy and Browne (2007), as well as below Horton Plaza (SDNHM collection records), and northwestward into the Little Italy area (unpublished data). The Central Courthouse project site is west (seaward) of the late Pleistocene shoreline and thus would be expected to overlie subsurface exposures of the 120,000 year BP Bay Point Formation in its restricted sense. The existence of Pliocene sediments of the San Diego Formation in the subsurface at the project site is believed to be too deep, if present, to be encountered during any excavation activities onsite.

The Bay Point Formation, however, is not the only fossiliferous marine Pleistocene unit in the downtown area. T. A. Deméré (1981) and T. A. Deméré and D. W. Streiff (1982) were the first to recognize that marine faunas older than those of the Bay Point Formation existed in the subsurface sediments in the downtown San Diego area, as well in the northern Point Loma area and in southeast San Diego. They proposed the name

"Broadway fauna" for their newly recognized assemblages, based in main part on collections recovered from a sewer main trench down Broadway near its intersection with Second Avenue (Deméré, 1981, table 1; D. L. Elder, 1982, table 2). However, the type "Broadway fauna" of Deméré (1981) was based on a composite collection from two distinct stratigraphic units that were subsequently distinguished and informally referred to as the "upper Broadway" and "lower Broadway" faunas or faunal horizons by Kennedy and Browne (2007). The two marine units are separated by a paleosol developed upon the lower ("lower Broadway") unit, indicative of an appreciable period of subaerial exposure (and soil development) prior to the subsequent marine inundation associated with deposition of the "upper Broadway" unit. Based on our knowledge of the timing and magnitude of interglacial sea level highstands during the last million years, we can assign middle Pleistocene ages of ~ 330,000 years BP and ~ 405,000 years BP, respectively, to the "upper" and "lower Broadway" stratigraphic units and their contained faunas (Kennedy and Browne, 2007). Fossiliferous exposures of these two middle Pleistocene units have been described from building excavations in the CCDC Little Italy (and nearby Cortez Hill), Columbia, Core, Marina, Gaslamp Quarter and East Village subareas of downtown San Diego (SDNHM, LACMNH and UCMP collections).

Paleontological resource sensitivity

The paleontological resource sensitivity of an area is based on a number of criteria, including the proximity to previously recorded fossil localities, and the presence of geologic units (formations) known to be locally fossiliferous. Unpublished administrative guidelines for assigning sensitivity rankings to sedimentary units in the City and County of San Diego have been proposed and are presented by T. A. Deméré and S. L. Walsh (1993), the City of San Diego (2002), and the County of San Diego (R. Stephenson *et al.*, 2007). In these, the local sedimentary formations are generally given identical "paleontological resource potential" and "paleontological resource sensitivity" rankings, although in a few cases there are justifiable differences. For the downtown San Diego area, the Bay Point Formation is given a High Paleontological Resource Sensitivity / Resource Potential ranking in all three guideline reports, indicating the need to implement mitigation measures in order to prevent the potential loss or destruction of significant nonrenewable paleontological resources present in this sedimentary unit. The two older, middle Pleistocene, sedimentary units ("upper" and "lower Broadway") are not specifically addressed in the guideline reports cited above, but never-the-less have produced such an abundance of fossiliferous materials (*cf.* Kennedy and Browne, 2007; and SDNHM, LACMNH and UCMP collection records) across downtown San Diego that they must also be accorded a High paleontological resource sensitivity and High paleontologcal resource potential ranking equivalent to that of the younger Bay Point Formation.

Records search results – fossil localities

An inhouse paleontological literature and collections and records review conducted by BFSA did not reveal any recorded fossil localities from the project site. Because very few fossil localities were previously recorded from downtown San Diego before the redevelopments of the early 1980s (*e.g.*, the Horton Plaza redevelopment), or again in the latest 1990s and early 2000s (redevelopment of the East Village area in conjunction with construction of Petco Park), this was not unexpected. However, the abundance of fossil localities discovered and collected during these periods of redevelopment have produced a wealth of mainly unpublished information on the stratigraphy and fossil record of the downtown San Diego area. More than 75 fossil localities or fossil collections can now be documented from the downtown area. These represent the 120,000 year old Bay Point Formation, the ~ 330,000 year old "upper Broadway" and ~ 405,000 year old "lower Broadway" sedimentary units, and the ~ 2 to ~ 4 million year old San Diego Formation. In the vicinity of the project site, fossil localities represent the Bay Point Formation and the "upper" and "lower Broadway" sedimentary units. All have yielded rich marine invertebrate faunas, in addition to rare marine and terrestrial vertebrates (*cf.* Kennedy and Browne, 2007).

Conclusions and recommendations

The SDNHM and LACMNH collections and records document the presence of highly fossiliferous marine sediments, and the high potential for them to contain significant nonrenewable paleontological resources (*i.e.*, fossils), particularly of marine invertebrates, some of which are extinct species. These sedimentary units are therefore assigned a high paleontological resource sensitivity. As a result, a Mitigation, Monitoring and Reporting Program (MMRP) should be implemented in which full time paleontological monitoring of excavation, tunneling and trenching activities in the fossiliferous formations are recommended to mitigate any adverse impacts (loss or destruction) to potential nonrenewable paleontological resources (*i.e.*, marine invertebrate and marine and terrestrial vertebrate fossils). At a minimum, the MMRP should consist of those procedures outlined on page 7, following. The implementation of these monitoring and mitigation measures is regarded as sufficient to reduce any adverse impacts to any potential nonrenewable paleontological resources to a level below significant.

Summary

The downtown San Diego area has a well documented record of producing abundant marine invertebrate fossils and less abundant marine and terrestrial vertebrate fossils from sediments that range in age from ~ 120,000 years BP to as much as ~ 4 million years BP. Abundantly fossiliferous sedimentary units in the vicinity of the new San Diego Central Courthouse project site include the upper Pleistocene Bay Point Formation, and the middle Pleistocene "upper" and "lower Broadway" units. Because of the importance of these documented fossiliferous formations, a Mitigation, Monitoring and Reporting Program (MMRP) must be implemented in order to reduce any adverse impacts to potential nonrenewable paleontological resources to a level below significant. The MMRP must be consistent with the provisions of the California Environmental Quality Act (CEQA), regulations currently implemented by the City and County of San Diego, and the proposed guidelines of the Society of Vertebrate Paleontology. At a minimum, the MMRP should consist of those procedures outlined on page 7, following. The implementation of these monitoring and mitigation measures are regarded as sufficient to reduce potentially adverse impacts to any nonrenewable paleontological resources to a level below significant.

Thank you for the opportunity to have provided paleontological services on this project. If you have any questions, please feel free to contact us at our Poway address.

Sincerely,

George Kennedy

George L. Kennedy, Ph.D.
Senior Paleontologist

Gerald I. Shiller

Gerald I. Shiller
California Professional Geologist No. 4558

PROFESSIONAL GEOLOGIST
GERALD I.
SHILLER
PG-4558
Expires 2/28/11
STATE OF CALIFORNIA

Attachments: Index maps, geologic map

REFERENCES

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Paleontological Mitigation Program, proposed San Diego Central Courthouse

1. Monitoring of excavation and trenching activities in areas identified as likely to yield paleontological resources by a qualified paleontologist or paleontological monitor. Monitoring will be conducted in areas of excavation and/or trenching in undisturbed marine sediments of the upper Pleistocene Bay Point Formation and/or middle Pleistocene "upper Broadway" and "lower Broadway" formations, as well as where over-excavation of any thin veneer of younger alluvial sediments will encounter the Pleistocene marine sediments in the subsurface. Paleontological monitors will be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediment that are likely to contain the remains of small fossil invertebrates and vertebrates. The monitor must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens in a timely manner. Monitoring may be reduced if the potentially fossiliferous units are not present in the subsurface, or if present, are determined upon exposure and examination by qualified paleontological personnel to have low potential to contain or yield fossil resources.

2. Preparation of recovered specimens to a point of identification (*not* exhibition) and permanent archival conservation, including screen-washing of sediments to recover small invertebrates and vertebrates if appropriate. Preparation of individual vertebrate fossils, if recovered, will be more time consuming than for accumulations of marine invertebrate fossils.

3. Identification and curation of specimens into a professional, accredited public museum repository with a commitment to archival conservation and permanent retrievable storage (*e.g.*, the SDNHM, LACMNH or UCMP). The paleontological program should include a written repository agreement prior to the initiation of mitigation activities.

4. Preparation of a final monitoring and mitigation report of findings and significance, including lists of all fossils recovered and necessary maps and graphics to accurately record their original location and stratigraphic context. The report, when submitted to the appropriate Lead Agency, will signify satisfactory completion of the project program to mitigate impacts to any paleontological resources.

Attachment 1

General Location Map

New San Diego Central Courthouse Project

USGS *San Diego* (1:250,000 series)

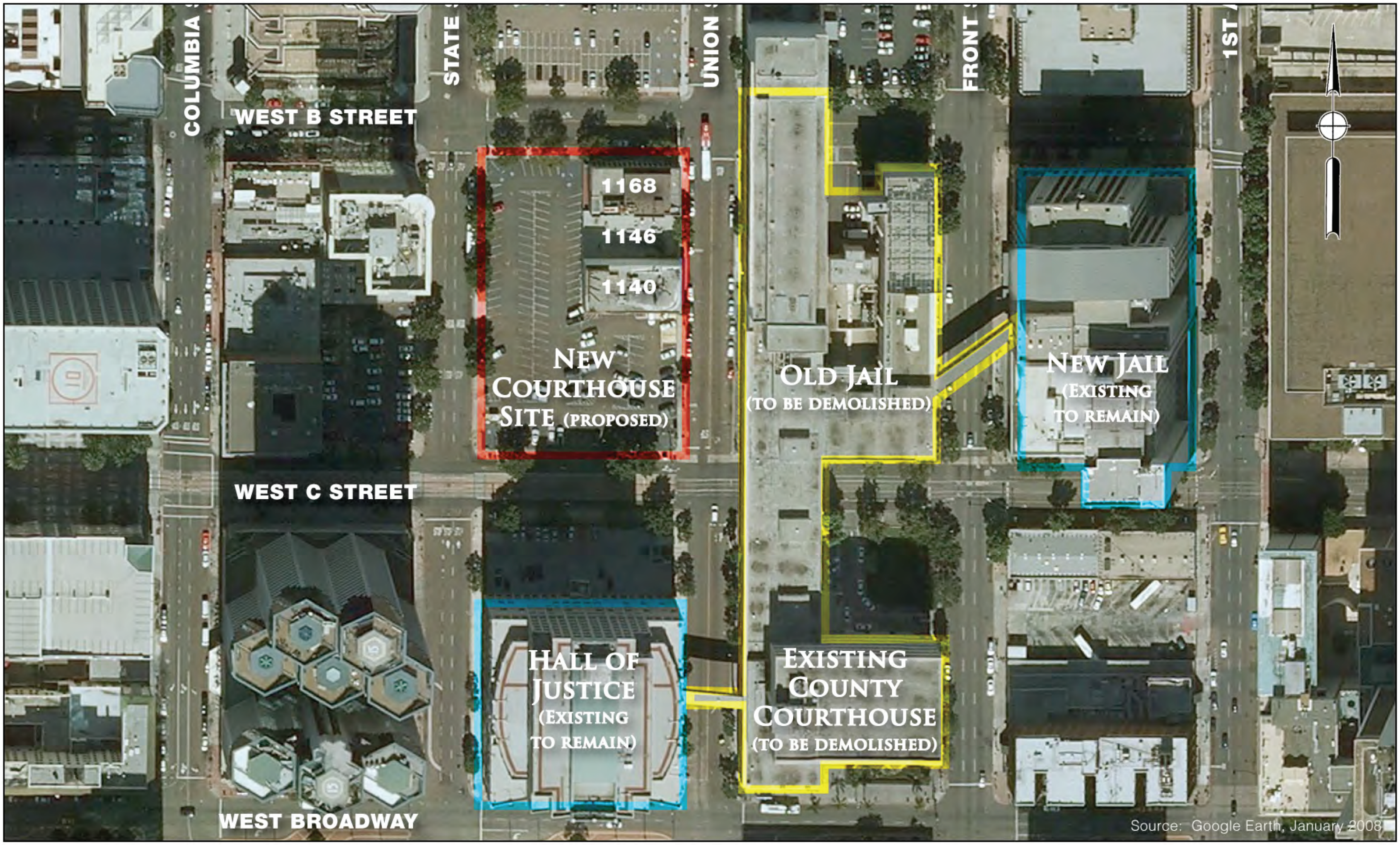
Attachment 2

Project Location Map

New San Diego Central Courthouse Project

USGS *Point Loma* Quadrangle (7.5 minute series)

Brian F. Smith and Associates, Inc.
Environmental Consultants



Attachment 3

Project Development Map

New San Diego Central Courthouse Project

Attachment 4

Geologic Map

New San Diego Central Courthouse Project

Geology after Kennedy, 1975

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APPENDIX E

GEOLOGIC INFORMATION AND REPORTS

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APPENDIX E-1

REPORT OF FAULT SURFACE RUPTURE INVESTIGATION

LAW/CRANDALL

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LAW

LAWGIBB Group Member

September 22, 2000

Mr. Gerald Bischoff, R.A., Project Manager
County of San Diego
Department of General Services
5555 Overland Avenue, Building 2
Suite 2600 (MS 0368)
San Diego, California 92123-1294

Subject: **Report of Fault Surface Rupture Investigation**
San Diego County Property
Between Broadway and "A" Street
and Union Street and Front Street
San Diego, California
County of San Diego Project KK8030
LAW/CRANDALL Project 70300-9-0119.02

Dear Mr. Bischoff:

LAWCRANDALL (LAW) is pleased to submit our report of Fault Surface Rupture Investigation at the San Diego County property located between Broadway and "A" Street, and Union Street and Front Street in downtown San Diego, California. The purpose of the investigation is to evaluate the presence and recency of fault surface rupture occurrence on the property. This investigation was conducted in general conformance with our proposal dated July 21, 1999.

This report presents the results of our Fault Surface Rupture Investigation. It provides recommendations for building setbacks from possible fault traces. Also, it presents recommendations for additional investigation to further evaluate the presence of fault surface rupture on the property.

It has been a pleasure to be of professional service to you on this project and we look forward to continuing our working relationship. Please call us if you have any questions regarding this report, or if we can be of further service to you on this or future projects.

Sincerely,

LAWCRANDALL
A Division of Law Engineering and Environmental Services, Inc.

REGISTERED GEOLOGIST
GREGORY F. RZONCA
NO. 1191
CERTIFIED ENGINEERING GEOLOGIST
Exp 8-31-01
STATE OF CALIFORNIA

Gregory F. Rzonca, C.E.G.
Senior Engineering Geologist

REGISTERED PROFESSIONAL ENGINEER
MARSHALL LEW
No. 522
Exp 3-31-03
GEOTECHNICAL
STATE OF CALIFORNIA

Marshall Lew, PhD, G.E.
Corporate Consultant
Vice President

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REPORT

OF

FAULT SURFACE RUPTURE INVESTIGATION

COUNTY OF SAN DIEGO PROPERTY

BETWEEN

BROADWAY AND "A" STREET

AND

UNION STREET AND FRONT STREET

CITY OF SAN DIEGO, CALIFORNIA

Prepared For:

COUNTY OF SAN DIEGO

SEPTEMBER 2000

LAWCRANDALL Project 70300-9-0119.02

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DEFINITIONS, ABBREVIATIONS AND ACRONYMS

Active fault	A fault which displaces soils that younger than the Holocene epoch
bgs	Below ground surface
bp	Before present day
CDMG	California Division of Mines and Geology
City	City of San Diego
County	San Diego County
Holocene	Geologic epoch from present day to 0.010 m.a. bp (AGI, 1982)
LAW	LawCrandall, a Division of Law Engineering and Environmental Services, Inc., a member of the LAWGIBB Group
m.a.	milli annum (1,000,000 years)
MSL	Mean Sea Level
Paleosol	Buried soil horizons that may be used for stratigraphic correlations based upon development profile
Pleistocene	Geologic epoch between a nominal 2 m.a., ranging between 1.7 m.a. and 2.2 m.a., to 0.010 m.a. bp (AGI, 1982)
Pliocene	Geologic epoch between a nominal 5 m.a., ranging between 4.9 m.a. to 5.3 m.a. bp (AGI, 1982)
Potentially Active Fault	A fault which has moved in the Pleistocene epoch
RCFZ	Rose Canyon Fault Zone
Stratigraphy	Stratified bedrock and soil layers

EXECUTIVE SUMMARY

This report presents the results of our Fault Surface Rupture Investigation at the County of San Diego property between Broadway and "A" Street, and Union Street and Front Street in downtown San Diego, California. The property includes three city blocks, which are used for law enforcement and judicial proceedings. The purpose of the investigation is to evaluate the presence and recency of fault surface rupture occurrence on the property.

The work included review of published and unpublished literature, placement of two trenches and 32 continuous core borings. The exposed trench walls were cleaned and logged, and the cores were logged. Subsurface conditions were determined by observations of the trench exposures in combination with correlation of cores obtained from the borings.

Fault hazard investigations to the west, east and south of the property project the San Diego fault into the central and north portion of the site. Explorations placed on site for this Fault Surface Rupture Investigation have located apparent offset stratigraphy to indicate the San Diego fault may splay and trend beneath Front Street bounding the east side of the site and through the center and north portions of the site. An alternative, although less likely, explanation for the apparent stratigraphic offsets is local depositional variations.

This Fault Surface Rupture Investigation did not expose the trace of the San Diego fault and, consequently, there is no on site information to indicate recency of fault activity or confirmation of fault location(s). However, several off site locations where the fault has been located determined the fault to be active or at least potentially active. LAW believes the San Diego fault, as it may trend through the site, should be considered active unless proven otherwise.

LAW recommends planned structures on the site be set back from a potential fault rupture hazard zone. The potential fault rupture zone includes undeveloped portions of the site and areas of the site developed for law enforcement, inmate housing and support, and judicial proceedings. Areas within the potential fault rupture zone are at a higher risk of severe impact due to fault surface movement compared to those outside the zone. Additionally, site specific exploration is recommended should the County desire possible modification or deletion of the potential fault rupture hazard zone.

1.0 INTRODUCTION

This report presents the results of our Fault Surface Rupture Investigation at the County of San Diego property between Broadway and "A" Street, and Union Street and Front Street in downtown San Diego, California. The general location of the site is shown of Figure 1, Site Location Map. The purpose of the investigation is to evaluate the presence and recency of fault surface rupture occurrence on the property.

This report is organized as follows:

Section 2, Scope of Work, provides the scope performed for this Fault Surface Rupture Investigation.

Section 3, Site Conditions, contains information on site current development and use.

Section 4, Regional Geology, provides information on regional geology including geologic formational units and structure.

Section 5, Summary of Fault Hazard Investigations, presents the results and conclusions pertinent to fault hazard investigations performed in the vicinity of the site.

Section 6, Site Geology, contains information on site stratigraphy and structure.

Section 7, Analyses and Conclusions, presents a delineation of the site potential fault hazard zone, geologic structure trend, recency of faulting and additional exploration.

Section 8, Recommendations, provides building setbacks from the on site potential fault hazard zone, and a summary of additional investigations necessary to modify or delete the potential fault hazard zone.

Section 9, References, presents documents that LAW referred to in preparation of this report.

Maps including Site Location Map, Site Map, Local Geology, Regional Faults and Seismicity, Fault Hazard Investigation Map and Site Fault Map, are attached as Figures 1 through 6. Trench Logs and

Geologic Profiles 1 through 3 are attached as Figures 7 through 10. The Potential Fault Rupture Map is attached as Figure 11. Continuous core boring logs are included in Appendix A.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical and engineering geological consultants practicing at the site locality or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for the County of San Diego to be used solely for master planning of the site. The report has not been prepared for use by other parties, and may not contain sufficient information for purposes of other parties or other uses. This report does not include geotechnical design information.

Trenches and continuous core borings were utilized by this Fault Surface Rupture Investigation to locate or expose potential fault traces. Trenches were excavated in portions of the site where structures and/or deep (>10 feet thick) caving alluvium were not present. Continuous cores were placed in areas not covered by trenches. Limitations of continuous cores include lack of complete core recovery and lack of continuous open face exposures. Depiction of site geologic conditions requires extrapolation from the recovered cores. Consequently, it is possible small apparent vertical displacement offsets may not be located by extrapolation from continuous cores as placed for this Fault Surface Rupture Investigation.

2.0 SCOPE OF WORK

Our Fault Surface Rupture Investigation consisted of the following tasks:

- Review of published and unpublished reports, including private consultant reports;
- Placement and logging of 32 continuous core borings which penetrated to a maximum depth of 70 feet below the ground surface (bgs);
- Excavation and shoring of two trenches to observe for fault-related features. The trenches were 195 feet and 110 feet long and up to 21 feet deep;
- Detailed logging of trench wall exposures and cores retrieved from the boreholes;
- Observations by specialists in soil stratigraphy and relative age assessment of soils who aided in the evaluation of the potential for faults or related features to be exposed in cores and trench walls;
- Analyses of collected data; and,
- Preparation of this report to present the collected data, analyses and conclusions, and recommendations pertinent to this Fault Surface Rupture Investigation.

3.0 SITE CONDITIONS

The site is located in downtown San Diego and is bounded by Broadway on the south, "A" Street on the north, Union Street on the east and Front Street on the west as shown on Figure 1. The site includes three city blocks separated from south to north by "C" Street and "B" Street. The three city blocks are referenced in this report based upon their position from the south-bounding street. Accordingly, the South Block is north of Broadway, the Center Block is north of "C" Street and the North Block is north of "B" Street. The site is developed for inmate housing, police administration and judicial proceedings. The area surrounding the site is used for municipal and private commercial purposes. Municipal facilities around the site include City of San Diego administration and support, inmate housing and support, and judicial proceedings. Private commercial purposes around the site include bail bond services and parking. The site is relatively flat and slopes at a low gradient (less than 1% grade) down to the west. Approximate surface elevation is between 36 MSL and 48 MSL. Figure 2, Site Map, provides information on site conditions and layout.

4.0 REGIONAL GEOLOGY

The site is located on the coastal plain of San Diego County within the Peninsular Ranges geomorphic province. This province is characterized by northwest-trending mountain ranges separated by straight-sided, sediment-floored valleys. The northwest trend is also reflected in the direction of the dominant geologic structural features consisting of northwest trending faults and fault zones. Two major northwest-trending fault zones traverse the San Diego metropolitan and the inland county areas: the Rose Canyon fault zone on the west and the Elsinore fault zone on the east. The Rose Canyon fault zone (RCFZ) and associated faults traverse the downtown San Diego area in a north to north-northwest direction. Portions of the RCFZ have been exposed by trenches or boreholes and have been found to be active. Areas where the RCFZ have been identified as active include: the Mount Soledad fault strand north of Rose Creek; the Old Town fault north of downtown San Diego; and the "Downtown Graben" south of Broadway between 14th Street and 15th Street. The RCFZ continues south of downtown San Diego across San Diego Bay and includes the Silver Strand fault which Kennedy and Clarke (1999) determined to offset Holocene bay deposits.

The downtown San Diego area is underlain predominantly by the late Pleistocene age Bay Point Formation. The Bay Point Formation is composed of marine and nonmarine, poorly consolidated fine to medium-grained, pale brown, fossiliferous sandstone (Kennedy and Peterson, 1975). Unconformably underlying the Bay Point Formation is the Pliocene age San Diego Formation (Hertlein and Grant, 1944; Cleveland, 1960). The San Diego Formation is not exposed in the vicinity of the site, but is exposed in road cuts along the Interstate 5 Freeway. The San Diego Formation consists of yellowish brown fine to medium grained and poorly indurated sandstone (Kennedy and Peterson, 1975). Locally, along the shoreline, Holocene age beach and estuarine deposits overlie the Pleistocene-age sediments of the Bay Point Formation (Weber, 1963). The Holocene sediments are typically fine-grained and consist of interlayed fine sand, silt and clay. The areal distribution of the Holocene age sediments is obscured by man-made artificial fill placed along the present-day shoreline and inland areas to create sites for development.

The geologic features in the general vicinity of the site are shown on Figure 3, Local Geology. The site is shown in relation to major fault zones and earthquake epicenters in Southern California on Figure 4, Regional Faults and Seismicity.

5.0 SUMMARY OF FAULT HAZARD INVESTIGATIONS

The City of San Diego (City) has prepared a seismic safety study map (City of San Diego, 1995) that shows the site and vicinity are in an area that requires investigations for potential fault hazards. The City map shows a northwest trending fault to project towards the Center Block of the site and is shown on Figure 2, Local Geology Map. Several fault hazard investigations have been performed east, west and south of the site. Fault hazard investigations south of the site have exposed the northwest trending fault shown on the City map and identified it as the San Diego fault (Kleinfelder, 1998). The San Diego fault has been determined to be "active" in the vicinity of Market Street and First Avenue about 1,500 feet southeast of the site. The projected trace of the San Diego fault exposed by fault hazard investigations in the vicinity of the site is shown on Figure 5, Fault Hazard Investigation Map. The following text provides, in chronologic order, summary information on referenced fault hazard investigations that are pertinent to the subject site.

April 11, 1980, Woodward-Clyde Consultants: A fault hazard investigation was performed by Woodward-Clyde Consultants (WCC) on a property at the southeast corner of Front Street and Broadway near the southeast corner of the site South Block. The investigation consisted of excavating two east-west trenches on the south and central portions of the property. These trenches exposed a fault that had a maximum four to five feet apparent vertical displacement of the Bay Point Formation in a zone that was less than 10 feet wide. Orientation of the fault was north 5 degrees west with a 60 to 80 degree inclination down to the east. The fault was exposed in the center and south margins of the property and was mapped to trend nearly due north through the center of property. Fault scarp soils and buried talus formed an angular wedge over the weathered fault scarp. The main shear of the fault was ¼ to ½ inch wide with the major vertical displacements along the main shear. A basal paleosol unit was disrupted by the fault. It was the opinion of WCC that the fault "has not displaced in the last 20,000 years and probably not in the last 75,000 years." WCC stated that based upon the criteria of California Mines and Geology (CDMG), the fault was "essentially inactive".

January 15, 1981, Artim and Strieff (Woodward-Clyde Consultants): A little less than one mile length sewer trench in downtown San Diego was logged in 1980 to ascertain potential fault crossings. Fault traces were located as a zone between Stations 1710 and 1800, along Broadway, about 200 feet east of the site. The fault zone was shown on a large-scale (1"=800') trench location map to be the continuation of the fault exposed on the south adjacent property by Woodward-Clyde (1980). Several faults were exposed by the trench and maximum apparent vertical displacement was on the order of 10 feet. The trench log depicted Pleistocene paleosols to be offset by faulting, but Holocene soils were not shown to be displaced.

<u>November 12, 1994, Woodward-Clyde:</u> A geologic investigation for fault hazards, including trenches and soil borings, was performed by Woodward-Clyde (1994) at vacant undeveloped property to be used for the (now constructed) County Central Detention Facility and Inmate Reception Center located across Front Street from the east side of the Center Block. Approximately 500 feet of trench and seven borings were performed for the geologic investigation. The trenches were excavated to determine the presence of faulting at the site and the borings were mainly for geotechnical engineering purposes. The explorations encountered artificial fill, Holocene alluvium, and bedrock. Holocene soils were up to 15 feet deep and were age dated by carbon techniques as 7,500 years old (URS Greiner, 2000). Bedrock below the artificial fill and alluvium was the Bay Point Formation. Underlying the Bay Point Formation was the San Diego Formation that was generally encountered by the borings at a depth of around 30 feet below the surface. The report concluded "the likelihood of active onsite faulting is very low." and indicated the San Diego fault "would most likely be present west of the site area." (which would place the fault on the site or beneath Front Street).

<u>February 2, 1998, Kleinfelder, Inc.:</u> Kleinfelder, Inc. (1998) performed a three city block fault hazard investigation at a location about 1,500 feet southeast of the site in the vicinity of Market Street and First Avenue. As a part of that investigation, background research was performed on two additional city blocks where fault hazard investigations had been performed. Kleinfelder placed trenches and located the San Diego fault in the block at the southeast corner of Market Street and First Avenue, and found it to be active at that location. The exposed fault zone was approximately 15 feet wide at the ground surface. The fault had apparent vertical separations of up to four to six inches in the near surface and a minimum horizontal slip of nine feet was suggested by an offset channel sand deposit. Radiocarbon dating of organic material obtained from an animal burrow indicated a maximum age of faulting as 9,520 years plus or minus 50 years bp (within the Holocene epoch). Background research by Kleinfelder for their fault hazard investigation indicated the San Diego fault continued north through the Ralph's Market property at the northeast corner of Market Street and First Avenue where it offset soils age dated as 5,230 years plus or minus 60 years bp (Geocon, 1995). The San Diego fault was traced further north by Kleinfelder through literature search and was reported to extend through the east approximate one-quarter of the Paladion site (Irvine Consulting Group, 1990) at the northwest corner of the "G" Street and First Avenue.

July 24, 2000, Law/Crandall (LAW): A geotechnical study, including a fault hazard investigation, was performed by LAW on the city block across Union Street adjacent to the west side of the Center Block. The fault hazard investigation included placement of 11 continuous core borings and reference to eight, 1990 bucket auger borings that had been entered and downhole logged. The continuous core borings penetrated to a maximum depth of 35 feet and the bucket auger borings extended to a maximum 45 foot depth. The bucket auger borings were drilled in 1990 by LeRoy Crandall and Associates, a predecessor firm to LAW. The continuous cores and bucket auger borings encountered artificial fill, older alluvium, and bedrock. The older alluvium consisted of indurated brown clayey silt and silty clay without clay laminations or significant translocated clay structure. Maximum older alluvium depth was interpreted to be about 13 feet. The encountered bedrock was the Bay Point Formation and San Diego Formation. The Bay Point Formation was identified as yellowish brown intermixed clayey sandstone to sandy claystone with scattered gravel. The base of the Bay Point was a distinctive olive claystone. Laminated sand beneath the olive claystone was taken as the unconformably underlying San Diego Formation. The top of the San Diego Formation appeared to be inclined down to the southwest and generally occurred between 18 and 30 feet in the continuous core borings. Interpretation of the stratigraphy encountered in the continuous core borings and bucket auger borings indicated the site soils were not displaced by faulting.

6.0 SITE GEOLOGY

6.1 INTRODUCTION

This Site Geology section presents the site stratigraphy and structure. Our interpretation of the stratigraphy is based upon soil and bedrock encountered in the trenches and continuous core borings. The site structure is interpreted through correlation of the stratigraphy. Stratigraphy and interpreted geologic structure are presented as transects across the North Block, along "B" Street and along "C" Street (three transects total). Location of these transects is shown on Figure 6, Site Fault Map. Trench Logs are presented on Figure 7 and the continuous core logs are included in Appendix A. Geologic Profiles 1 through 3 are presented as Figures 8 through 10 and show interpreted site stratigraphy.

6.2 STRATIGRAPHY

The site stratigraphy consists of the San Diego Formation and Bay Point Formation bedrock which is overlain by older alluvium, younger alluvium and artificial fill. The units are discussed below.

6.2.1 Bedrock Formations

Bedrock at the site is the Pliocene San Diego Formation (Tsd) which is unconformably overlain by the late Pleistocene Bay Point Formation (Qbp). The San Diego Formation and/or the Bay Point Formation were encountered in all subsurface explorations conducted for this Fault Surface Rupture Investigation. There are possibly repeated San Diego Formation and Bay Point Formation contacts with the San Diego Formation over the Bay Point Formation in Borings 2-12 and 2-16 of the "B" Street Transect that may be indicative of faulting (refer to Section 6.3 for discussion of on site faulting). The contact between the San Diego Formation and the Bay Point Formation was recognized as a distinctive olive claystone to sandy claystone that was interpreted to be the basal Bay Point Formation which was underlain by laminated sandstone of the San Diego Formation. This contact was considered as a marker horizon for stratigraphic interpretations. The San Diego Formation generally consisted of poorly cemented sandstone with local gravel beds. The Bay Point Formation consisted of clayey and silty sandstone. A soil profile was apparent on portions of the Bay Point Formation. Trench 100 on the North Block Transect exposed developed soil horizons including an upper soil horizon (Qpba) that was a red brown mottled olive clayey sand, a transitional horizon (Qbpb) that had a well developed prismatic blocky structure and clay films on ped faces, and a lower soil profile (Qbpc) that had the most residual clay compared to overlying units and was generally a dark yellowish brown. A well-developed soil profile was not present in Trench 200.

6.2.2 Older Alluvium

Older alluvium (Qalo) was encountered over bedrock in Borings 2-8 through 2-12. The older alluvium consisted of fine sand and silt, and was up to 14 feet deep in Boring 2-12. The older alluvium possessed an incipient weathering profile, but did not include prismatic partings or blocky structure. The older alluvium had an increased resistance to sampler penetration and a greater induration compared to alluvium described by Woodward Clyde (1994) and encountered by LAW's Boring 2-15 and the 3 series borings in the "C" Street Transect.

6.2.3 Younger Alluvium

Younger alluvial soils (Qaly) over Bay Point Formation were encountered in Boring 2-15 and all 3 series borings. The younger alluvium consisted of loose, well sorted sand and clayey sand beds. A developed alluvial soil profile was not observed in the cores recovered from the borings. The depth of younger alluvium in Boring 2-15 was 10 feet bgs and in the 3 series borings the younger alluvium extended to depths of between 20 and 26 feet bgs. The base of the younger alluvium was marked in the 3 series borings by gravel beds that formed an unconformable basal conglomerate on top of the Bay Point Formation.

6.2.4 Artificial Fill

Artificial fill was encountered in several borings and the trenches, and generally consisted of loose mixtures of sand, silt and clay that included debris such as nails and brick fragments. The fill was generally less than three feet thick. However, Trench 200 and the 3 series boring encountered fill up to a depth of at least 15 feet. Fill exposed on the west portion of Trench 200 formed a linear angular contact with Bay Point Formation that was at an estimated 1/2:1 (horizontal to vertical) ratio inclined down to the west and was at least 15 feet deep. Fill in Trench 200 consisted of loose, thick (up to 5 feet in vertical exposure) interlayered silty sands and clayey sands, and contained scattered brick fragments and highly oxidized nails. The fill did not support vertical cuts for the trench and caved after excavation. Borings 3-4 through 3-7 encountered man made fill consisting of silty sand with brick fragments. The maximum depth of the artificial fill was about 15 feet in Boring 3-4 and was approximate 9 feet deep in Borings 3-5 through 3-7.

6.3 STRUCTURE

The geologic structure at the site is complex. The North Block Transect is interpreted to have an offset in stratigraphy and the "B" Street Transect may have multiple stratigraphic offsets and, possibly, repeat of bedrock units with the San Diego Formation over the younger Bay Point Formation. The "C" Street Transect does not have indications of significant stratigraphic offset. An explanation for the offset stratigraphy is possible splaying of the San Diego fault as it trends through the site. Alternatively, although less likely, the apparent stratigraphic offsets could be the result of local confined bedrock erosion and depositional sequences.

An interpretation of the projected surface trend of the site geologic structure is shown on Figure 6, Site Fault Map, and depictions of subsurface structure is shown on Geologic Profiles 1 through 3 attached as Figures 8 through 10. As shown on the Site Fault Map the San Diego fault may splay through the "B" Street Transect to trend as a fault beneath Front Street and northwest to Union Street. A conjugate fault subparallel to "B" Street may connect the two faults. These possible faults are discussed in the following.

6.3.1 Front Street Fault

Explorations for the "B" Street Transect indicate a fault trends beneath Front Street just east of its intersection with "B" Street. Depth to the San Diego Formation in Boring 2-15 on the east side of Front Street is about 27 ½ feet bgs, whereas the San Diego Formation is at a depth of about 35 feet bgs in Boring 2-14 on the west side of Front Street. Both borings have the same surface elevation; consequently, it appears there is an apparent vertical offset of about 7 ½ feet with the west side down between the two borings. The presence of a fault beneath Front Street is further suggested by the presence of alluvium up to 10 feet deep in Boring 2-15 while there was no alluvium encountered in Boring 2-14. However, this may be a depositional variation and not necessarily attributable to faulting. The possible fault beneath Front Street is constrained on the east by work performed by Woodward-Clyde Consultants (1994) which did not find a fault on the city block at the southeast corner of Front Street and "B" Street, east across Front Street from the Center Block of the site. It is constrained on the west by Trench 100 and Trench 200 of this Fault Surface Rupture Investigation.

Consequently, the fault orientation would be about north 10 degrees west as it trends beneath Front Street. An open bedrock fracture with up to a 3 inch horizontal separation was observed at Station 1+68 in Trench 100. Sand infilled the fracture below 5 feet and clayey weathering rinds were along the fracture walls. The fracture penetrated to the surface but did not continue below a depth of 13 feet. Consequently, the Station 1+68 bedrock fracture is considered to be a secondary effect of the possible fault beneath Front Street. The orientation of the Station 1+68 fracture across the Trench 100 walls was north 5 degrees west which is consistent with the trend of the San Diego fault south of Broadway and with the orientation of a possible fault beneath Front Street.

6.3.2 Union Street Fault

Explorations for the North Block Transect and "B" Street Transect indicate a possible fault extending between "B" Street near the east side of the elevated skyway between the North Block and Center Block, and Union Street near the north one-quarter of the North Block. The depth to the San Diego Formation in Borings 1-1 through 1-4 was about eight feet bgs, whereas, the depth to the San Diego Formation was about 16 feet bgs at Boring 1-5. The borings are near the same surface elevation (ranging from 44.9 feet MSL at Boring 1-1 to 46.5 feet MSL in Boring 1-5); consequently, it appears there is an apparent vertical offset in the San Diego Formation of about 8 feet with the east side down between Borings 1-1 through 1-4 compared to Boring 1-5. A well graded sandstone is correlatable near the bottom of Borings 1-1 through 1-5. The laterally continuous well graded sandstone at the base of Boring 1-5 with offset of overlying stratigraphy is interpreted to indicate a fault passes through Boring 1-5 within about 10 feet of its maximum depth. The apparent east side down vertical offset is also indicated between Boring 2-12 and Boring 2-16 of the "B" Street Transect. The San Diego Formation was beneath older alluvium at a depth of about 14 feet bgs in Boring 2-12 and beneath the Bay Point Formation at a depth of 17 feet in Boring 2-16 about 25 feet east of Boring 2-12. Consequently, the amount of apparent vertical offset in the San Diego Formation between Boring 2-12 and 2-16 is at least 3 feet. The apparent vertical offset may be greater as the Bay Point Formation is not present in Boring 2-12 to allow a correlation with the Bay Point Formation and San Diego Formation contact in Boring 2-16. The presence of a fault extending to Union Street is further suggested by the presence of older alluvium that is up to 14 feet deep in Boring 2-12 with no older alluvium present in Boring 2-16. However, this may be a depositional variation and not necessarily attributable to faulting. The possible fault splay to Union Street through "B" Street, as it would extend to the surface, is confined to the west by unbroken stratigraphy determined by Borings 2-1 through 2-12 of this Fault Surface Rupture Investigation. It is confined on the east by unbroken stratigraphy exposed in Trench 100 and Trench 200. Consequently, the possible fault trace would trend north 25 degrees west from "B" Street just east of the elevated skyway to the Union Street. Several shears were noted between Stations 0+0 and 0+35 on the west side of the North Block Transect Trench 100. These shears were oriented around north 22 degrees east measured between trench walls and affected bedding up to an approximate two inches with an apparent vertical displacement. The shears did not penetrate to the top of the Bay Point Formation and did not form a continuous trace in the trench. Consequently, they are considered to be secondary effects of faulting or older small faults that did not propagate to the surface.

6.3.3 Conjugate Fault

The stratigraphy in Borings 2-13 and 2-16 is very complex. It appears there are repeated bedrock formational units with the older San Diego Formation over the Bay Point Formation. Juxtaposition of these units can be accomodated by low angle faulting between the fault trending to Union Street and the fault beneath Front Street. Alternatively, there may be complex depositional sequences represented by cores from Boings 2-13 and 2-16 which are not present in all other continuous cores placed for the Fault Surface Rupture Investigation. The possible conjugate fault surface trace is shown diagrammatically on the Site Geology Map, Figure 6. Trend of the fault would be around north 20 degrees east which is parallel to the shears exposed between Stations 1+00 and 0+35 on the west portion of Trench 100. The repeated bedrock formation contacts are shown on Geologic Profile 2, Figure 9. However, due to uncertainties in correlation of bedrock sequences the repeated formational contacts are not depicted on Boring Logs 2-13 and 2-16, and low angle faults are not depicted on Geologic Profile 2, Figure 9.

7.0 ANALYSES AND CONCLUSIONS

The results of this Fault Surface Rupture Investigation indicate portions of the site possess a risk of being impacted by fault surface rupture. Areas within the potential fault rupture zone shown on Figure 11, Potential Fault Rupture Map are at a higher risk of severe impact due to fault surface movement compared to those outside the zone. The potential fault rupture zone delineation is based upon extrapolation and may be modified or deleted depending upon future investigations, should they be performed. The areas of potential fault rupture include undeveloped portions of the site and areas of the site developed for law enforcement, inmate housing and support, and judicial proceedings. Information utilized in delineating the potential fault rupture zone is presented below. Also, recommendations for additional explorations to develop further criteria to modify or delete the potential fault rupture zones are presented.

7.1 Fault Hazard Zone Delineation

The available data indicates the fault most likely to impact the site by surface rupture is the San Diego fault that appears to splay through the Center Block and North Block of the site. The area of potential fault rupture on site was determined by evaluation of the potential fault trend and recency of faulting as described in the following sections.

7.1.1 Potential Fault Trend

Prior fault hazard investigations east, west and south of the site project the San Diego fault into the site and/or adjacent streets. The overall trend of the San Diego fault as it nears the site from the south is around north 10 degrees west. The "B" Street Transect depicts apparent offset stratigraphy to indicate multiple fault traces and the North Block Transect also depicts apparent offset stratigraphy. These apparent offsets indicate possible multiple faults pass through or near the site. Splaying of the San Diego fault at the site is supported by widening of the fault zone as it is exposed in the Broadway sewer trench compared to fault investigations farther south. These possible faults are depicted on Figure 6, Site Geology Map and Geologic Profiles 1 through 3, Figures 8 through 10, and are discussed in preceding Section 6.3.

7.1.2 Recency of Faulting

CDMG. officially active fault by city of SD

The on site investigation did not yield information to be able to determine the recency of fault movement on site due to lack of fault trace exposure. Information and conclusions for properties south of the site indicate the San Diego fault is active (Geocon, 1995 and Kleinfelder, 1998). The closest off site investigations (conducted in 1980 and 1981) where the fault was exposed (near Broadway) did not consider the San Diego fault to be active, but their assessment indicated the fault may be potentially active (rupture during the Pleistocene). However, locations where the fault was determined active were based upon Carbon 14 dating techniques compared to the 1980s investigations which used a relative assessment of soil profile development. Due to quantified (Carbon 14 dating) assignments of Holocene activity to the San Diego fault, it is LAW's opinion the San Diego fault should be considered active until proven otherwise. Additionally, the City requires structures be set back from a potentially active fault. Alternatively, a structure can be built on a potential active fault provided a "Notice of Geologic Conditions" is recorded on the property deed to place all legal responsibilities associated with the potentially active fault on the property owner. It is necessary to expose the fault scarp on or near the site for an evaluation of movement recency. An age assessment of fault activity would require the presence of sufficient dateable materials for carbon dating and/or soil packages with sufficient time history to allow a specialist soil stratigrapher's relative assessment of soil profile age.

7.2 ADDITIONAL EXPLORATION

The potential fault rupture zone may be modified or deleted depending upon future investigations, should they be performed. These future investigation(s) could include information as the area develops around the site and new data becomes available. However, this approach is time consuming and may not provide sufficient information specific to the site to be useful. Offsite information may not be sufficient for City geologic review approval that is required for securing planning and building permits in the area of the site. Alternatively, additional exploration(s) specific to the requirements of the site could be performed. The additional work would target exposure of possible fault traces and an assessment of their recency of activity. Additional site specific exploration would be difficult due to site development, high traffic volume, numerous below ground utilities, and depth of alluvium and fill which are prone to caving in deeper excavations. Possible fault exploration programs include the following:

- Trench exploration could be performed at the northeast corner of the North Block to determine the presence or absence of fault related features. This area was not trenched for this Fault Surface Rupture Investigation as there were construction trailers and equipment at this location during our field work. The advantages of exploring this area are the possible clearance of the northeast corner of the site from potential fault surface rupture hazards at a relatively low cost with minimal concern about subsurface utilities. Another advantage of the trench explorations is they will not require a significant amount of time to complete. However, a disadvantage is there will not likely be alluvial soil cover for age dating purposes at this location, though there may be sufficient soil profile for a relative age assessment. The construction trailers and equipment at this location would need to be moved to place the explorations.

- An exploration program could be performed to extend the "B" Street Transect east across Front Street. This exploration would provide more detail to the west in the vicinity of the existing elevated Court House skyway and may have a relatively good chance of locating fault trace(s) within the site. Due to the depth of alluvium prone to caving, high traffic volume and large number of subsurface utilities, the exploration program would need to consist of a combination of continuous core borings and bucket augers. Trenches may also be utilized, however, there could be significant impacts to traffic and a requirement for temporary structural support of subsurface utilities. An advantage to this program is the explorations would cross projected possible fault traces within the site where age dates may be ascertained from alluvial soils and/or soil profiles that may be present on bedrock for relative age assessment. A disadvantage to this exploration program includes the crossing of major downtown traffic arterials that would necessitate close coordination of traffic control. Also, there are numerous subsurface utilities in "B" Street and Front Street. Consequently, traffic controls would likely include limited working hours and confined excavation locations. The presence of numerous subsurface utilities may preclude optimal exposure of possible fault traces or temporary structural support of these utilities. Additionally, deep artificial fill may be present near buildings and the Court House skyway that could cover possible fault features. Dateable alluvial soils or soil development profiles may have been removed for fill placement or prior building construction.

- An exploration program along the west side of Front Street between "B" Street and "C" Street could be performed to expose a portion of the projected possible fault trace. Due to the depth of alluvium prone to caving, high traffic volume and large number of subsurface utilities, the exploration program would consist of a combination of continuous core borings and bucket augers. Trenches may also be utilized; however, there could be significant impacts to traffic and a requirement for temporary structural support of subsurface utilities. An advantage to this program is the explorations would cross projected possible fault traces within the site where age dates may be ascertained. Concerns for traffic control and subsurface utilities for exploration placed along Front Street may not be as great compared to explorations that would cross Front Street. However, there would still be a need for traffic control and efforts to avoid or mitigate problems associated with subsurface utilities. This location may expose a portion of the suspected fault(s), although it would not likely expose the main trace of the San Diego fault.

- An exploration program to extend the "C" Street Transect east across Front Street may have a relatively good chance of locating fault trace(s). Consideration could be given to placing explorations in private property, including the Greyhound bus terminal, to the east of the South Block. There is a relatively high possibility the San Diego fault would be exposed as the extended transect is near the northern most identified location (Broadway sewer trench) of the San Diego fault. Locating the San Diego fault would be beneficial in projecting the fault into the site, though it would not provide site specific information on fault trend(s) through the property. It is possible alluvial soil cover and/or a soil profile developed on bedrock may be present to allow an age assessment and possibly dating of fault activity. The disadvantages include crossing of a major downtown traffic arterial, including rail traffic, that would necessitate close coordination of traffic control. The presence of numerous subsurface utilities would also provide challenges.

- Trenching or continuous core borings and bucket auger borings in Union Street to extend the North Block Transect west could be accomplished to expose the western most potential fault. This would provide information on the existence and trend of the fault, if encountered. However, it is not likely there will be sufficient soil profile to allow an age assessment should a fault be exposed as the upper soils were likely removed for grading of Union Street. Also, the cores and trench along the North Block Transect did not expose alluvium that would be helpful for age dating purposes. Union Street is a major downtown traffic arterial and subsurface exploration would require significant traffic control. Also, there are numerous utilities in Union Street that could preclude fault exposure and/or require temporary structural support.

8.0 RECOMMENDATIONS

Based upon the Fault Surface Rupture Investigation to date, LAW recommends that new structures be set back from the potential fault rupture zone shown on Figure 11, Potential Fault Rupture Map. A setback distance of 25 to 50 feet is commonly recommended for active faults. Further studies that may better define fault location and characteristics, and necessary activity should be able to determine an appropriate setback distance.

The potential fault rupture zone includes undeveloped portions of the site and areas of the site already developed for law enforcement, inmate housing and support, and judicial proceedings. Areas within the potential fault rupture zone are at a higher risk of severe impact due to fault surface movement compared to those outside the zone. The trend of possible on site faults has been utilized to establish the potential fault rupture zone shown on Figure 11, Potential Fault Rupture Map. The potential fault rupture zone has been established by correlation from recovered continuous cores and trench exposures, and associating apparent offsets with faults. The fault locations are based upon projection of interpreted correlatable beds at depth. An alternative explanation to the interpreted fault related offset of site stratigraphy is possible depositional variations in bedding occurrence and distribution. Consequently, exposure of the interpreted faults is necessary to confirm their existence, location and recency of activity.

Additional site specific exploration is recommended should the County desire possible modification or deletion of the potential fault rupture hazard zone. Section 7.2, Analyses and Conclusions, provides recommendations for additional fault investigation locations. Following Table 1 summarizes possible exploration locations. LAW will be pleased to discuss these possible explorations with the County, and prepare cost estimates and a work plan for additional cost exploration, if desired.

TABLE 1
POSSIBLE ADDITIONAL EXPLORATIONS

Location of Exploration	Method of Exploration	Advantages	Disadvantages
Northeast Corner of North Block	Trench	Clear the northeast corner of the site from potential fault rupture Relatively low cost Relatively short time for project completion Minimal potential subsurface utility conflicts	Unlikely to find alluvial soils in this area to allow age assessment (however, there is a potential for relative age assessment of soil development on bedrock) Requires moving construction trailers
Extend "B" Street Transect	Continuous core borings, bucket augers and trenches	Potential for locating San Diego fault at or near Front Street Potential for locating west most fault and conjugate fault at "B" Street west of Front Street Alluvial soil cover to allow age assessment of fault movement	Very high traffic area, including City fire department access, inmate intake and City Operations Limited or special working hours due to traffic control Possible confined working areas Deep alluvium could result in safety constraints Potential deep artificial fill near structures Numerous subsurface utilities Expensive Time consuming
Along Front Street Between "B" Street and C Street	Continuous core borings and bucket augers	Potential to expose a portion of the possible fault system Alluvial soil cover to allow age assessment of fault movement Lower potential for subsurface utility conflicts compared to other explorations	Would expose only a portion of the possible fault system Non optimal location for fault interception High traffic area, though not as significant as Front Street at and north of B Street Limited or special working hours due to traffic control Possible confined working areas Deep alluvium could result in safety constraints Numerous subsurface utilities Expensive Time consuming

TABLE 1 (continued)
POSSIBLE ADDITIONAL EXPLORATIONS

Location of Exploration	Method of Exploration	Advantages	Disadvantages
Extend "C" Street Transect	Continuous core borings and bucket augers	Potential for locating San Diego fault Nearest last exposed portion of the San Diego fault (at Broadway) Alluvial soil cover to allow age assessment of fault movement	Possible fault intercept is not likely to be near the site May not provide information on the possible conjugate fault and west fault High traffic area, though not as significant as Front Street at and north of B Street Limited or special working hours due to traffic control Possible confined working areas Deep alluvium could result in safety constraints Potential deep artificial fill near structures Numerous subsurface utilities Expensive Time consuming
Extend North Block Transect West	Trench, continuous core borings and bucket auger borings	Would confirm possible west fault	High traffic area Would not provide information on possible conjugate fault and fault beneath Front Street Alluvium to allow age evaluation likely not present Soil profile to allow relative age assessment likely removed for construction of Union Street

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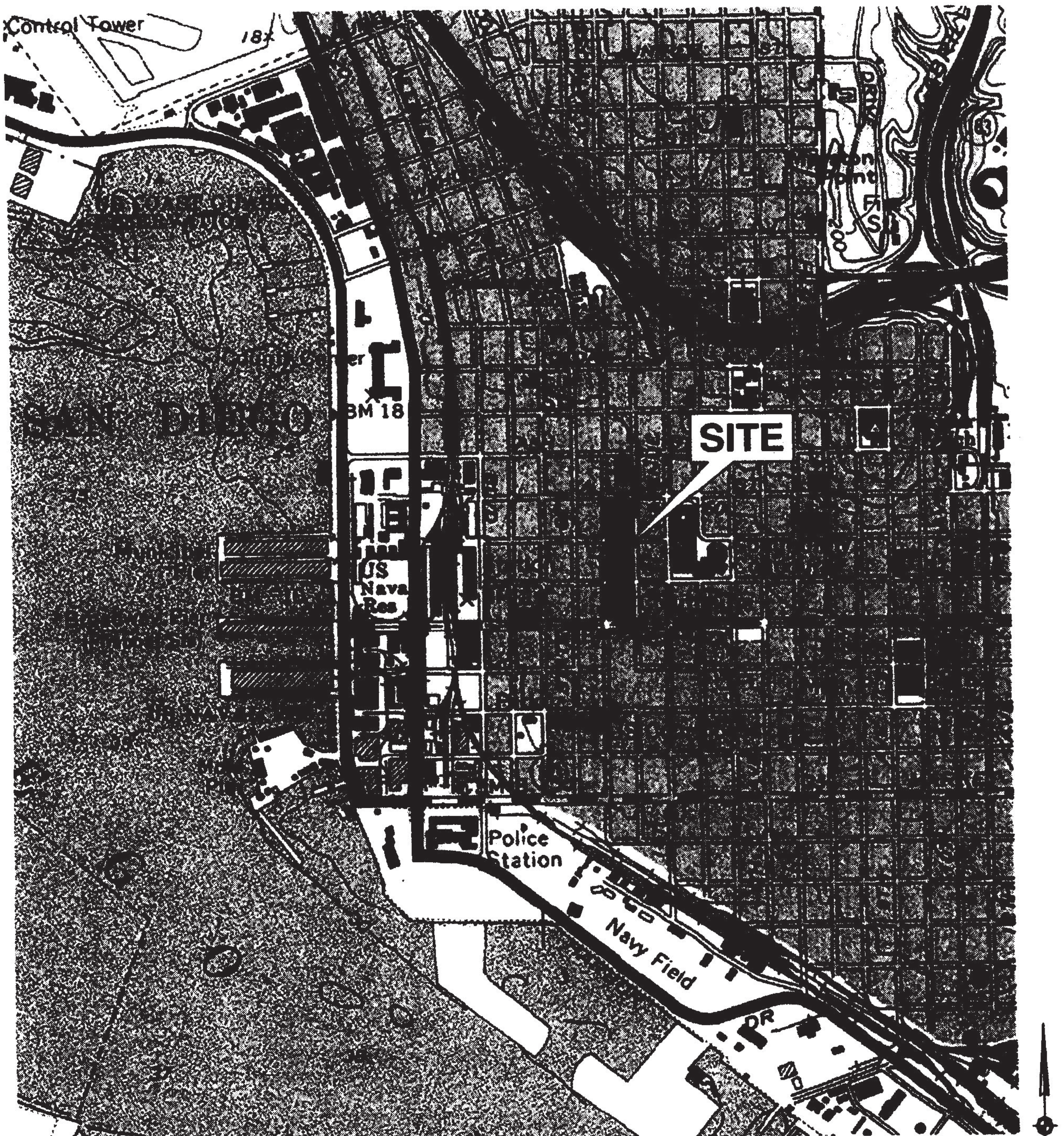

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REFERENCES:
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COUNTY OF SAN DIEGO	LAW Crandall LAWGIBB Group Member A Division of Law Engineering and Environmental Services, Inc.	SITE LOCATION MAP Project: 70300-9-01119 Figure: 1

APPENDIX E-2

PHASE II STRUCTURAL SEISMIC ASSESSMENT OF CENTRAL COURTHOUSE COMPLEX

BFL OWEN

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PHASE-II

STRUCTURAL SEISMIC ASSESSMENT
OF
CENTRAL COURTHOUSE COMPLEX

220 W. Broadway
San Diego
California 92101

ANNEX BLOCK

FURTHER STUDY
FOR COMPLIANCE WITH SB 1732

PREPARED
BY:

BFL OWEN

BFL-OWEN & Associates
For

The County of San Diego

Project No. 404.2136.2

July 2006

July 27, 2006

Mr. Eric Michelle
Project Manager
Project Management Division
Department of General Services
County of San Diego

5555 Overland Avenue, Stuite#2600,
Building 2, Room 220
San Diego, CA 92123-1294

Subject: **Report on Phase-II of Structural Seismic Assessment**
Central Courthouse Complex at Downtown San Diego
Annex Block

Dear Mr. Michelle:

BFL-Owen and Associates is pleased to report its findings of the phase-II study on Annex Block (Buildings 37-A- C and 37-A1-D).

This report is prepared to provide the County of San Diego with viable alternatives in bringing the Annex buildings (or at least a portion of it) in compliance with the adopted requirement by the Administration Office of The Courts (AOC) for implementation of Senate Bill of 1732 "Trial Court Facilities".

The report includes conceptual design for recommended remedial work on the separated structure, estimated construction cost, and recommended future studies.

Should you have any questions or need clarification on the material being presented in this report, please do not hesitate to contact our office at: (949) 860-4800.

Sincerely;

Touraj (TJ) Eimani, Ph.D., S.E.
Principal

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Irvine, CA 92618
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I. EXECUTIVE SUMMARY

The County of San Diego retained the engineering services of BFL-Owen & Associates for the seismic assessment of the existing Central Courthouse Facilities buildings C & D (Annex Block), situated in downtown San Diego (**Figure 1**). In continuation of the Phase-II approach assessment, BFL-Owen has performed a further study of the Annex Building block.

The Annex block consists of two separate structures divided by "B" Street. From the preliminary investigation by MACTEC, the San Diego fault is believed to project northwesterly into the northeast corner of the main structure at the south of B-street (37-A1-C). The potential surface rupture zone for the fault continues into the entire footprint of the smaller structure at the north of B-street (37-A1-D). Consequently, based on AOC and BFL-Owen separate structural evaluations per SB1732 requirements, both structures were found non-conforming and deficient.

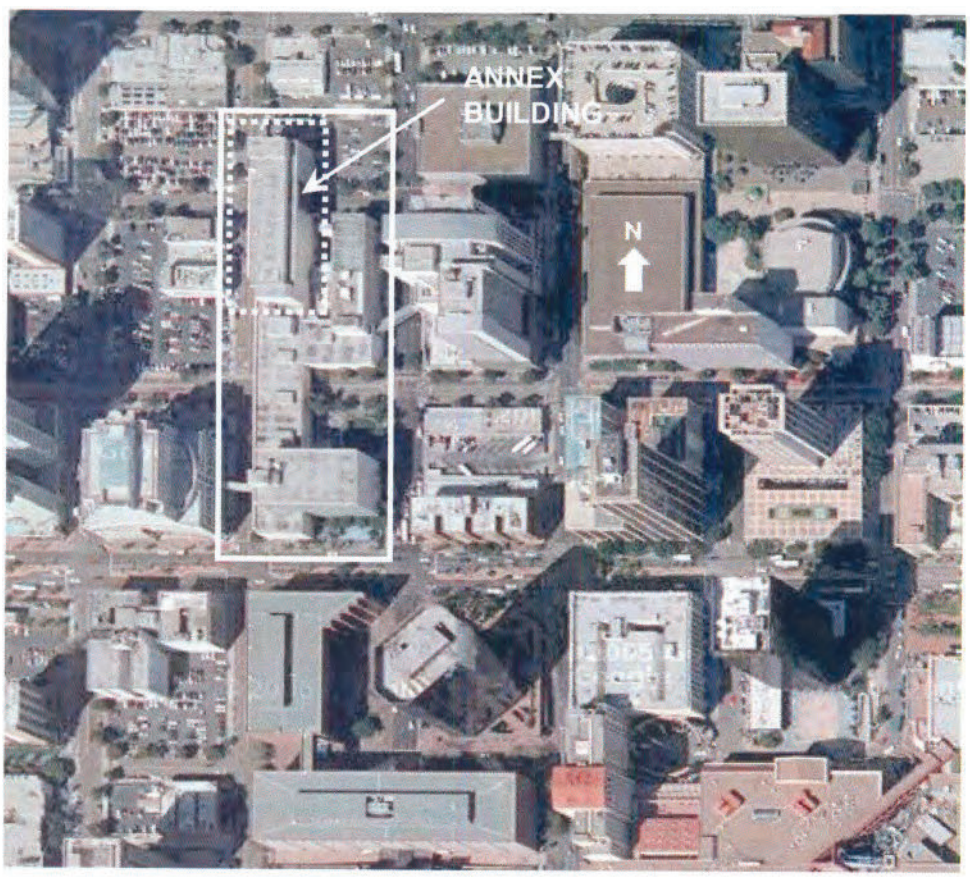

Figure 1: Aerial photo of Central Courthouse

The intent of the current study is to outline viable strategies to bring all or at least a portion of the Annex block into compliance with SB-1732. This report presents the findings of such study and provides recommendations for seismic strengthening of the block.

The study of current data has indicated that no technological viable option exists to eliminate the deficiency for the northern structure (37-A1-D). It has also confirmed the lack of any financially viable option for elimination of the surface rupture related deficiencies in the southern structure in its current configuration. The study has shown that only a portion of the southern building (37-A1-C), that is safely located beyond the potential fault zone, could be restored to meet the SB1732 seismic safety requirements. This will be achieved by separating the building into two halves along gridline-6, so the probability of any potential damage due to surface rupture will be eliminated in the southern half.

Considering the proposed separation, the study was further developed to determine whether or not the separated part would be capable of withstanding seismic forces and satisfying SB-1732 requirements. The separated part was modeled and dynamically analyzed. The analytical results indicated that the existing lateral load resisting system for this separated portion is not capable of carrying the seismic loads as required by SB-1732 and thus seismic retrofit would be required. The proposed strengthening includes addition of 10-inch thick concrete shear wall next to the separation line (gridline-6) and two 8-inch thick walls along the eastern elevation (gridline-E). Remedial work at the foundation level is also required to support added walls.

The northern portion of the South Annex Building remains exposed to fault activity zone and thus is expected to have very poor seismic performance. In order to avoid probable damages due to the pounding of the divided portions, ample seismic gap will be required. Alternatively, one bay or all of the structure in north of the proposed division is recommended to be demolished in partial or in its entirety. The northern building (37-A1-D) may be maintained at its current condition but cannot be used for court related services.

Based on the recommended strengthening, the cost of the required seismic rehabilitations of the separated southern half of the South building to meet AOC rating of IV, is estimated not to exceed 3 to 4 million dollars. Cost of the probable renovation in MEP system due to the proposed separation or the demolition of the northern half is not included in this figure.

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II. BUILDING DESCRIPTION & BACKGROUND

The Central Courthouse facility is situated at 220 W. Broadway, San Diego, California. The entire facility includes South, North, and Annex blocks. This report solely addresses the Annex block, which by itself includes two separate seven-story buildings: 37-A1-C in the south and 37-A1-D in the north. Both buildings were built in 1962. These two buildings provide about 120,000 square foot of space. A penthouse built on the roof is used for mechanical equipment.

The first floor of building 37-A1-C is used for garage, which provides about 11,000 square foot of parking spaces. The upper floors of building 37-A1-C are used for courtrooms and offices. The first floor of building 37-A1-D is for arcade and lobby. All upper levels of building 37-A1-D are for elevators, stairways, restrooms and courtrooms. Building 37-A1-C contains a 4-story bridge over B Street. There is a tunnel under B Street connecting two buildings. Buildings 37-A1-C and 37-A1-D have one level and two levels of basement, respectively. Basement is used for storage, equipment and pistol range. A 6-inch seismic joint separates each of the buildings and the North-Block of the courthouse complex.

The structural system is a combination of steel frames and concrete/precast or prestressed walls/panels. In first story, masonry screen walls surround the garage. The steel frames were A36 steel fabricated with both welded and bolted connections. The gravity load-resisting system includes 4-1/2-inch thick normal weight concrete diaphragms and the roof system is normal weight concrete slab of 4-1/2 inch on metal deck supported by steel frames. Steel column and girder were encased in concrete with flexure and shear reinforcement. Lateral load-resisting system for building 37-A1-C is by perimeter walls. The thickness of walls varies from 8-inch to 24-inch. Most of the concrete walls have only minimal reinforcement. Building 37-A1-D has perimeter walls and elevator shaft walls as lateral force resisting system. The foundation system includes the conventional strip footings under the walls and isolated spread footings under the columns.

BACKGROUND:

Senate Bill 1732 (Escutia) became the Trial Court Facilities Act in 2002. Under this legislation, the State will accept the transfer of the ownership of courthouse facilities in their current condition unless found deficient or non-conforming. The Administrative Office of Courts (AOC) was authorized by the State to launch seismic assessments of all court facilities as a part of preparation for transfer of the ownership from the Counties to the State. The results of the AOC assessment were published in November 2003. The

San Diego County Central Courthouse Complex was placed in its entirety in Level V category as non-conforming structures.

The County of San Diego retained BFL-Owen to perform an independent seismic assessment of its Central Courthouse Complex. Phase-I of these studies for Annex block was issued to the County of San Diego in June 2005. The Phase-I study yielded similar outcome and did not result in a change in the assigned rating for these structures. Due to probability of the potential for experiencing a surface rupture within the footprint of Annex, buildings, it was concluded that these buildings did not meet the requirement of ASCE 31-02 for Life Safety performance and categorized as nonconforming. Thus, it was concluded that further in-depth studies of Annex Block in its existing configuration might not be granted.

Phase-II of the seismic assessment was initiated in September of 2005 for South and North Blocks but did not include Annex. The main objective of Phase-II studies was to utilize in-depth analysis to refine and further develop the results of Phase-I studies. The basis for these studies was the guidelines of FEMA-356 document, "Prestandard and Commentary for The Seismic Rehabilitation of Buildings", adopted as advanced analysis for Tier-3 of ASCE 31.

In continuation of Phase-II studies, BFL-Owen was authorized in June of 2006 to develop a strategy for elimination of geotechnical deficiencies at least within a portion of the Annex Block. The most recent geotechnical data on the potential surface rupture zone, presented by MACTEC, was used for the study.

III. STUDY OF VIABLE ALTERNATIVES TO ELIMINATE GEOTECHNICAL-RELATED DEFICIENCIES

The Courthouse Complex is situated next to a potentially active fault within a region of high seismicity. From the preliminary investigation by MACTEC, the San Diego fault is believed to project northwesterly into the Jail and Annex Block of the San Diego Courthouse (**Figure 2**).

In MACTEC report dated September 22, 2000, a setback of 25 to 50 feet from delineated fault location was recommended. However, an easement of only 25 feet was adopted as per MACTEC response of dated May 1, 2006. The more detailed plan layout of the Annex building and the relative fault rupture zone with recommended 25-feet wide easement is developed (**Figure 3**) for this study.

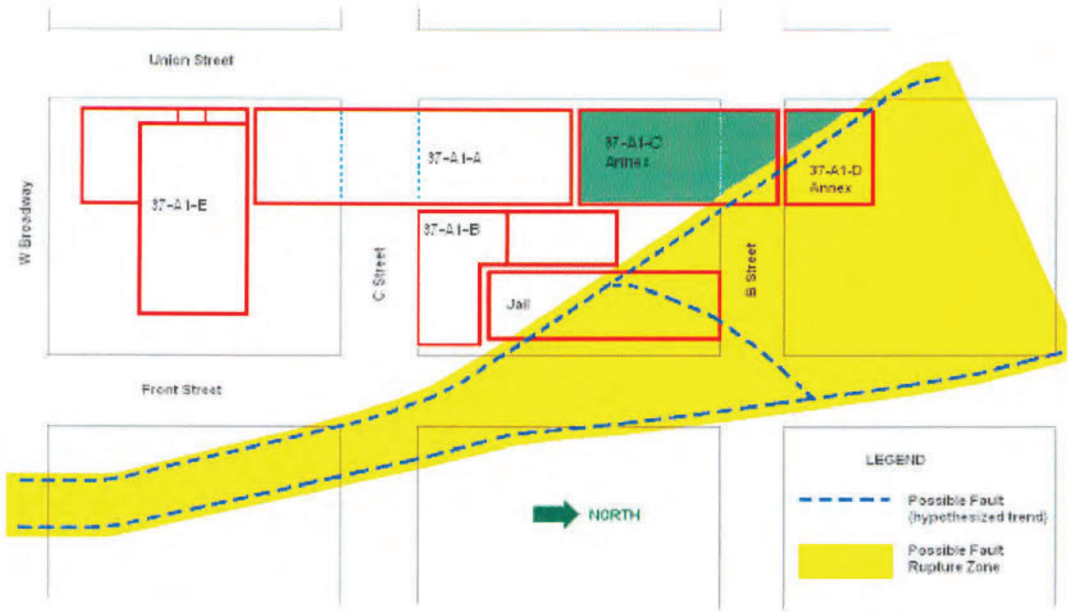

Figure 2: Potential Fault and Surface Rupture Zone (Source: MACTEC)

This plan shows that only a part of Annex South Building (37-A1-C) from gridlines 1 to 6 is situated safely away from the fault surface rupture zone. Subsequently, northern Building (37-A1-D) and the northeast corner of the south building (37-A1-C) appear to be exposed to a potential fault surface rupture.

Since no other viable option is currently available to address the surface rupture deficiency of the entire Annex building, only the portion of the building beyond the fault zone is salvageable. Fortunately, a large part of the Southern building (37-A1-C) falls beyond the surface rupture zone, thus it was concluded that by changing the current configuration, this portion can be altered to act as a self-supported structure. Under new configuration, the geotechnical related deficiency, imposed by the rupture zone, can be deemed abated.

The next task was to verify whether or not the southern half of building 37-A1-C beyond gridline-6 has adequate lateral-force-resisting capacity to meet Life Safety Performance of SB1732.

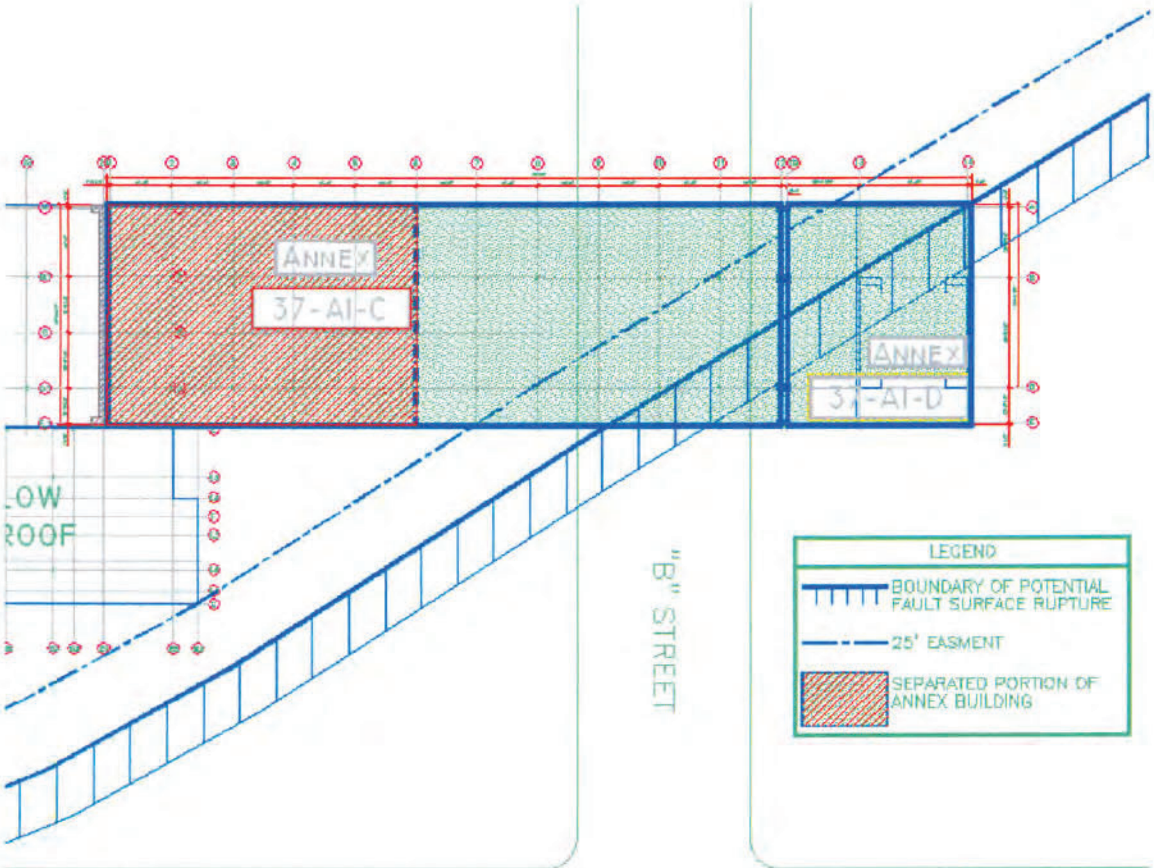

Figure 3: Annex Building and the Rupture Zone with 25-feet Easement.

IV. EVALUATION OF REMAINING PORTION

Review of As-built drawings for Annex Block revealed that the lateral load resisting system of the separated part, south of gridline 6, is limited to shear walls on the west and south sides of the building. The east side is covered with precast panels that have insignificant capacity of resisting lateral loads. However, there are shear walls at every side of the basement except where the building is separated from the north side.

Establishing the characteristics of the existing structure, an analytical model was developed for the southern half. Using three-dimensional model, the dynamic performance of the structure was determined using linear Dynamic Response Spectrum analyses.

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IV.1. DESIGN CRITERIA & ANALYTICAL MODEL

An analytical study was carried out for the remaining half of Southern Building (37-A1-C). It included a comprehensive finite element analysis to realistically capture and evaluate the force demand and performance of the lateral-load-resisting systems under seismic loading (**Figures 4a** and **4b**).

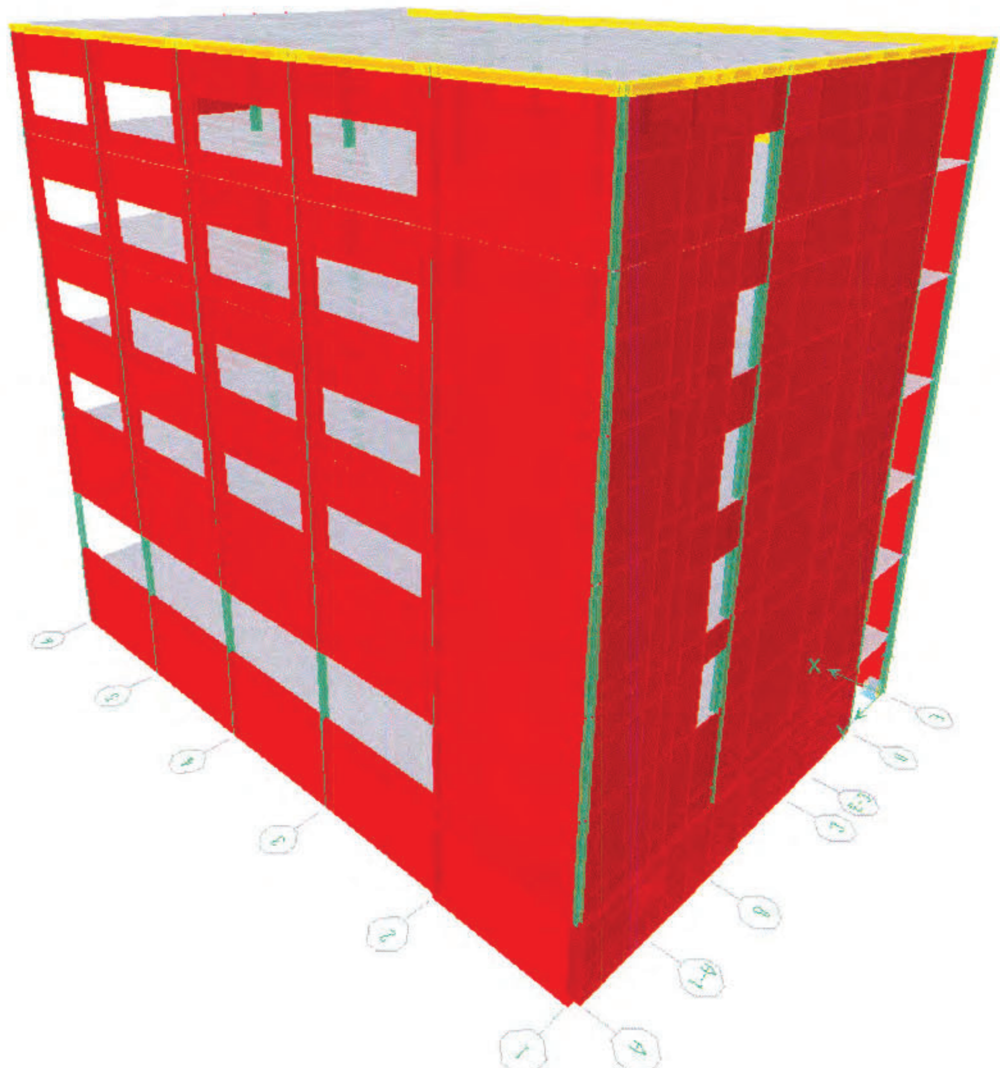

Figure 4a: The Separated Part of the Annex Building Beyond the Fault Zone (South-West View, Existing Shear Walls)

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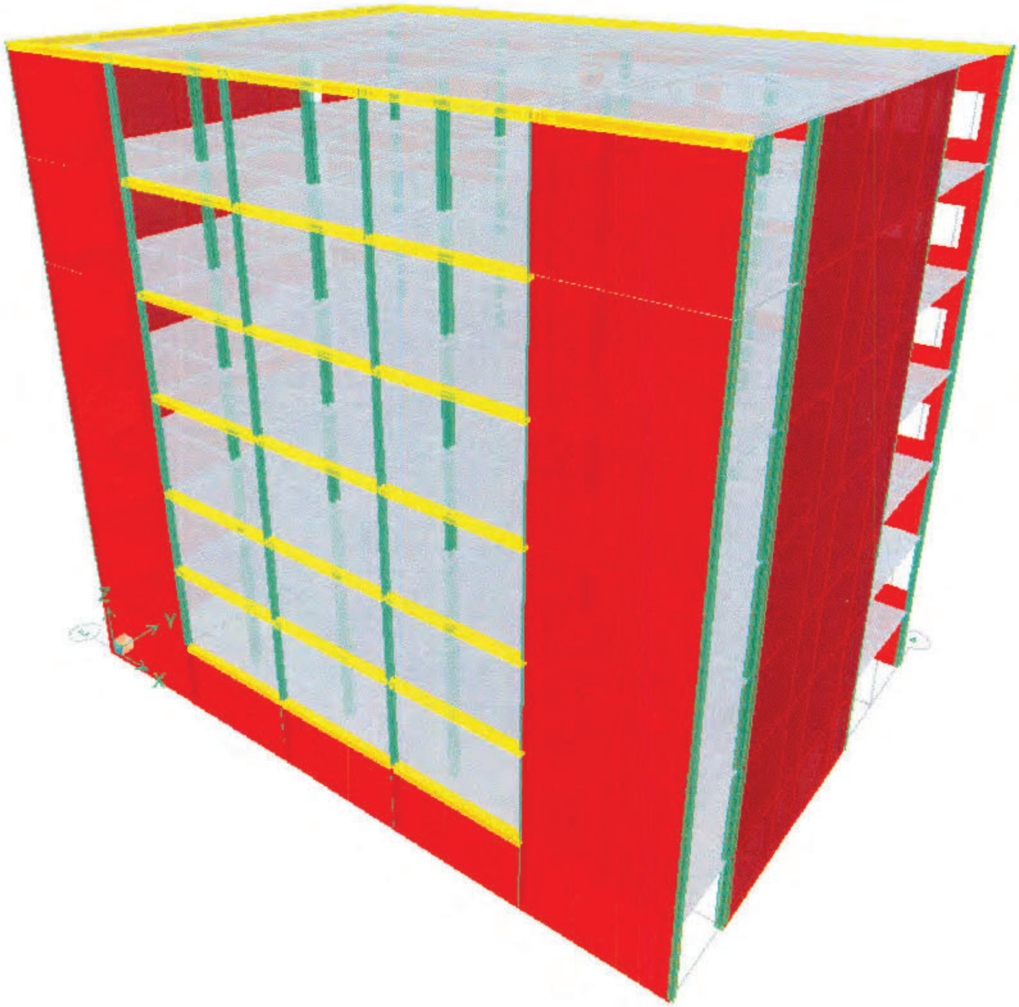

Figure 4b: The Separated Part of the Annex Building Beyond the Fault Zone (North-East View, Added Shear Walls)

The analytical study used the multi-purpose finite element program *ETABS V8.5.6* to model and perform all stress, force, and deformation computations. A Cartesian coordinate system was used for convenience to lay the gridlines in which X-axis aligned with the North-South direction, Y-axis was in West-East direction, and the positive Z-axis directed upward. Furthermore, girders, and columns were modeled as frame elements, while shell elements represented the shear walls and slabs. For a linear dynamic analysis the first-order (linear interpolation) shell elements provide enough accuracy and they are computationally less intensive compare to solid (brick) elements. Therefore, four-node shell elements with six degrees of freedom were selected for this analysis. While the results of a linear analysis are not significantly sensitive to mesh aspect ratios, the shell element sizes were kept into an acceptable range. Also triangular shell elements (constant strain/stress elements) were avoided.

In order to realistically capture the force demand and performance of the lateral-load-resisting systems under seismic loading, analytical model was developed in such detail to capture all openings and small elements of the primary system. Shear wall shell elements were intended to resist lateral loads while frame elements were modeled for gravity load purposes only. However, columns might undergo some bending due to structural lateral displacement where they were not part of a shear wall system. Openings in shear walls were modeled per plans to more closely represent the walls strength and stiffness. Floor slabs were also modeled using shell elements with corresponding thicknesses to provide a more realistic vertical stiffness and load path. Each floor slab was considered as a separate rigid diaphragm in planar direction with vertical deflections not restrained.

The model included the entire lateral superstructure beyond the fault rupture surface and the basements to define realistic boundary conditions. Shear wall and column connections to the foundation were considered fixed. Moreover, the building was restrained in X and Y directions at the first floor level, where it was considered to be the ground level.

IV.1.1. Material Property

The reliability of the finite element analysis depended, among other factors, on the accuracy of the material properties. The analytical models consisted of two types of material: structural steel, and concrete. The Young's modulus E for steel, concrete, and masonry were taken as 29,000 ksi, and 3,600 ksi, respectively. However, the concrete modulus is adjusted to 0.5E for analysis of concrete elements to account for the effect of stiffness reduction of the cracked sections.

Table IV.A- Material Properties.

MATERIAL	YOUNGS MODULUS [KSI]	YOUNG'S MODULUS, CRACKED SECTION [KSI]
STEEL	29,000	29,000
CONCRETE	3,600	1,800

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IV.1.2. Loading

The building model was loaded for gravity and seismic loads. In order to better estimate the weight and masses within the floor plans, a combination of uniform and linear, masses were defined in the mathematical model. The gravity dead load includes the weight of all structural and non-structural elements as tabulated below.

Table IV.B- Floors Dead Load.

ELEMENT	1st Floor [psf]	2nd & Upper Floors [psf]	Roof [psf]
Concrete Slab (4 1/2")	56.3	56.3	56.3
Concrete Slab (Cellular Deck 4 1/8")		39.5	39.5
Concrete Beam	18.0	-	-
Concrete Column	8.0	-	-
Steel Deck (20 ga.)	-	2.0	2.0
Steel Beam	-	8.2	6.6
Steel Column	2.7	3.0	3.0
Fire Proofing	0.1	4.3	2.2
Partition	-	8.0	-
6" Asphalt (45 pcf)	22.5		
Ceiling	5.0	5.0	5.0
Extra (Equipment, etc.)	2.0	2.0	100.
TOTAL [psf]	**114.6**	W Conc. Slab: **86.8** W Cell. Deck: **72.0**	W Conc. Slab: **178.1**

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Furthermore, the floor live loads are shown on Table IV.C.

Table IV.C- Floors Live Load.

LOCATION	LL PER DESIGN [psf]	LL FOR EVALUATION [psf]
Public Corridors and Exits	100	100
Courtrooms	50	50
Office Areas	50	50
Partition Load	0	12
Roof	20	20
Equipment Rooms (excl. equip.)	50	50
Storage	125	125

In order to eliminate the effect of vibration modes of individual elements on structural response subject to dynamic analysis, no mass (weight) was allocated to beams, columns, slabs, and pre-cast panels. Therefore, the gravity effect of these elements was included in the distributed dead load of each floor. Shear walls mass and weight were calculated by ETABS and distributed live loads, as shown below, were applied on roof and floors slabs. Needless to mention that there is no snow load for San Diego area.

For the purpose of the dynamic analysis, the mass (weight divided by g) of each floor was applied at its center of the mass by the program. Roof weight (mass) due to penthouse was applied as uniform dead load on the projected area and parapets were considered as uniform linear dead load around the roof area, where applied. Moreover, combination of gravity and seismic loads followed the procedures of FEMA 356:

$Q_G = 0.9\, Q_D$ When seismic and gravity loads are counteracting

$Q_G = 1.1(Q_D + Q_L + Q_S)$ When seismic and gravity loads are additive

In above equations Q_G is action due to gravity loads, Q_D is the dead load, Q_L is the effective live load equal to 25% of the unreduced design live load, and Q_s is the effective snow load equal to zero for San Diego area.

Q_{UD} is the deformation-controlled design action calculated in accordance with FEMA 356 equation (3-18):

$Q_{UD} = Q_G \pm Q_E$

Where, Q_E is action due design earthquake loads from LDP (FEMA 356, Section 3.3.2).

The seismic forces applied on the structure were generated from the site specific response spectrum of BSE-1 in each direction and included the multidirectional effect (100% in one direction in combination with 30% in the perpendicular direction). The list of load cases and combinations, used in the analysis, are shown in Table IV.D.

Table IV.D- Load Cases and Load Combinations.

Combo Name	Case Name	Scale Factor	Definition
QEXMCT	BSE1XNSMT BSE1YEWMT	1 0.3	Multidirectional Effect, Q_E (100% X+ 30% Y)
QEYMCT	BSE1XNSMT BSE1YEWMT	0.3 1	Multidirectional Effect, Q_E (100% Y+ 30% X)
QG(1.1)	DL LIVE	1.1 0.275	FEMA Load Combo., $Q_G = 1.1(Q_D + Q_L)$
QG(0.9)	DL	0.9	FEMA Load Combo., $Q_G = 0.9\ Q_D$
QU1X	QG(1.1) QEXMCT	1 1	FEMA Load Combo., $Q_{UD} = Q_{G(1.1)} \pm Q_E$
QU2X	QG(0.9) QEXMCT	1 1	FEMA Load Combo., $Q_{UD} = Q_{G(1.1)} \pm Q_E$
QU3Y	QG(1.1) QEYMCT	1 1	FEMA Load Combo., $Q_{UD} = Q_{G(0.9)} \pm Q_E$
QU4Y	QG(0.9) QEYMCT	1 1	FEMA Load Combo., $Q_{UD} = Q_{G(1.1)} \pm Q_E$
QUENVL	QU1X QU2X QU3X QU4X	1 1 1 1	Max. & Min.of Cases (Envelope)

In this table, the load case BSE1 is the seismic hazard response spectrum (10%/50) for 5% damping provided by MACTEC, which was used in Phase II of Courthouse Seismic

BFL-Owen & Associates. 20 Morgan, Irvine, CA 92618 . Tel(949) 860 4800 Fax(949) 860 4814

Evaluation. Furthermore, the accidental torsion (5% deviation of inertia force from the center of mass at each floor) was considered at each direction for each floor, and included the multidirectional effect by ETABS.

Preliminary results indicated that the separated portion lacks a uniformly distributed lateral-load-resisting system and is subject to sever torsional irregularities. The findings confirmed the building would likely perform quite poorly under any sever ground shaking and does not meet the Life Safety requirements of SB1732. The result from the *ETABS* analysis of the existing system showed significantly large lateral displacement under seismic load. Subsequently, it was evident that the separated portion beyond gridline-6 will require moderate-to-considerable level of seismic strengthening to meet SB 1732 requirements.

V. PROPOSED SEISMIC RETROFIT OF THE REMAINING PORTION

The existing lateral system can be strengthened by using either concrete shear walls or steel braces. Considering the fact the existing concrete shear walls on two side of the building will need to be integrated into the overall system, it was concluded that using the same system would help the consistency and uniformity of the system. Therefore, the existing structure needs to be modified by adding new concrete shear walls.

The original model was then utilized to develop an optimized number of new shear walls. Considering the least interruption in the current Architectural layout of the building and in an effort to maintain the accessibility and functionality restraint, several locations were selected throughout the building plan. Several models were developed and analyzed to determine an optimal number and location of the required new walls.

The finalized scheme includes three new reinforced concrete shear walls: one on the north side of the building (gridline 6) and two on the west side (gridline E). The location of this additional wall coincides with the existing wall separating the courtrooms and offices. The added shear wall at gridline 6 expands 38 feet between gridlines D and B with a thickness of 10-inch. The added shear walls on gridline E are 8-inch thick and expand 21 feet between gridlines 1 and 2, and gridlines 5 and 6. The typical floor plan in **Figure 5** shows the location of these added shear walls. They would be placed using shotcrete on one side of the existing precast panels, saving formwork and allowing quicker construction.

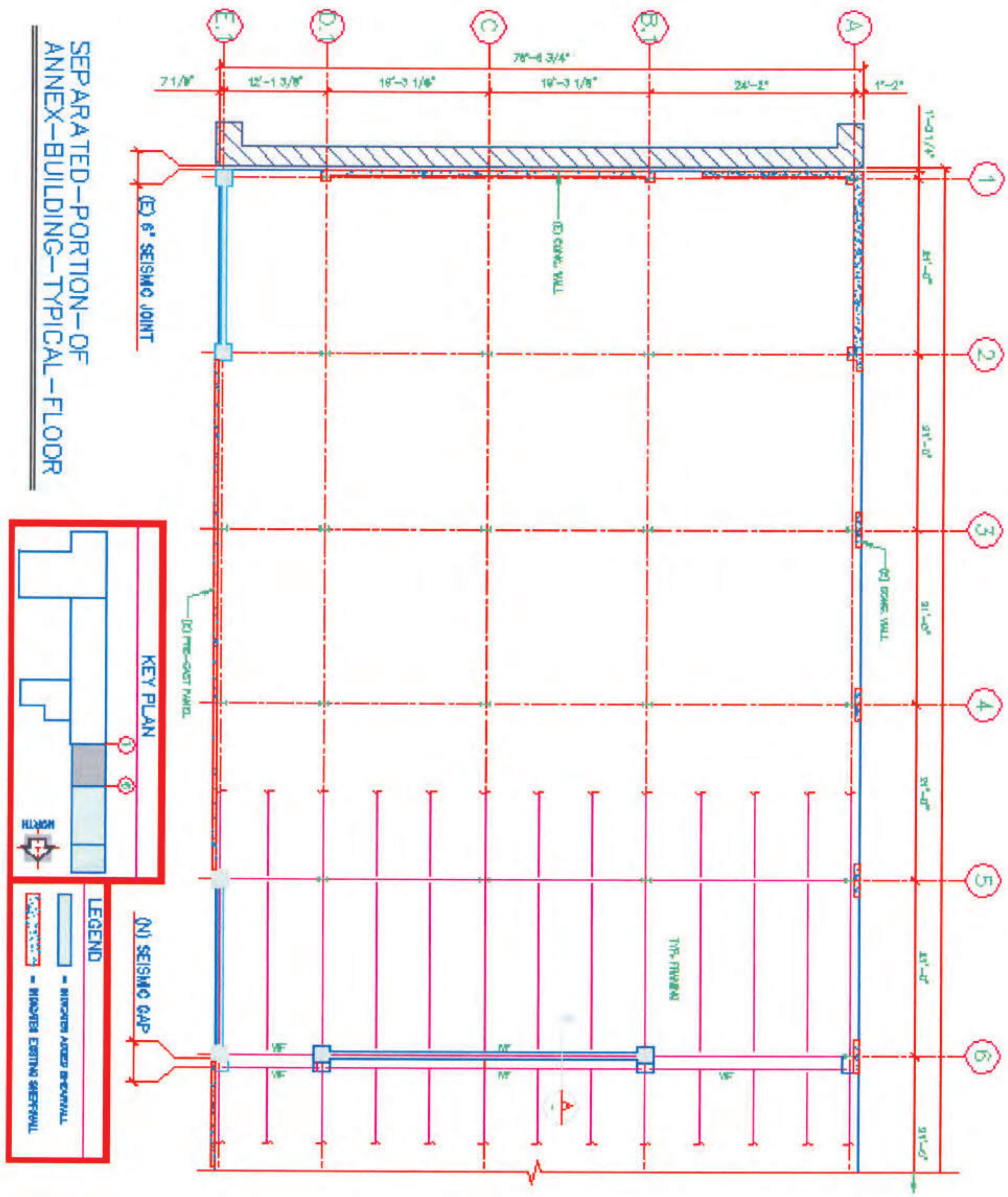


Figure 5: Typical Floor and Framing Plan

The demand shear forces on 10-inch shear wall requires two layers of horizontal bars #6 @10". Similarly, the shear demand on 8-inch walls requires either two layers of #5 @ 9", or one layer of #6 @ 6".

Should the northern half need to remain as is, a special detailing is developed to keep the two parts laterally separated but maintain the gravity load resisting system of both halves intact. A potential detailing is provided in **Figure 6**.

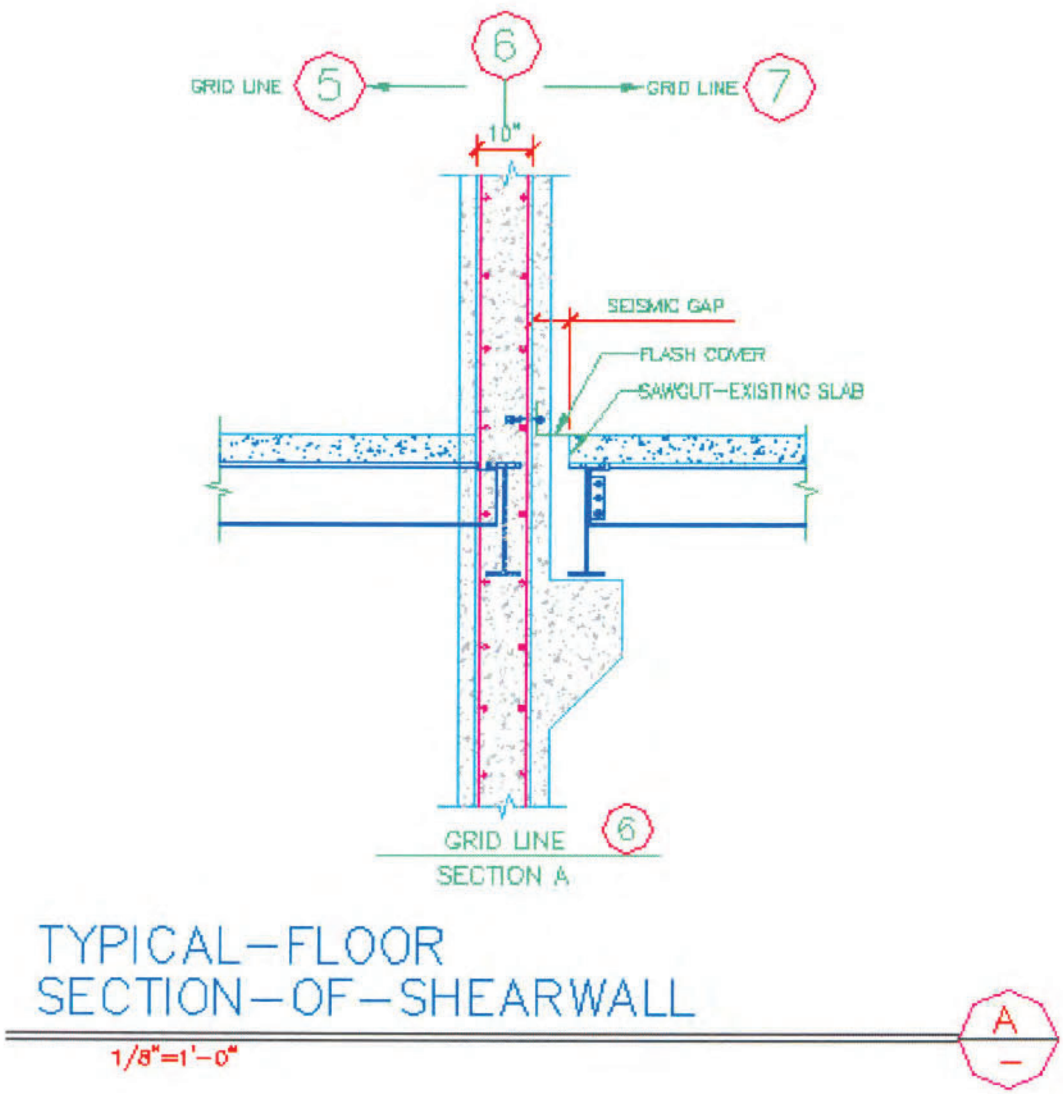


Figure 6: Typical Detail at Separation Juncture.

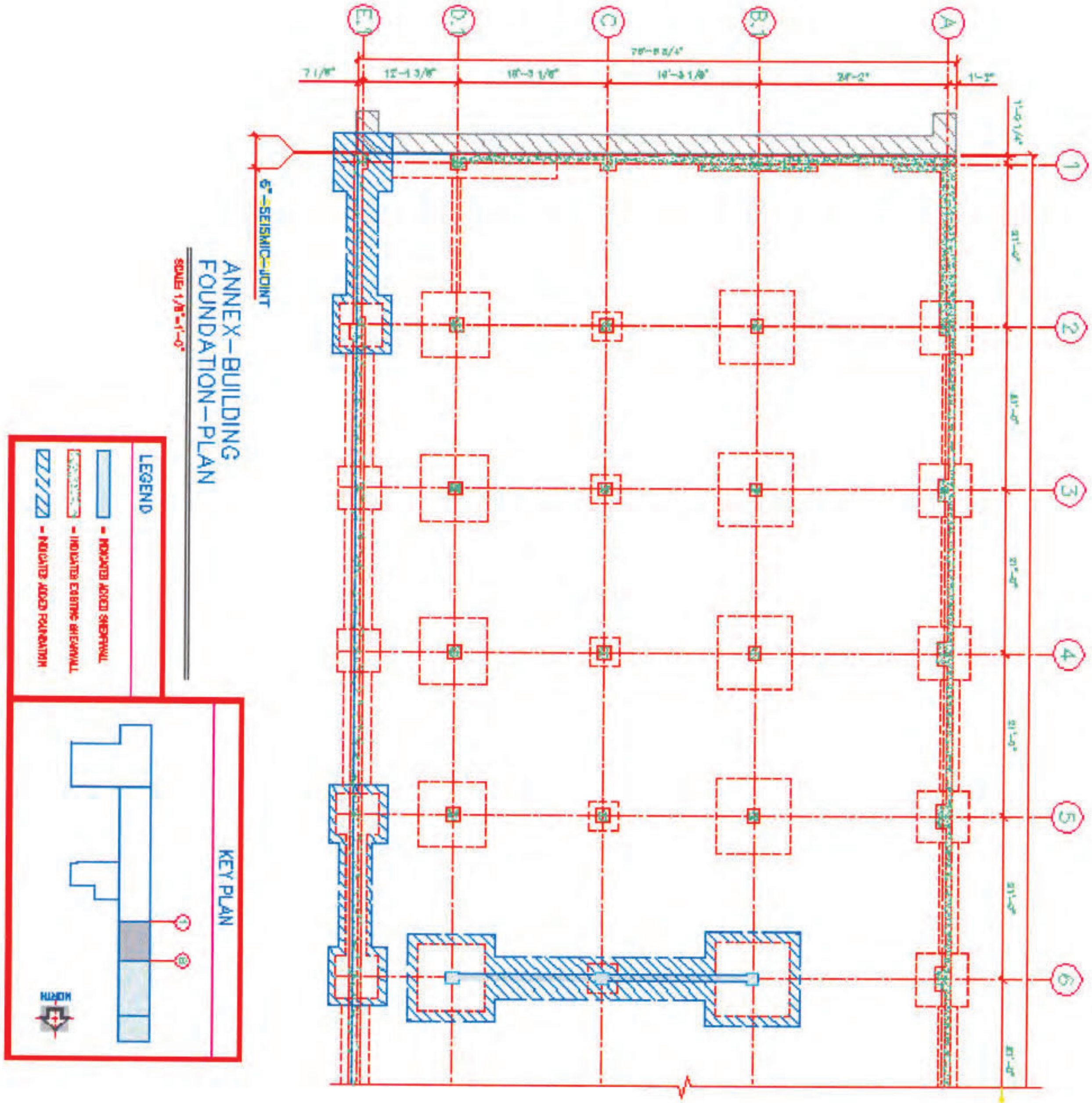


Figure 7: Foundation Plan.

While floor slabs are saw-cut along the gridline 6, the main girders for the north portion will be vertically supported by concrete corbels at the existing columns.

The first and second periods of vibration, corresponding to N-S and E-W directions, are 0.51 and 0.41 seconds respectively. Although, both modes of vibration include torsional effect, the relatively close periods imply that the lateral load resisting system in two directions have comparable stiffness. The result of the analysis showed a roof displacement of 3.5 inch, corresponding to 0.72 inch of story drift. This amount of story drift is less than the story drift limitation of 1.28 inch for such lateral load resisting system. The expected rehabilitation of the existing footings is also shown in **Figure 7**.

V.1 COST ESTIMATE

The proposed seismic strengthening mainly includes new shear walls, the strengthening of the existing footing along gridlines 6 and E, and finally the separation of the existing structure along gridline-6 and at all levels. The cost for the above structural work can be estimated within an acceptable range. Based on our preliminary estimate, the total cost of structural work including saw-cutting of the building along gridline 6, adding new concrete walls, strengthening of the foundation system and related Architectural work is not expected to exceed 3 to 4 million dollars.

It is however noticeable that the estimation of the cost associated with the other related work on the Architectural, Mechanical, and Electrical tends to remain challenging. For instance the work required to meet various Architectural concerns such as maintaining means of egress, accessibility, vertical transportation, stairs, exists, and so on are beyond the scope of this study and cannot be quantified. Similarly the cost associated with the changes in the MEP is not quantifiable. Major work on MEP may be necessary as a result of separation in the existing large mechanical penthouse. The demolition of the northern half of Building 37-A1-C also remain unquantifiable.

VI RECOMMENDATIONS FOR FURTHER STUDIES

The presented findings and proposed design for the seismic strengthening of the southern half are considered conceptual in nature and need to be continued in more depth to ensure full compliance with the SB1732 requirements. While the structural work presented by this study appears to be well defined, the work necessary on other disciplines cannot be clearly defined. Our recommendation is that should the provided approach for restoration of the southern half is chosen, additional study beyond the current structural work needs to be planned and performed to validate it.

The risk level rating for the following building (either in its entirety or for one of its component structures) was affected by a lack of definitive structural or nonstructural information. Although this building has been evaluated and assigned a risk level in accordance with procedures developed for this assessment program, the AOC decided to classify this building as "pending" until the level of available information pertinent to the evaluation has been confirmed. This classification is reflected in the Expanded Summary Matrix contained in the Findings section of this report. Future discovery or development of additional drawings or geotechnical reports may change the risk level initially assigned

California Court Building Seismic Assessment Program
Building Information Sheet

BLDG. ID | **37-A1**

Sheet: 1 of

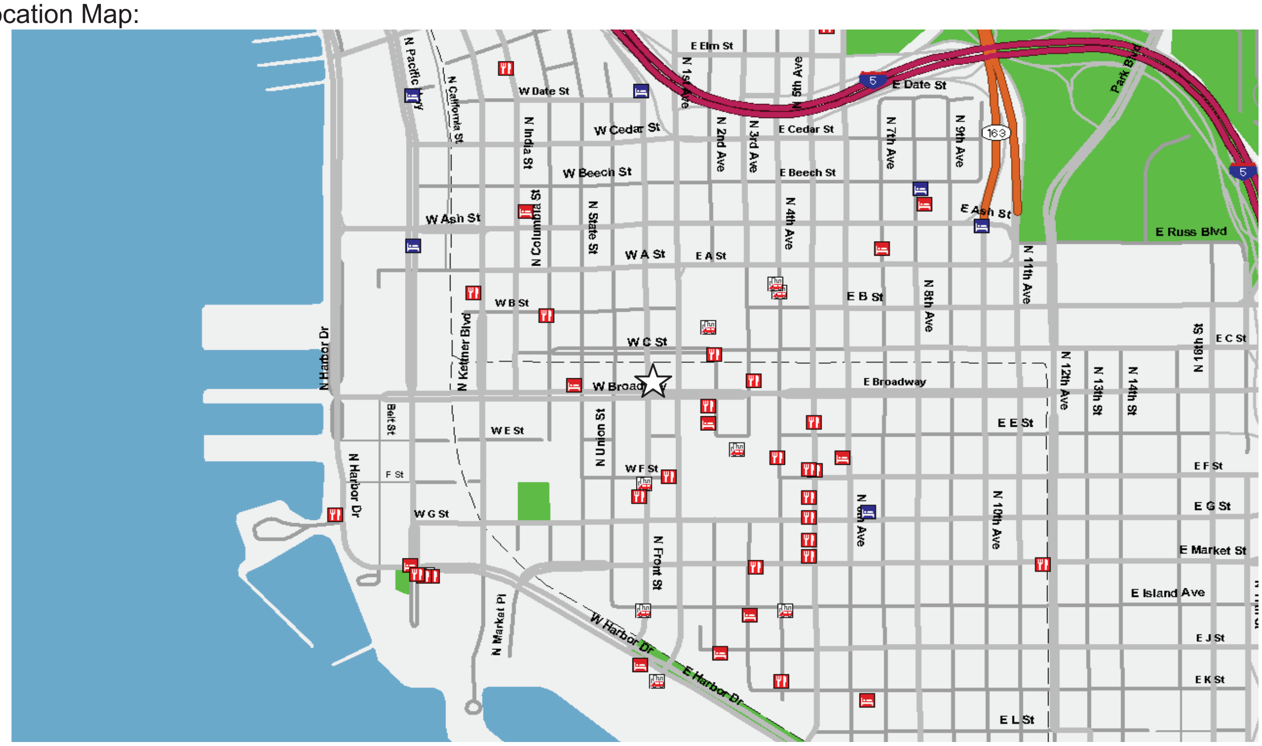
County:	San Diego	County No.	37	Site ID.	A	Bldg. No.	1
Bldg. Name:	County Courthouse						
Address:	220 West Broadway			City:	San Diego		

Total Area (ft^2):	527,304	500 Yr USGS		Liquefaction Potential:	0
Level of Seismicity:	high	S_{a03} 0.68 g	S_{a10} 0.26 g	Alquist/Priolo: N	Site Class: C

Building Photo:

37A01B2.jpg

Site Location Map:



California Court Building Seismic Assessment Program
Initial Screening

Seismic Evaluation Sheet

BLDG. ID 37-A1

Sheet: 2 of 4

Drawing Title: COURTHOUSE FACILITY FOR SAN DIEGO — Sheets: 52 STRUCT — Date: Nov '57
(Add'l Dwgs.) COURTHOUSE ANNEX — Sheets: 14 DRWGS — Date: 1962
Supplemental Information: — Date:
(e.g. Reports/ Previous Evaluations)
Design Code/Date: UNKNOWN — No of Stories: VARIES - SEE SHT 3 — Ht. Above Grade: 110'

Single, stand-alone building: Yes / No (If No, complete Special Conditions Supplemental sheet)
Additional Comments:

	Building Sub-Types	BM Yr.	Story Limit Moderate	Story Limit High	DSA V+ [1]	TBE	DSA IV- [2]
W1	Wood light frame < 3000 ft^2	1976	4	2	☐	☐	☐
W1A	Wood light frame > 3000 ft^2	1997	4	2	☐	☐	☐
W2	Commercial/Industrial Wood > 5000 ft^2	1976	4	2	☐	☐	☐
S1	Steel Moment Frame - Rigid Diaphragm	1994	6	3	☐	☐	☐
S1A	Steel Moment Frame - Flexible Diaphragm	1994	6	3	☐	☐	☐
S2	Steel Braced Frame - Rigid Diaphragm	1988	6	6	☐	☐	☐
S2A	Steel Braced Frame - Flexible Diaphragm	1988	6	6	☐	☐	☐
S3	Pre-engineered Steel Light Frame	--	--	--	☐	☐	☐
S4	Steel Frame with Concrete Shear Walls	1976	6	6	☐	☐	☐
	Steel Moment Frame	1976	6	6	☐	☐	☐
	Steel Gravity Frame	1976	6	6	☐	☒	☐
S5	Steel Frame with Masonry Infill - Rigid Diaphragm	--	--	--	☐	☐	☐
S5A	Steel Frame with Masonry Infill - Flexible Diaphragm	--	--	--	☐	☐	☐
C1	Concrete Moment Frames	1976	6	6	☐	☐	☐
	Beams & Columns	1976	6	6	☐	☐	☐
	Slabs & Columns	--	--	--	☐	☐	☐
	Pier & Spandrel	--	--	--	☐	☐	☐
C2	Concrete Shear Walls	1976	6	6	☐	☐	☐
	Concrete Bearing/Shear Walls	1976	6	6	☐	☒	☐
	Concrete Gravity Frame w/ Shear Walls	1976	6	6	☐	☐	☐
	Exterior Punched Shear Wall	1976	6	6	☐	☐	☐
C2A	C2 with Flexible Diaphragm	1976	6	6	☐	☐	☐
C3	Concrete Frame with Masonry Infill - Rigid Diaphragm	--	--	--	☐	☐	☐
C3A	Concrete Frame with Masonry Infill - Flexible Diaphragm	--	--	--	☐	☐	☐
PC1	Precast/ Tilt-up walls - Flexible Diaphragm	1997	2	2	☐	☐	☐
PC1A	PC1 with Rigid Diaphragm	1997	2	2	☐	☐	☐
PC2	Precast Frames and Shear Walls	--	--	--	☐	☐	☐
PC2A	PC2 with no walls	--	--	--	☐	☐	☐
RM1	R/F Masonry Bearing Wall - Flexible Diaphragm	1997	6	3	☐	☐	☐
RM2	R/F Masonry Bearing Wall - Rigid Diaphragm	1976	6	3	☐	☐	☐
URM	Unreinforced Masonry Bearing Wall - Flexible Diaphragm	UCBC 1991	--	--	☐	☐	☐
URMA	Unreinforced Masonry Bearing Wall - Rigid Diaphragm	--	--	--	☐	☐	☐

[1] Potentially unable to meet DSA IV or better; complete DSA V+ Supplemental Sheet
[2] Potentially qualifying for exemption due to benchmark status; complete DSA ~~IV~~ Supplemental Sheet

Reviewed by: RONALD HAMBURGER — Date: 5/13/03
ERIC ELSESSER

California Court Building Seismic Assessment Program
Initial Screening

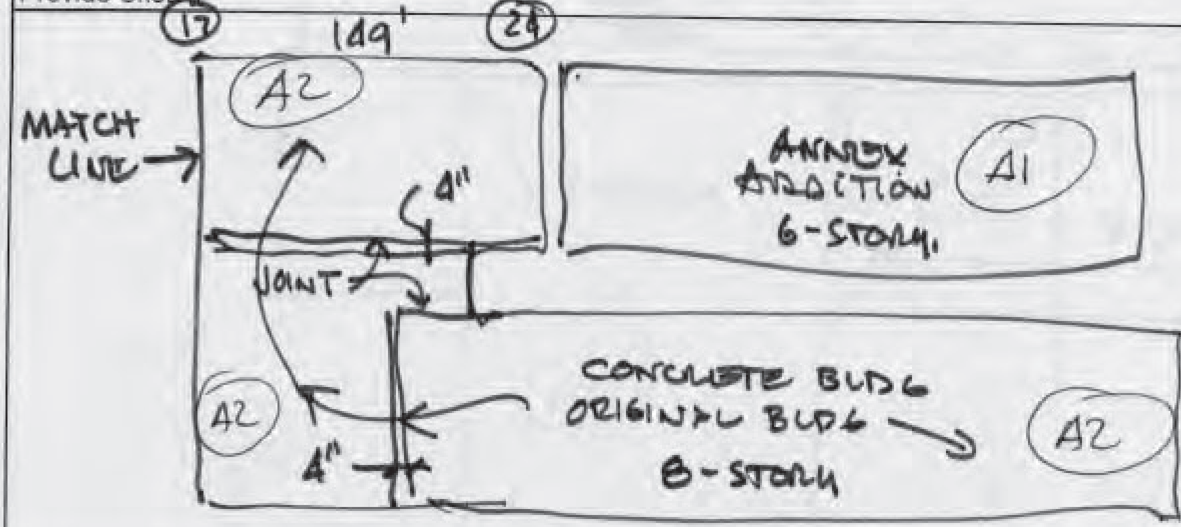
Special Conditions Supplemental Sheet

BLDG. ID 37 A1

If the drawings show a building comprised of multiple segments with joints (separation/seismic/cold joint), or a building with an addition(s), please provide a sketch showing the building configuration with individual segments identified by a sub-letter (a,b,c, etc.). Indicate the separation between building segments, if any.

Type of joint between building segments: 4" SEPARATION

Provide Sketch



	Sub Letter	Number Stories	Building Sub Type	Design Code/Date	DSA V+ [1]	TBE	DSA IV- [2]
A1	S4	7			☐	☒	☐
				1955	☐	☐	☐
A2	C2	8+B		UBC	☐	☒	☐
				?	☐	☐	☐
A2	S4	6+B			☐	☒	☐

Other Special Condition:

[1] Potentially unable to meet DSA IV or better; complete DSA V+ Supplemental Sheet

[2] Potentially qualifying for exemption due to benchmark status; complete DSA IV- Supplemental Sheet

Reviewed by: ERIC ELSESSER Date: 13 MAY 03
RONALD HAMBURGER

California Court Building Seismic Assessment Program
Initial Screening

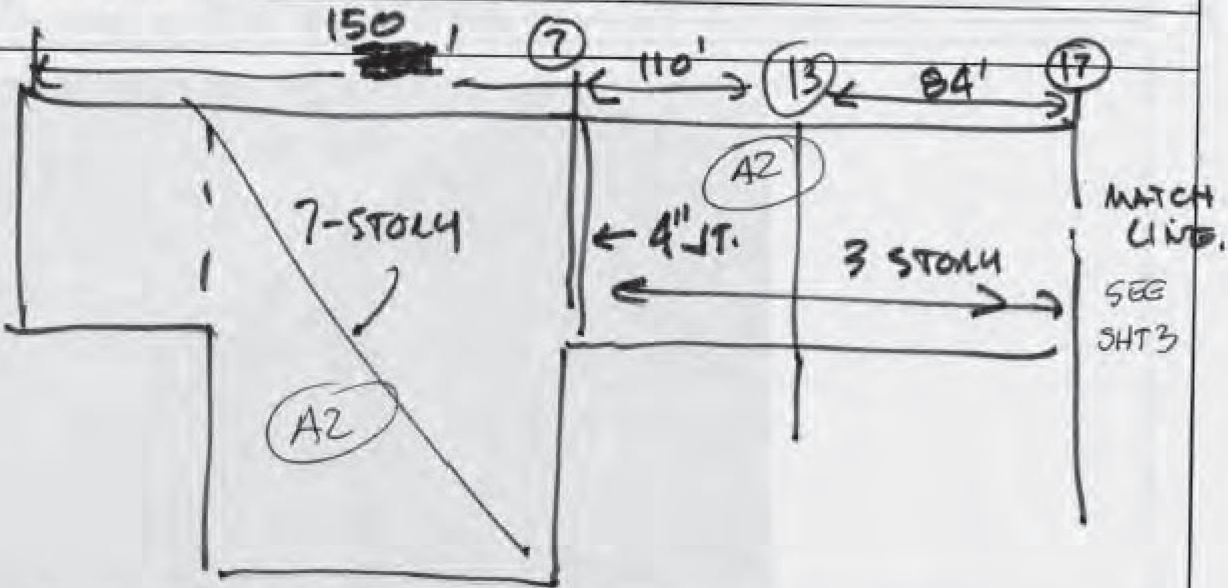
Special Conditions Supplemental Sheet

BLDG. ID 37 A1 — CONTINUATION Sheet — Sheet: 4 of 4

If the drawings show a building comprised of multiple segments with joints (separation/seismic/cold joint), or a building with an addition(s), please provide a sketch showing the building configuration with individual segments identified by a sub-letter (a,b,c, etc.). Indicate the separation between building segments, if any.

Type of joint between building segments: 4" SEPARATION

Provide Sketch



Sub Letter	Number Stories	Building Sub Type	Design Code/Date	DSA V+ [1]	TBE	DSA IV- [2]
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐

Other Special Condition:

SEE SHEET 3/4

[1] Potentially unable to meet DSA IV or better; complete DSA V+ Supplemental Sheet

[2] Potentially qualifying for exemption due to benchmark status; complete DSA IV- Supplemental Sheet

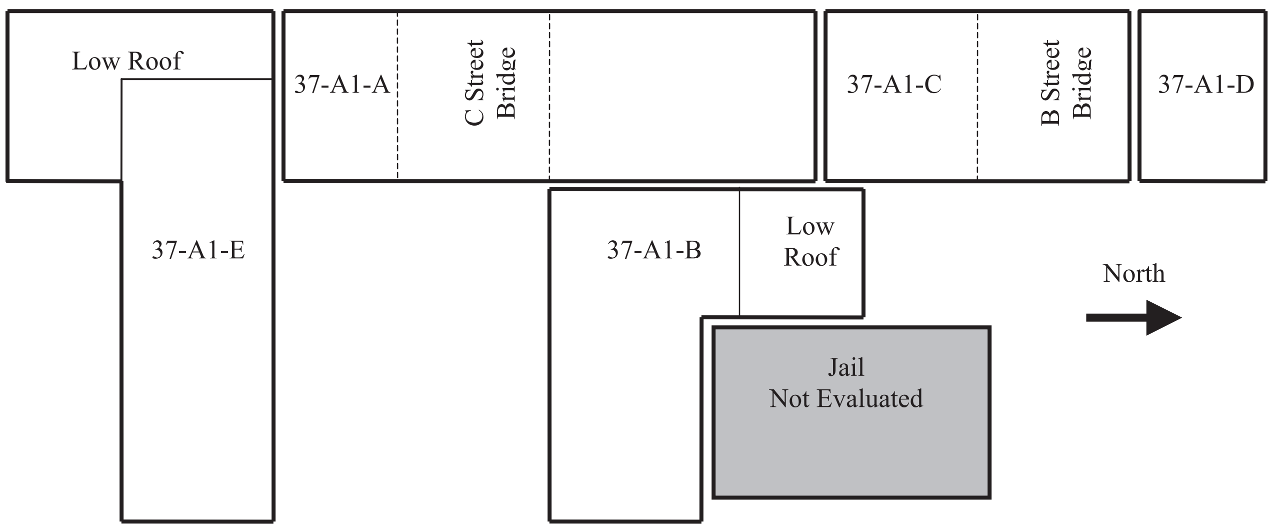
Reviewed by: ERIC ELSESSER Date: 13 MAY 03
RONALD HAMBURGER

California Court Building Seismic Assessment Program
Tier 1 Evaluation
Cover Sheet

Building ID: *37-A1* By/Firm: *DW, LD, Forell/Elsesser* Reviewed By: *Mason Walters*
Bldg. Name: *County Courthouse* Date: *7/24/03*
Bldg. Address: *220 West Broadway, San Diego, CA 92101* Page: 1 of 84

Bldg. Ids Included in this report	**Document Availability (Drawings, reports, etc.)**
37-A1-E	*Structural Drawings*
37-A1-A	*Structural Drawings*
37-A1-B	*Structural Drawings*
37-A1-C	*Partial Architectural Drawings*
37-A1-D	*Partial Architectural Drawings*

KEY PLAN



BUILDING PHOTO(S)

West Elevation at C Street Bridge
(37-A1-E, 37-A1-A)

Building ID: 37-A1 By/Firm: DW, LD, Forell/Elsesser Reviewed By: Mason Walters
Bldg. Name: County Courthouse Date: 7/24/03
Bldg. Address: 220 West Broadway, San Diego, CA 92101 Page: 2 of 84

West Elevation at B Street Bridge
(37-A1-A, 37-A1-C, 37-A1-D)

Building ID: *37-A1*	By/Firm: *DW, LD, Forell/Elsesser*	Date: *7/24/03*	
Bldg. Name: *County Courthouse*		Page: 3	of 84

TABLE OF CONTENTS

Building ID: *37-A1* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 4 of 84

Building ID: *37-A1-E* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 5 of 84

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-B), South Block (37-A1-E and 37-A1-A) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

The South Block has a long rectangular footprint with a small 4 story bump-out at the southern side. The South Block is the only portion of the building that contains a mezzanine level.

Structural System

The gravity system above the first floor consists of 4 ½" normal weight concrete slabs that were cast to the bottoms of beam top flanges. In some areas corrugated metal deck was used. Steel beams, girders, trusses and columns were fabricated from ASTM A7-55T material. Below the 1st Floor, concrete slabs, joists, girders and columns support gravity loads. The foundation includes concrete spread footings and wall strip footings.

The lateral system is punched concrete shear walls. Boundary reinforcement is light and ties are spaced typically at 12 inches or more. Some square columns contain spiral reinforcement with a 2" pitch. Steel connections are unknown because the drawings refer to specifications that are not available. Walls thicknesses vary between 8 and 10 inches and contain minimal reinforcement.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1957*	
Year/Design Code:	*1955 UBC Assumed*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.02g* **S_{D1}:** *0.65g*
Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Overall seismic deficiencies are minimal per the Tier 1 evaluation. Due to the irregular layout of the walls and large openings, expected seismic performance is fair with moderate cracking expected in some walls. Precast pre-stressed panel details were difficult to read. It is uncertain whether the panels have adequate deformation compatibility or if the panels will attract load due to rigid connections. Poor seismic detailing of the panel connections would result in extensive damage.

Building ID: *37-A1-E* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 6 of 84

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.

DSA Seismic Risk Level (Tier 1): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

RECOMMENDATION
☐ No Further Study, Assign Risk Level From Tier 1
☒ Perform Tier 2 Evaluation (Check applicable box below)
- ☒ Risk Level Can Be Refined
- ☐ Retrofit Concept Can be Refined
- ☐ Field Exploration Required
- ☒ Other (Explain) Tier 2 Evaluation required per ASCE 31 Table 3-3; Perform further geotechnical investigation to determine risk of surface fault rupture.

Explanation of Tier 2 Objective:

A Tier 2 analysis is required per Table 3-3. The risk level could possibly be reduced to a DSA Seismic Risk Level IV pending evaluation of the cladding connections, further study of the seismic detailing of the cladding connections, and the presence of proper anchorage of lath and plaster ceilings if present.

During the site visit, fireproofing encasement was observed around the steel framing. Field exploration should determine if the fireproofing is solid concrete. The shear stress check was performed with a 15 psf weight allowance (15% of the total floor weight). If the weight is more than this the East/West walls will be overstressed because the Quick Check DCR was 0.94.

In addition, further study of the WALL CONNECTIONS to steel framing is suggested since no positive connection was found in the structural drawings.

PRELIMINARY RETROFIT CONCEPT

Add walls if field exploration determines fire proofing weighs more than the 15 psf allowance used to check the wall shear stress. Provide or repair cladding connections if field exploration determines their seismic detailing is poor or the connections are in poor condition.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

Mitigate surface fault rupture if future geotechnical investigation confirms the potential.

Building ID: *37-A1-E* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 8 of 84

DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Vertical Discontinuities	*Do not waive.*
Surface Fault Rupture	*Do not waive. An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*
Torsion	*Do not waive. The L-Shaped plan has a center of rigidity that is offset from the center of mass.*
Wall Connections	*Do not waive. Sheet S46 shows that no positive connection was provided other than bond between the concrete and steel.*
Deterioration	*Do not waive. Cladding connections were not visible therefore the condition could not be verified. Seismic adequacy of the cladding connections could not be ascertained from the drawings.*
Suspended Lath and Plaster	*Do not waive. Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified.*

DOCUMENTATION

Architectural Drawings: *None*

Structural Drawings: *Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*

As-Built Drawings, Nov 29, 1957

Sheets S1-S14, S16, S17, S19-S52

Other Drawings *None*

Reports: *None*

Limitations of available documents: *Drawings reference specifications that are not available, "for structural steel connections not shown."*

Some portions of the drawings such as precast pre-tensioned panel connection details are illegible

WALK-THROUGH SITE VISIT

Date of visit: *July 16, 2003*

Limitation of walk-through: *Courtrooms and holding cells were not accessible*

DATA SUMMARY SHEET

BUILDING DATA

Year Built:	1957	Year(s) Remodeled:		Design Code:	1955 UBC
Area (sf):	151,000	Length (ft):	200	Width (ft):	105
No. Stories:	8+B	Story Height:	15 ft	Total Height:	110 ft

SITE DATA Site Class C F_a 1.0 F_v 1.3 S_1 0.76 S_s 1.53 Level of Seismicity: High

CONSTRUCTION DATA

Gravity Load Structural System:	Steel		
Exterior Transverse Walls:	Concrete & PT Precast Panels	Opening(s)?	Yes
Exterior Longitudinal Walls:	Concrete & PT Precast Panels	Opening(s)?	Yes
Roof Materials/Framing:	NWC Slab and NWC Fill on Corrugated Metal Deck/ Steel Framing		
Intermediate Floors/Framing:	NWC Slab and NWC Fill on Corrugated Metal Deck/ Steel Framing		
Ground Floor:	Concrete Slab and Beams		
Columns:	Steel ASTM A7-55T, Concrete below 1st Floor	Foundation:	Concrete Spread/Strip Ftg
General Condition of Structure:	Good		
Evidence of Settling?	No		
Special Features and Comments:	Pre-cast panels at exterior		

LATERAL FORCE RESISTING SYSTEM

	Longitudinal	Transverse
ASCE 31-02 Building Type:	**S4**	**S4**
Diaphragms:	Concrete slabs and 4 ½" Fill & Deck	Concrete slabs and 4 ½" Fill & Deck
Vertical Elements:	Concrete shear walls, piers	Concrete shear walls, piers
Connections:		
Details:		
Building Period, T (sec):	0.7	0.7
Modification Factor, C:	1.0	1.0
Response Spectral Acceleration, S_a:	0.96g	0.96g
Seismic Base Shear, V (kips):	14,300	14,300
Component Modification Factor, m:	4	4

CHECKLIST REQUIRED FOR EVALUATION:

Level of Seismicity	Basic Structural (Sec. 3.7)	Supplemental Structural (Sec. 3.7)	Geologic Site Hazard and Foundation (Sec. 3.8)	Nonstructural
Moderate	☒	☐	☒	☒
High	☒	☒	☒	☒

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C3.7.6 Basic Structural Checklist for Building Type S4

These buildings consist of a frame assembly of steel beams and steel columns. The floors and roof diaphragms consist of cast-in-place concrete slabs or metal deck with or without concrete fill. Framing consists of steel beams, open web joists or steel trusses. Lateral forces are resisted by cast-in-place concrete shear walls. These walls are bearing walls where the steel frame does not provide a complete vertical support system. In older construction the steel frame is designed for vertical loads only. In modern dual systems, the steel moment frames are designed to work together with the concrete shear walls in proportion to their relative rigidity. In the case of a dual system, the walls shall be evaluated under this building type and the frames shall be evaluated under S1 or S1A, Steel Moment Frames. The steel frame may provide a secondary lateral-force-resisting system depending on the stiffness of the frame and the moment capacity of the beam-column connections.

C	NC	N/A		COMMENT
			BUILDING SYSTEM	
☒	☐	☐	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)	
☒	☐	☐	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)	
☒	☐	☐	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story, above or below, for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)	
☒	☐	☐	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80% of the average lateral-force-resisting system stiffness off the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)	
☒	☐	☐	GEOMETRY: There shall be no changes in	

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)	
☐	☒	☐	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)	Wall elevation V-S45, U0S45 and MM0S46 are discontinuous.
☒	☐	☐	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)	
☐	☒	☐	TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20% of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)	L-Shaped plan.
☒	☐	☐	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)	
☒	☐	☐	DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)	
☒	☐	☐	CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8" for Life Safety and 1/16" for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)	

LATERAL FORCE RESISTING SYSTEM

C	NC	N/A		COMMENT
☒	☐	☐	COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical load carrying system. (Tier 2: Sec. 4.4.1.6.1)	
☒	☐	☐	REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)	

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
☒	☐	☐	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1)	East/West Vj avg = 85 psi (DCR = 0.85) North/South Vj avg = 949 psi (DCR = 0.94)
☒	☐	☐	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18" for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)	Min: t=8", #4 @ 10" E.W. = 0.0025
☐	☐	☒	COLUMN SPLICES: Steel columns encased in shear wall boundary elements shall have splices that develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.9)	

CONNECTIONS

C	NC	N/A		COMMENT
☒	☐	☐	TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)	
☒	☐	☐	FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)	
☒	☐	☐	SHEAR-WALL-BOUNDARY COLUMNS: The shear wall boundary columns shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the column for Immediate Occupancy. (Tier 2: Sec. 4.6.3.6)	

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

C	NC	N/A		COMMENT
			LATERAL FORCE RESISTING SYSTEM	
☒	☐	☐	COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than d/2 and shall be anchored into the confined core of the beam with hooks of 135º or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)	
☐	☐	☒	OVERTURNING: All shear walls shall have aspect ratios less than 4 to 1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4)	
☐	☐	☒	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2 to 1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5)	
☐	☐	☒	REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6)	
☐	☐	☒	WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4". This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7)	
☐	☒	☐	WALL CONNECTIONS: There shall be a positive connection between the shear walls and the steel beams and columns for Life Safety and the connection shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.8)	See Sheet S46 (No Studs Present)

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3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			DIAPHRAGMS	
☒	☐	☐	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25% of the wall length for Life Safety and 15% of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)	
☐	☐	☒	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)	
☐	☐	☒	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)	
			CONNECTIONS	
☐	☐	☒	UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

This Geologic Site Hazards and Foundations Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C	NC	N/A		COMMENT
			GEOLOGIC SITE HAZARDS	
The following statements shall be completed for buildings in levels of high or moderate seismicity.				
☒	☐	☐	LIQUEFACTION: Liquefaction susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet. under the building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.1.1)	
☒	☐	☐	SLOPE FAILURE: The building site shall be sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or shall be capable of accommodating any predicted movements without failure. (Tier 2: Sec. 4.7.1.2)	
☐	☒	☐	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Tier 2: Sec. 4.7.1.3)	An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.
			CONDITION OF FOUNDATIONS	
The following statement shall be completed for all Tier 1 building evaluations.				
☒	☐	☐	FOUNDATION PERFORMANCE: There shall be no evidence of excessive foundation movement such as settlement or heave that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.1)	
The following statement shall be completed for buildings in levels of high or moderate seismicity being evaluated to the Immediate Occupancy Performance Level.				
☐	☐	☒	DETERIORATION: There shall not be evidence that foundation elements have deteriorated due to corrosion, sulfate attack, material breakdown, or other reasons in a manner that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.2)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

CAPACITY OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

☐	☐	☒	POLE FOUNDATIONS: Pole foundations shall have a minimum embedment depth of 4 ft. for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.3.1)	

The following statements shall be completed for buildings in levels of moderate seismicity being evaluated to the Immediate Occupancy Performance Level and for buildings in levels of high seismicity.

☒	☐	☐	OVERTURNING: The ratio of the effective horizontal dimension of the lateral-force-resisting system at the foundation level to the building height (base/height) shall be greater than 0.6Sa. (Tier 2: Sec. 4.7.3.2)	L > 0.6 Sa H = 0.6 x 0.96 x 112 = 64.5 ft East/West, Lmax = 88 ft OK North/South, Lmax = 90 ft OK.
☒	☐	☐	TIES BETWEEN FOUNDATION ELEMENTS: The foundation shall have ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Class A, B, or C. (Tier 2: Sec. 4.7.3.3)	Site Class C
☐	☐	☒	DEEP FOUNDATIONS: Piles and piers shall be capable of transferring the lateral forces between the structure and the soil. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.4)	
☐	☐	☒	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story in height. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.5)	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			URM PARTITIONS	
☐	☐	☒	UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions shall be adequately braced at a spacing of equal to or less than 10 ft in levels of low and moderate seismicity and 6 ft. in regions of high seismicity or shall be installed tight from floor to floor. Such walls shall not have a height to thickness ratio of greater than 15:1. (Tier 2: Sec. 4.8.1.1)	
			CLADDING AND GLAZING	
☐	☐	☐	SUSPENDED LATH AND PLASTER: Ceilings over assembly areas for more than 50 occupants consisting of suspended lath and plaster or gypsum board shall be attached to resist seismic forces for every 12 square feet of area. (Tier 2: Sec. 4.8.2.4)	Unknown – Could not be verified at site
			CLADDING AND GLAZING	
☒	☐	☐	CLADDING ANCHORS: Cladding components weighing more than 10 psf shall be mechanically anchored to the exterior wall framing at a spacing equal to or less than 4 ft. A spacing of up to 6 ft is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.1)	
☐	☐	☐	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.4.2)	Unknown – Could not be verified at site
☐	☐	☒	CLADDING ISOLATION: For moment frame buildings of steel or concrete, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.3)	
☒	☐	☐	MULTISTORY PANELS: For multistory panels attached at each floor level, panel connections shall be detailed to accommodate a drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.4)	
☒	☐	☐	BEARING CONNECTIONS: Where bearing connections are required, there shall be a minimum of two bearing connections for each wall panel. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.4.5)	
☒	☐	☐	INSERTS: Where inserts are used in concrete connections, the inserts shall be anchored to reinforcing steel or other positive anchorage. (Tier 2: Sec. 4.8.4.6)	
☒	☐	☐	PANEL CONNECTIONS: Exterior cladding panels shall be anchored out-of-plane with a minimum of 4 connections for each wall panel. Two connections per wall panel are permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.7)	
			MASONRY VENEER	
			Note: Masonry veneer components shall only be considered over points of egress or over outdoor public assembly areas.	
☐	☐	☒	SHELF ANGLES: Masonry veneer shall be supported by shelf angles or other elements at each floor 30 feet or more above ground for Life Safety and at each floor above the first floor for Immediate Occupancy. (Tier 2: Sec. 4.8.5.1)	
☐	☐	☒	TIES: Masonry veneer shall be connected to the back-up with corrosion-resistant ties. The ties shall have a spacing of equal to or less than 24” with a minimum of one tie for every 2-2/3 square feet. A spacing of up to 36” is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.5.2)	
☐	☐	☒	WEAKENED PLANES: Masonry veneer shall be anchored to the back-up adjacent to weakened planes such as at the locations of flashing. (Tier 2: Sec. 4.8.5.3)	
☐	☐	☒	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.5.4)	
			PARAPETS, CORNICES, ORNAMENTATION AND APPENDAGES	
☐	☐	☒	URM PARAPETS: There shall be no laterally unsupported unreinforced masonry parapets or cornices with height-to-thickness ratios greater than 1.5. A height-to-thickness ration of up to 2.5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.8.1)	
☐	☐	☒	CANOPIES: Canopies located at building exits shall be anchored at a spacing of 6 feet or less. An anchorage spacing of up to 10 feet 5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.8.2)	

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BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-B), South Block (37-A1-E and 37-A1-A) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

The North Block consists of two segments separated by a 4" seismic joint. The western segment (37-A1-A) has a long rectangular footprint and crosses "C" street. The upper two stories are continuous over the street passage.

Structural System

The gravity system above the 1st Floor consists of 4 ½" normal weight concrete slabs that were cast to the bottoms of beam top flanges. In some areas corrugated metal deck was used. Steel beams, girders, trusses and columns were fabricated from ASTM A7-55T material. Below the 1st Floor, concrete slabs, joists, girders, and columns support gravity loads. The foundation includes concrete spread footings and wall strip footings.

The lateral system is punched concrete shear walls. Boundary reinforcement is light and ties are typically spaced at 12" or more. Some square columns contain spiral reinforcement with a 3" pitch. Steel connections are unknown because the drawings refer to specifications that are not available. Wall thicknesses vary between 8 and 10 inches and contain minimal reinforcement.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1957*	
Year/Design Code:	*1955 UBC Assumed*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.02g* **S_{D1}:** *0.65g*
Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the VERTICAL DISCONTINUITIES, SHEAR STRESS CHECK and WALL CONNECTIONS, the expected seismic performance is poor to fair with extensive cracking of walls. Precast pre-stressed panel details were difficult to read. It is uncertain whether the panels have adequate deformation compatibility or if the panels will attract load due to rigid connections. Poor seismic detailing of the panel connections would result in extensive damage.

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the *building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.*

DSA Seismic Risk Level (Tier 1): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

RECOMMENDATION
☐ No Further Study, Assign Risk Level From Tier 1
☒ Perform Tier 2 Evaluation (Check applicable box below)
- ☐ Risk Level Can Be Refined
- ☒ Retrofit Concept Can be Refined
- ☒ Field Exploration Required
- ☐ Other (Explain) ____

Explanation of Tier 2 Objective:

Because of the VERTICAL DISCONTINUITIES, SHEAR STRESS CHECK, and WALL CONNECTIONS, the collectors and diaphragm should be analyzed for transfer of diaphragm forces. Further study is suggested for the seismic detailing of the cladding connections, and the presence of proper anchorage of lath and plaster ceilings if present.

During the site visit, fireproofing encasement was observed around the steel framing. Field exploration should determine if the fireproofing is solid concrete. The shear stress check was performed with a 15 psf weight allowance (15% of the total floor weight). If the weight is more than this the shear in the walls will be proportionately higher.

PRELIMINARY RETROFIT CONCEPT

Add walls to reduce shear stress. Provide or repair connections if field exploration determines their seismic detailing is poor or the connections are in poor condition.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

Mitigate surface fault rupture if future geotechnical investigation confirms the potential.

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DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Vertical Discontinuities	*Do not waive.*
Shear Stress Check	*Do not waive. The walls are minimally reinforced and the Quick Shear Stress Check indicates that the walls would be overstressed by 40%.*
Surface Fault Rupture	*An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*
Wall Connections	*Do not waive. Sheet S46 shows that no positive connection was provided other than bond between the concrete and steel.*
Deterioration	*Do not waive. Cladding connections were not visible therefore the condition could not be verified. Seismic adequacy of the cladding connections could not be ascertained from the drawings.*
Suspended Lath and Plaster	*Do not waive. Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified.*

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DOCUMENTATION

Architectural Drawings: *None*

Structural Drawings: *Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*

As-Built Drawings, Nov 29, 1957

Sheets S1-S14, S16, S17, S19-S52

Other Drawings *None*

Reports: *None*

Limitations of available documents: *Drawings reference specifications that are not available, "for structural steel connections not shown."*

Some portions of the drawings such as precast pre-tensioned panel connection details are illegible

WALK-THROUGH SITE VISIT

Date of visit: *July 16, 2003*

Limitation of walk-through: *Courtrooms and holding cells were not accessible*

DATA SUMMARY SHEET

BUILDING DATA

Year Built:	1957	Year(s) Remodeled:		Design Code:	1955 UBC
Area (sf):	85,500	Length (ft):	340	Width (ft):	78
No. Stories:	4+B	Story Height:	15 ft	Total Height:	53 ft

SITE DATA Site Class C F_a 1.0 F_v 1.3 S_1 0.76 S_s 1.53 Level of Seismicity: High

CONSTRUCTION DATA

Gravity Load Structural System: Steel

Exterior Transverse Walls: Concrete & PT Precast Panels — Opening(s)? Yes

Exterior Longitudinal Walls: Concrete & PT Precast Panels — Opening(s)? Yes

Roof Materials/Framing: NWC Slab and NWC Fill on Corrugated Metal Deck/ Steel Framing

Intermediate Floors/Framing: NWC Slab and NWC Fill on Corrugated Metal Deck/ Steel Framing

Ground Floor: Concrete Slab and Beams

Columns: Steel ASTM A7-55T, Concrete below 1st Floor — Foundation: Concrete Spread/Strip Ftg

General Condition of Structure: Good

Evidence of Settling? No

Special Features and Comments: Pre-cast panels at exterior

LATERAL FORCE RESISTING SYSTEM

	Longitudinal	Transverse
ASCE 31-02 Building Type:	**S4**	**S4**
Diaphragms:	Concrete slabs and 4 ½” Fill & Deck	Concrete slabs and 4 ½” Fill & Deck
Vertical Elements:	Concrete shear walls, piers	Concrete shear walls, piers
Connections:		
Details:		
Building Period, T (sec):	0.4	0.4
Modification Factor, C:	1.0	1.0
Response Spectral Acceleration, S_a:	1.03g	1.03g
Seismic Base Shear, V (kips):	8,500	8,500
Component Modification Factor, m:	4	4

CHECKLIST REQUIRED FOR EVALUATION:

Level of Seismicity	Basic Structural (Sec. 3.7)	Supplemental Structural (Sec. 3.7)	Geologic Site Hazard and Foundation (Sec. 3.8)	Nonstructural
Moderate	☒	☐	☒	☒
High	☒	☒	☒	☒

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C3.7.6 Basic Structural Checklist for Building Type S4

These buildings consist of a frame assembly of steel beams and steel columns. The floors and roof diaphragms consist of cast-in-place concrete slabs or metal deck with or without concrete fill. Framing consists of steel beams, open web joists or steel trusses. Lateral forces are resisted by cast-in-place concrete shear walls. These walls are bearing walls where the steel frame does not provide a complete vertical support system. In older construction the steel frame is designed for vertical loads only. In modern dual systems, the steel moment frames are designed to work together with the concrete shear walls in proportion to their relative rigidity. In the case of a dual system, the walls shall be evaluated under this building type and the frames shall be evaluated under S1 or S1A, Steel Moment Frames. The steel frame may provide a secondary lateral-force-resisting system depending on the stiffness of the frame and the moment capacity of the beam-column connections.

C	NC	N/A		COMMENT
			BUILDING SYSTEM	
☒	☐	☐	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)	
☐	☐	☒	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)	
☒	☐	☐	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story, above or below, for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)	
☒	☐	☐	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80% of the average lateral-force-resisting system stiffness off the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)	
☒	☐	☐	GEOMETRY: There shall be no changes in	Structural drawings show an 84' wide street passage

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)	at the ground floor. The length of the lateral system at the 1st Floor is 341 feet. 0.3 x 341 = 102 ft > 84' Opening. OK
☐	☒	☐	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)	Longitudinal walls at the bridge transfer loads to end walls that continue to the foundation.
☒	☐	☐	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)	
☒	☐	☐	TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20% of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)	
☒	☐	☐	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)	
☒	☐	☐	DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)	
☒	☐	☐	CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8" for Life Safety and 1/16" for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)	

LATERAL FORCE RESISTING SYSTEM

C	NC	N/A		COMMENT
☒	☐	☐	COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical load carrying system. (Tier 2: Sec. 4.4.1.6.1)	
☒	☐	☐	REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)	

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
☐	☒	☐	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1)	North/South Vj avg = 140 psi (DCR = 1.40) East/West Vj avg = 81 psi (DCR = 0.81)
☒	☐	☐	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18” for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)	Min: t=8”, #4 @ 10” E.W. = 0.0025
☐	☐	☒	COLUMN SPLICES: Steel columns encased in shear wall boundary elements shall have splices that develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.9)	
			CONNECTIONS	
☒	☐	☐	TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)	
☒	☐	☐	FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)	
☒	☐	☐	SHEAR-WALL-BOUNDARY COLUMNS: The shear wall boundary columns shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the column for Immediate Occupancy. (Tier 2: Sec. 4.6.3.6)	

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

C	NC	N/A		COMMENT
			LATERAL FORCE RESISTING SYSTEM	
☒	☐	☐	COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than d/2 and shall be anchored into the confined core of the beam with hooks of 135º or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)	
☐	☐	☒	OVERTURNING: All shear walls shall have aspect ratios less than 4 to 1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4)	
☐	☐	☒	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2 to 1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5)	
☐	☐	☒	REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6)	
☐	☐	☒	WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4". This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7)	
☐	☒	☐	WALL CONNECTIONS: There shall be a positive connection between the shear walls and the steel beams and columns for Life Safety and the connection shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.8)	See Sheet S46 (No Studs Present)

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			DIAPHRAGMS	
☒	☐	☐	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25% of the wall length for Life Safety and 15% of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)	
☐	☐	☒	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)	
☐	☐	☒	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)	
			CONNECTIONS	
☐	☐	☒	UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

This Geologic Site Hazards and Foundations Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C	NC	N/A		COMMENT

GEOLOGIC SITE HAZARDS

The following statements shall be completed for buildings in levels of high or moderate seismicity.

C	NC	N/A	Statement	Comment
☒	☐	☐	LIQUEFACTION: Liquefaction susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet. under the building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.1.1)	
☒	☐	☐	SLOPE FAILURE: The building site shall be sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or shall be capable of accommodating any predicted movements without failure. (Tier 2: Sec. 4.7.1.2)	
☐	☒	☐	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Tier 2: Sec. 4.7.1.3)	An initial geotechnical investigation suggests that surface fault rupture and surface displacements may occur at the site.

CONDITION OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

C	NC	N/A	Statement	Comment
☒	☐	☐	FOUNDATION PERFORMANCE: There shall be no evidence of excessive foundation movement such as settlement or heave that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.1)	

The following statement shall be completed for buildings in levels of high or moderate seismicity being evaluated to the Immediate Occupancy Performance Level.

C	NC	N/A	Statement	Comment
☐	☐	☒	DETERIORATION: There shall not be evidence that foundation elements have deteriorated due to corrosion, sulfate attack, material breakdown, or other reasons in a manner that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.2)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

CAPACITY OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

☐ ☐ ☒ POLE FOUNDATIONS: Pole foundations shall have a minimum embedment depth of 4 ft. for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.3.1)

The following statements shall be completed for buildings in levels of moderate seismicity being evaluated to the Immediate Occupancy Performance Level and for buildings in levels of high seismicity.

☒ ☐ ☐ OVERTURNING: The ratio of the effective horizontal dimension of the lateral-force-resisting system at the foundation level to the building height (base/height) shall be greater than 0.6Sa. (Tier 2: Sec. 4.7.3.2)

☐ ☐ ☒ TIES BETWEEN FOUNDATION ELEMENTS: The foundation shall have ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Class A, B, or C. (Tier 2: Sec. 4.7.3.3)

Site Class C

☐ ☐ ☒ DEEP FOUNDATIONS: Piles and piers shall be capable of transferring the lateral forces between the structure and the soil. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.4)

☐ ☐ ☒ SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story in height. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.5)

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			URM PARTITIONS	
☐	☐	☒	UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions shall be adequately braced at a spacing of equal to or less than 10 ft in levels of low and moderate seismicity and 6 ft. in regions of high seismicity or shall be installed tight from floor to floor. Such walls shall not have a height to thickness ratio of greater than 15:1. (Tier 2: Sec. 4.8.1.1)	
			CLADDING AND GLAZING	
☐	☐	☐	SUSPENDED LATH AND PLASTER: Ceilings over assembly areas for more than 50 occupants consisting of suspended lath and plaster or gypsum board shall be attached to resist seismic forces for every 12 square feet of area. (Tier 2: Sec. 4.8.2.4)	Unknown – Could not be verified at site
			CLADDING AND GLAZING	
☐	☐	☐	CLADDING ANCHORS: Cladding components weighing more than 10 psf shall be mechanically anchored to the exterior wall framing at a spacing equal to or less than 4 ft. A spacing of up to 6 ft is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.1)	Unknown – Cladding anchor details for overhead panels at bridge are illegible in drawings
☐	☐	☐	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.4.2)	Unknown – Could not be verified at site
☐	☐	☒	CLADDING ISOLATION: For moment frame buildings of steel or concrete, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.3)	
☒	☐	☐	MULTISTORY PANELS: For multistory panels attached at each floor level, panel connections shall be detailed to accommodate a drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.4)	
☒	☐	☐	BEARING CONNECTIONS: Where bearing connections are required, there shall be a minimum of two bearing connections for each wall panel. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.4.5)	
☐	☐	☐	INSERTS: Where inserts are used in concrete connections, the inserts shall be anchored to reinforcing steel or other positive anchorage. (Tier 2: Sec. 4.8.4.6)	Unknown – Cladding anchor details for overhead panels at bridge are illegible in drawings.
☒	☐	☐	PANEL CONNECTIONS: Exterior cladding panels shall be anchored out-of-plane with a minimum of 4 connections for each wall panel. Two connections per wall panel are permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.7)	
			MASONRY VENEER	
			Note: Masonry veneer components shall only be considered over points of egress or over outdoor public assembly areas.	
☐	☐	☒	SHELF ANGLES: Masonry veneer shall be supported by shelf angles or other elements at each floor 30 feet or more above ground for Life Safety and at each floor above the first floor for Immediate Occupancy. (Tier 2: Sec. 4.8.5.1)	
☐	☐	☒	TIES: Masonry veneer shall be connected to the back-up with corrosion-resistant ties. The ties shall have a spacing of equal to or less than 24” with a minimum of one tie for every 2-2/3 square feet. A spacing of up to 36” is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.5.2)	
☐	☐	☒	WEAKENED PLANES: Masonry veneer shall be anchored to the back-up adjacent to weakened planes such as at the locations of flashing. (Tier 2: Sec. 4.8.5.3)	
☐	☐	☒	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.5.4)	
			PARAPETS, CORNICES, ORNAMENTATION AND APPENDAGES	
☐	☐	☒	URM PARAPETS: There shall be no laterally unsupported unreinforced masonry parapets or cornices with height-to-thickness ratios greater than 1.5. A height-to-thickness ration of up to 2.5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.8.1)	
☐	☐	☒	CANOPIES: Canopies located at building exits shall be anchored at a spacing of 6 feet or less. An anchorage spacing of up to 10 feet 5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.8.2)	

Building ID: *37-A1-B* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 37 of 84

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-B), South Block (37-A1-E and 37-A1-A) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

The eastern portion of the North Block is an "L" shaped building.

Structural System

The gravity system consists of 4 ½" normal weight concrete slabs that were cast to the bottoms of beam top flanges. In some areas corrugated metal deck was used. Steel beams, girders, trusses and columns were fabricated from ASTM A7-55T material. The foundation includes concrete spread footings and wall strip footings.

The lateral system is punched concrete shear walls. Boundary reinforcement is light and ties are spaced typically at 12 inches or more. Some square columns contain spiral reinforcement with a 2" pitch. Steel connections are unknown because the drawings refer to specifications that are not available. Wall thicknesses vary between 8 and 10 inches and contain minimal reinforcement.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1957*	
Year/Design Code:	*1955 UBC Assumed*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.02g* **S_{D1}:** *0.65g*
Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the TORSION and SHEAR STRESS CHECK, the expected seismic performance is poor to fair with extensive cracking of walls. Precast pre-stressed panel details were difficult to read. It is uncertain whether the panels have adequate deformation compatibility or if the panels will attract load due to rigid connections. Poor seismic detailing of the panel connections would result in extensive damage.

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An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.

DSA Seismic Risk Level (Tier 1): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

RECOMMENDATION ☐ No Further Study, Assign Risk Level From Tier 1

☒ Perform Tier 2 Evaluation (Check applicable box below)
- ☐ Risk Level Can Be Refined
- ☒ Retrofit Concept Can be Refined
- ☒ Field Exploration Required
- ☐ Other (Explain) ______

Explanation of Tier 2 Objective:

Because of the TORSION, SHEAR STRESS CHECK, and WALL CONNECTIONS, the collectors and diaphragm should be evaluated. Further study is suggested for the seismic detailing of the cladding connections, and the presence of proper anchorage of lath and plaster ceilings if present.

During the site visit, fireproofing encasement was observed around the steel framing. Field exploration should determine if the fireproofing is solid concrete. The shear stress check was performed with a 15 psf weight allowance (15% of the total floor weight). If the weight is more than this the shear in the walls will be proportionately higher.

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PRELIMINARY RETROFIT CONCEPT

Add walls to reduce shear stress. Provide or repair connections if field exploration determines their seismic detailing is poor or the connections are in poor condition.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

Mitigate surface fault rupture if future geotechnical investigation confirms the potential.

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DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Shear Stress Check	*Do not waive. The walls are minimally reinforced and the Quick Shear Stress Check indicates that the walls would be overstressed by 10%.*
Torsion	*Do not waive*
Vertical Discontinuities	*Do not waive.*
Surface Fault Rupture	*Do not waive. An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*
Deterioration	*Do not waive. Cladding connections were not visible therefore the condition could not be verified. Seismic adequacy of the cladding connections could not be ascertained from the drawings.*
Suspended Lath and Plaster	*Do not waive. Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified.*

DOCUMENTATION

Architectural Drawings:	*None*
Structural Drawings:	*Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*
	As-Built Drawings, Nov 29, 1957
	Sheets S1-S14, S16, S17, S19-S52
Other Drawings	*None*
Reports:	*None*
Limitations of available documents:	*Drawings reference specifications that are not available, "for structural steel connections not shown."*
	Some portions of the drawings such as precast pre-tensioned panel connection details are illegible

WALK-THROUGH SITE VISIT

Date of visit:	*July 16, 2003*
Limitation of walk-through:	*Courtrooms and holding cells were not accessible*

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DATA SUMMARY SHEET

BUILDING DATA

Year Built:	1957	Year(s) Remodeled:		Design Code:	1955 UBC
Area (sf):	47,200	Length (ft):	117, 90 (L-Shape)	Width (ft):	57, 62 (L-Shape)
No. Stories:	4+B	Story Height:	15 ft	Total Height:	53 ft

SITE DATA Site Class C F_a 1.0 F_v 1.3 S_1 0.76 S_s 1.53 Level of Seismicity: High

CONSTRUCTION DATA

Gravity Load Structural System:	Steel		
Exterior Transverse Walls:	Concrete & PT Precast Panels	Opening(s)?	Yes
Exterior Longitudinal Walls:	Concrete & PT Precast Panels	Opening(s)?	Yes
Roof Materials/Framing:	NWC Slab and NWC Fill on Corrugated Metal Deck/ Steel Framing		
Intermediate Floors/Framing:	NWC Slab and NWC Fill on Corrugated Metal Deck/ Steel Framing		
Ground Floor:	Concrete Slab and Beams		
Columns:	Steel ASTM A7-55T, Concrete below 1st Floor	Foundation:	Concrete Spread/Strip Ftg
General Condition of Structure:	Good		
Evidence of Settling?	No		
Special Features and Comments:	Pre-cast panels at exterior		

LATERAL FORCE RESISTING SYSTEM

	Longitudinal	Transverse
ASCE 31-02 Building Type:	**S4**	**S4**
Diaphragms:	Concrete slabs and 4 ½" Fill & Deck	Concrete slabs and 4 ½" Fill & Deck
Vertical Elements:	Concrete shear walls, piers	Concrete shear walls, piers
Connections:		
Details:		
Building Period, T (sec):	0.4	0.4
Modification Factor, C:	1.0	1.0
Response Spectral Acceleration, S_a:	1.03g	1.03g
Seismic Base Shear, V (kips):	4,800	4,800
Component Modification Factor, m:	4	4

CHECKLIST REQUIRED FOR EVALUATION:

Level of Seismicity	Basic Structural (Sec. 3.7)	Supplemental Structural (Sec. 3.7)	Geologic Site Hazard and Foundation (Sec. 3.8)	Nonstructural
Moderate	☒	☐	☒	☒
High	☒	☒	☒	☒

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C3.7.6 Basic Structural Checklist for Building Type S4

These buildings consist of a frame assembly of steel beams and steel columns. The floors and roof diaphragms consist of cast-in-place concrete slabs or metal deck with or without concrete fill. Framing consists of steel beams, open web joists or steel trusses. Lateral forces are resisted by cast-in-place concrete shear walls. These walls are bearing walls where the steel frame does not provide a complete vertical support system. In older construction the steel frame is designed for vertical loads only. In modern dual systems, the steel moment frames are designed to work together with the concrete shear walls in proportion to their relative rigidity. In the case of a dual system, the walls shall be evaluated under this building type and the frames shall be evaluated under S1 or S1A, Steel Moment Frames. The steel frame may provide a secondary lateral-force-resisting system depending on the stiffness of the frame and the moment capacity of the beam-column connections.

C	NC	N/A		COMMENT
			BUILDING SYSTEM	
☒	☐	☐	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)	
☐	☐	☒	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)	
☒	☐	☐	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story, above or below, for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)	
☒	☐	☐	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80% of the average lateral-force-resisting system stiffness off the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)	
☒	☐	☐	GEOMETRY: There shall be no changes in	

Building ID: 37-A1-B By/Firm: DW, LD, Forell/Elsesser Date: 7/24/03
Bldg. Name: County Courthouse Page: 44 of 84

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)	
☐	☒	☐	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)	Wall elevation L-S42 is discontinuous.
☒	☐	☐	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)	
☐	☒	☐	TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20% of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)	Torsion will exacerbate the wall shear stresses that were already beyond capacity per the Quick Check.
☒	☐	☐	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)	
☒	☐	☐	DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)	
☒	☐	☐	CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8" for Life Safety and 1/16" for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)	
			LATERAL FORCE RESISTING SYSTEM	
☒	☐	☐	COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical load carrying system. (Tier 2: Sec. 4.4.1.6.1)	
☒	☐	☐	REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)	

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
☐	☒	☐	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1)	North/South Vj avg = 110 psi (DCR = 1.10) East/West Vj avg = 71 psi (DCR = 0.71)
☒	☐	☐	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18” for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)	Min: t=8”, #4 @ 10” E.W. = 0.0025
☐	☐	☒	COLUMN SPLICES: Steel columns encased in shear wall boundary elements shall have splices that develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.9)	

CONNECTIONS

C	NC	N/A		COMMENT
☒	☐	☐	TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)	
☒	☐	☐	FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)	
☒	☐	☐	SHEAR-WALL-BOUNDARY COLUMNS: The shear wall boundary columns shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the column for Immediate Occupancy. (Tier 2: Sec. 4.6.3.6)	

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

C	NC	N/A		COMMENT
			LATERAL FORCE RESISTING SYSTEM	
☒	☐	☐	COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than d/2 and shall be anchored into the confined core of the beam with hooks of 135º or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)	
☐	☐	☒	OVERTURNING: All shear walls shall have aspect ratios less than 4 to 1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4)	
☐	☐	☒	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2 to 1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5)	
☐	☐	☒	REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6)	
☐	☐	☒	WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4". This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7)	
☐	☒	☐	WALL CONNECTIONS: There shall be a positive connection between the shear walls and the steel beams and columns for Life Safety and the connection shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.8)	See Sheet S46 (No Studs Present)

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			DIAPHRAGMS	
☒	☐	☐	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25% of the wall length for Life Safety and 15% of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)	
☐	☐	☒	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)	
☐	☐	☒	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)	
			CONNECTIONS	
☐	☐	☒	UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)	

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3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

This Geologic Site Hazards and Foundations Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C	NC	N/A		COMMENT

GEOLOGIC SITE HAZARDS

The following statements shall be completed for buildings in levels of high or moderate seismicity.

C	NC	N/A	Statement	Comment
☒	☐	☐	LIQUEFACTION: Liquefaction susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet. under the building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.1.1)	
☒	☐	☐	SLOPE FAILURE: The building site shall be sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or shall be capable of accommodating any predicted movements without failure. (Tier 2: Sec. 4.7.1.2)	
☐	☒	☐	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Tier 2: Sec. 4.7.1.3)	An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.

CONDITION OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

C	NC	N/A	Statement	Comment
☒	☐	☐	FOUNDATION PERFORMANCE: There shall be no evidence of excessive foundation movement such as settlement or heave that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.1)	

The following statement shall be completed for buildings in levels of high or moderate seismicity being evaluated to the Immediate Occupancy Performance Level.

C	NC	N/A	Statement	Comment
☐	☐	☒	DETERIORATION: There shall not be evidence that foundation elements have deteriorated due to corrosion, sulfate attack, material breakdown, or other reasons in a manner that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.2)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

CAPACITY OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

☐ ☐ ☒ POLE FOUNDATIONS: Pole foundations shall have a minimum embedment depth of 4 ft. for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.3.1)

The following statements shall be completed for buildings in levels of moderate seismicity being evaluated to the Immediate Occupancy Performance Level and for buildings in levels of high seismicity.

☒ ☐ ☐ OVERTURNING: The ratio of the effective horizontal dimension of the lateral-force-resisting system at the foundation level to the building height (base/height) shall be greater than 0.6Sa. (Tier 2: Sec. 4.7.3.2)

☐ ☐ ☒ TIES BETWEEN FOUNDATION ELEMENTS: The foundation shall have ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Class A, B, or C. (Tier 2: Sec. 4.7.3.3)

Site Class C

☐ ☐ ☒ DEEP FOUNDATIONS: Piles and piers shall be capable of transferring the lateral forces between the structure and the soil. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.4)

☐ ☐ ☒ SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story in height. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.5)

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			URM PARTITIONS	
☐	☐	☒	UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions shall be adequately braced at a spacing of equal to or less than 10 ft in levels of low and moderate seismicity and 6 ft. in regions of high seismicity or shall be installed tight from floor to floor. Such walls shall not have a height to thickness ratio of greater than 15:1. (Tier 2: Sec. 4.8.1.1)	
			CLADDING AND GLAZING	
☐	☐	☐	SUSPENDED LATH AND PLASTER: Ceilings over assembly areas for more than 50 occupants consisting of suspended lath and plaster or gypsum board shall be attached to resist seismic forces for every 12 square feet of area. (Tier 2: Sec. 4.8.2.4)	Unknown – Could not be verified at site
			CLADDING AND GLAZING	
☒	☐	☐	CLADDING ANCHORS: Cladding components weighing more than 10 psf shall be mechanically anchored to the exterior wall framing at a spacing equal to or less than 4 ft. A spacing of up to 6 ft is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.1)	
☐	☐	☐	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.4.2)	Unknown – Could not be verified at site
☐	☐	☒	CLADDING ISOLATION: For moment frame buildings of steel or concrete, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.3)	
☒	☐	☐	MULTISTORY PANELS: For multistory panels attached at each floor level, panel connections shall be detailed to accommodate a drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.4)	
☒	☐	☐	BEARING CONNECTIONS: Where bearing connections are required, there shall be a minimum of two bearing connections for each wall panel. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.4.5)	
☒	☐	☐	INSERTS: Where inserts are used in concrete connections, the inserts shall be anchored to reinforcing steel or other positive anchorage. (Tier 2: Sec. 4.8.4.6)	
☒	☐	☐	PANEL CONNECTIONS: Exterior cladding panels shall be anchored out-of-plane with a minimum of 4 connections for each wall panel. Two connections per wall panel are permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.7)	
			MASONRY VENEER	
			Note: Masonry veneer components shall only be considered over points of egress or over outdoor public assembly areas.	
☐	☐	☒	SHELF ANGLES: Masonry veneer shall be supported by shelf angles or other elements at each floor 30 feet or more above ground for Life Safety and at each floor above the first floor for Immediate Occupancy. (Tier 2: Sec. 4.8.5.1)	
☐	☐	☒	TIES: Masonry veneer shall be connected to the back-up with corrosion-resistant ties. The ties shall have a spacing of equal to or less than 24” with a minimum of one tie for every 2-2/3 square feet. A spacing of up to 36” is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.5.2)	
☐	☐	☒	WEAKENED PLANES: Masonry veneer shall be anchored to the back-up adjacent to weakened planes such as at the locations of flashing. (Tier 2: Sec. 4.8.5.3)	
☐	☐	☒	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.5.4)	
			PARAPETS, CORNICES, ORNAMENTATION AND APPENDAGES	
☐	☐	☒	URM PARAPETS: There shall be no laterally unsupported unreinforced masonry parapets or cornices with height-to-thickness ratios greater than 1.5. A height-to-thickness ration of up to 2.5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.8.1)	
☐	☐	☒	CANOPIES: Canopies located at building exits shall be anchored at a spacing of 6 feet or less. An anchorage spacing of up to 10 feet 5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.8.2)	

California Court Building Seismic Assessment Program
Tier 1 Evaluation
Summary Sheet

Building ID: *37-A1-C* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 53 of 84

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-A and 37-A1-B), South Block (37-A1-E) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

Structural System

Structural drawings were not available for the Annex therefore the structural system is unknown. The architectural drawings are not complete but imply that the structural system is similar to the South Block.

The Annex has a long rectangular footprint and is divided in two segments by a seismic joint. The southern segment (37-A1-C) is adjacent to the North Block. The southern segment spans over B Street.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1962*	
Year/Design Code:	*Unknown*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls Assumed*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.02g* **S_{D1}:** *0.65g*
Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the unavailability of structural drawings, the seismic performance is unknown. Because the Annex appears to be similar to the original building, it will likely have similar deficiencies and performance.

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.

DSA Seismic Risk Level (Tier 1): ☐ I ☐ II ☐ III ☐ IV ☒ V ☐ VI ☐ VII

RECOMMENDATION
☒ No Further Study, Assign Risk Level From Tier 1
☐ Perform Tier 2 Evaluation (Check applicable box below)
- ☐ Risk Level Can Be Refined
- ☐ Retrofit Concept Can be Refined
- ☐ Field Exploration Required

Building ID: 37-A1-C By/Firm: DW, LD, Forell/Elsesser Date: 7/24/03
Bldg. Name: County Courthouse Page: 54 of 84

☐ Other (Explain) ______

Explanation of Tier 2 Objective:

Building ID: *37-A1-C* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 55 of 84

PRELIMINARY RETROFIT CONCEPT

Since there are no structural drawings, the same retrofit that applies to building 37-A1-E should be assumed.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

Mitigate surface fault rupture if future geotechnical investigation confirms the potential.

Building ID: *37-A1-C* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 56 of 84

DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Vertical Discontinuities	*Longitudinal walls span B Street and are supported by the northern segment Collector elements should be studied in the Tier 2 analysis..*
Deterioration	*Cladding connections were not visible therefore the condition could not be verified.*
Suspended Lath and Plaster	*Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified.*
Surface Fault Rupture	*An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*

Building ID: *37-A1-C* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 57 of 84

DOCUMENTATION

Architectural Drawings: *Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*
As-Built Drawings, Jan 10, 1962
Sheets 10-14

Structural Drawings: *None*

Other Drawings *None*

Reports: *None*

Limitations of available documents: *Partial set only (no floor plans, few details or sections)*

WALK-THROUGH SITE VISIT

Date of visit: *July 16, 2003*

Limitation of walk-through: *Courtrooms and holding cells were not accessible*

DATA SUMMARY SHEET

BUILDING DATA

Year Built: 1962 | Year(s) Remodeled: | Design Code: Unknown
Area (sf): 91,000 | Length (ft): 230 | Width (ft): 63
No. Stories: 7+B | Story Height: 15 ft | Total Height: 95 ft

SITE DATA Site Class C F_a 1.0 F_v 1.3 S_1 0.76 S_s 1.53 Level of Seismicity: High

CONSTRUCTION DATA

Gravity Load Structural System: Steel
Exterior Transverse Walls: Concrete & PT Precast Panels Assumed — Opening(s)? Yes
Exterior Longitudinal Walls: Concrete & PT Precast Panels Assumed — Opening(s)? Yes

Roof Materials/Framing: NWC Fill on Corrugated Metal Deck/ Steel Framing
Intermediate Floors/Framing: NWC Fill on Corrugated Metal Deck/ Steel Framing
Ground Floor: Concrete Slab and Beams
Columns: Steel, Concrete below 1st Floor — Foundation: Unknown
General Condition of Structure: Good
Evidence of Settling? No
Special Features and Comments: Pre-cast panels at exterior

LATERAL FORCE RESISTING SYSTEM

	Longitudinal	Transverse
ASCE 31-02 Building Type:	**S4 Assumed**	**S4 Assumed**
Diaphragms:	Concrete Fill & Deck	Concrete Fill & Deck
Vertical Elements:		
Connections:		
Details:		
Building Period, T (sec):	0.6	0.6
Modification Factor, C:	1.0	1.0
Response Spectral Acceleration, S_a:	1.03g	1.03g
Seismic Base Shear, V (kips):	Unknown	Unknown
Component Modification Factor, m:	4	4

CHECKLIST REQUIRED FOR EVALUATION:

Level of Seismicity	Basic Structural (Sec. 3.7)	Supplemental Structural (Sec. 3.7)	Geologic Site Hazard and Foundation (Sec. 3.8)	Nonstructural
Moderate	☒	☐	☒	☒
High	☒	☒	☒	☒

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C3.7.6 Basic Structural Checklist for Building Type S4

These buildings consist of a frame assembly of steel beams and steel columns. The floors and roof diaphragms consist of cast-in-place concrete slabs or metal deck with or without concrete fill. Framing consists of steel beams, open web joists or steel trusses. Lateral forces are resisted by cast-in-place concrete shear walls. These walls are bearing walls where the steel frame does not provide a complete vertical support system. In older construction the steel frame is designed for vertical loads only. In modern dual systems, the steel moment frames are designed to work together with the concrete shear walls in proportion to their relative rigidity. In the case of a dual system, the walls shall be evaluated under this building type and the frames shall be evaluated under S1 or S1A, Steel Moment Frames. The steel frame may provide a secondary lateral-force-resisting system depending on the stiffness of the frame and the moment capacity of the beam-column connections.

C	NC	N/A		COMMENT
			BUILDING SYSTEM	
☒	☐	☐	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)	
☐	☐	☒	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)	
☐	☐	☐	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story, above or below, for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)	Unknown – Architectural drawings show concrete walls above the 1st Floor and Ceramic Masonry Screen Block below the 1st Floor.
☐	☐	☐	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80% of the average lateral-force-resisting system stiffness off the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)	Unknown – Architectural drawings show concrete walls above the 1st Floor and Ceramic Masonry Screen Block below the 1st Floor.
☐	☒	☐	GEOMETRY: There shall be no changes in	Architectural drawings show an 80' wide street

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)	passage at the ground floor. The length of the lateral system at the 1st Floor is 231 feet. 0.3 x 231 = 69.3 ft < 80' Opening. NG
☐	☐	☐	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)	Unknown – Architectural drawings show concrete walls above the 1st Floor and Ceramic Masonry Screen Block below the 1st Floor.
☐	☐	☐	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)	Unknown – Structural drawings not available
☐	☐	☐	TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20% of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)	Unknown – Structural drawings not available
☐	☐	☐	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)	Unknown – Could not be verified at site
☒	☐	☐	DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)	
☒	☐	☐	CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8" for Life Safety and 1/16" for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)	

LATERAL FORCE RESISTING SYSTEM

C	NC	N/A		COMMENT
☐	☐	☐	COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical load carrying system. (Tier 2: Sec. 4.4.1.6.1)	Unknown – Structural drawings not available
☐	☐	☐	REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)	Unknown – Structural drawings not available

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
☐	☐	☐	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1)	Unknown – Structural drawings not available
☐	☐	☐	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18" for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)	Unknown – Structural drawings not available
☐	☐	☒	COLUMN SPLICES: Steel columns encased in shear wall boundary elements shall have splices that develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.9)	

CONNECTIONS

C	NC	N/A		COMMENT
☐	☐	☐	TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)	Unknown – Structural drawings not available
☐	☐	☐	FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)	Unknown – Structural drawings not available
☐	☐	☐	SHEAR-WALL-BOUNDARY COLUMNS: The shear wall boundary columns shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the column for Immediate Occupancy. (Tier 2: Sec. 4.6.3.6)	Unknown – Structural drawings not available

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

C	NC	N/A		COMMENT
			LATERAL FORCE RESISTING SYSTEM	
☐	☐	☐	COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than d/2 and shall be anchored into the confined core of the beam with hooks of 135º or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)	Unknown – Structural drawings not available
☐	☐	☒	OVERTURNING: All shear walls shall have aspect ratios less than 4 to 1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4)	
☐	☐	☒	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2 to 1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5)	
☐	☐	☒	REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6)	
☐	☐	☒	WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4". This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7)	
☐	☐	☐	WALL CONNECTIONS: There shall be a positive connection between the shear walls and the steel beams and columns for Life Safety and the connection shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.8)	Unknown – Structural drawings not available

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			DIAPHRAGMS	
☐	☐	☐	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25% of the wall length for Life Safety and 15% of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)	Unknown – Structural drawings not available
☐	☐	☒	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)	
☐	☐	☒	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)	
			CONNECTIONS	
☐	☐	☐	UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)	Unknown – Structural drawings not available

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

This Geologic Site Hazards and Foundations Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C	NC	N/A		COMMENT
			GEOLOGIC SITE HAZARDS	

The following statements shall be completed for buildings in levels of high or moderate seismicity.

C	NC	N/A	Statement	Comment
☒	☐	☐	LIQUEFACTION: Liquefaction susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet. under the building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.1.1)	
☒	☐	☐	SLOPE FAILURE: The building site shall be sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or shall be capable of accommodating any predicted movements without failure. (Tier 2: Sec. 4.7.1.2)	
☐	☒	☐	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Tier 2: Sec. 4.7.1.3)	An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.

CONDITION OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

C	NC	N/A	Statement	Comment
☒	☐	☐	FOUNDATION PERFORMANCE: There shall be no evidence of excessive foundation movement such as settlement or heave that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.1)	

The following statement shall be completed for buildings in levels of high or moderate seismicity being evaluated to the Immediate Occupancy Performance Level.

C	NC	N/A	Statement	Comment
☐	☐	☒	DETERIORATION: There shall not be evidence that foundation elements have deteriorated due to corrosion, sulfate attack, material breakdown, or other reasons in a manner that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.2)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

CAPACITY OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

☐	☐	☒	POLE FOUNDATIONS: Pole foundations shall have a minimum embedment depth of 4 ft. for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.3.1)	

The following statements shall be completed for buildings in levels of moderate seismicity being evaluated to the Immediate Occupancy Performance Level and for buildings in levels of high seismicity.

☐	☐	☐	OVERTURNING: The ratio of the effective horizontal dimension of the lateral-force-resisting system at the foundation level to the building height (base/height) shall be greater than 0.6Sa. (Tier 2: Sec. 4.7.3.2)	Unknown – Structural drawings not available
☐	☐	☒	TIES BETWEEN FOUNDATION ELEMENTS: The foundation shall have ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Class A, B, or C. (Tier 2: Sec. 4.7.3.3)	Site Class C
☐	☐	☒	DEEP FOUNDATIONS: Piles and piers shall be capable of transferring the lateral forces between the structure and the soil. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.4)	
☐	☐	☒	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story in height. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.5)	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			URM PARTITIONS	
☐	☐	☐	UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions shall be adequately braced at a spacing of equal to or less than 10 ft in levels of low and moderate seismicity and 6 ft. in regions of high seismicity or shall be installed tight from floor to floor. Such walls shall not have a height to thickness ratio of greater than 15:1. (Tier 2: Sec. 4.8.1.1)	Unknown – Structural drawings not available
			CLADDING AND GLAZING	
☐	☐	☐	SUSPENDED LATH AND PLASTER: Ceilings over assembly areas for more than 50 occupants consisting of suspended lath and plaster or gypsum board shall be attached to resist seismic forces for every 12 square feet of area. (Tier 2: Sec. 4.8.2.4)	Unknown – Could not be verified at site
			CLADDING AND GLAZING	
☐	☐	☐	CLADDING ANCHORS: Cladding components weighing more than 10 psf shall be mechanically anchored to the exterior wall framing at a spacing equal to or less than 4 ft. A spacing of up to 6 ft is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.1)	Unknown – Structural drawings not available. Overhead panel anchorage details at the bridge are unknown.
☐	☐	☐	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.4.2)	Unknown – Could not be verified at site
☐	☐	☒	CLADDING ISOLATION: For moment frame buildings of steel or concrete, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.3)	
☐	☐	☐	MULTISTORY PANELS: For multistory panels attached at each floor level, panel connections shall be detailed to accommodate a drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.4)	Unknown – Structural drawings not available
☐	☐	☐	BEARING CONNECTIONS: Where bearing connections are required, there shall be a minimum of two bearing connections for each wall panel. (Tier 2:	Unknown – Structural drawings not available

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.4.5)	
☐	☐	☐	INSERTS: Where inserts are used in concrete connections, the inserts shall be anchored to reinforcing steel or other positive anchorage. (Tier 2: Sec. 4.8.4.6)	Unknown – Structural drawings not available
☐	☐	☐	PANEL CONNECTIONS: Exterior cladding panels shall be anchored out-of-plane with a minimum of 4 connections for each wall panel. Two connections per wall panel are permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.7)	Unknown – Structural drawings not available
			MASONRY VENEER	
			Note: Masonry veneer components shall only be considered over points of egress or over outdoor public assembly areas.	
☐	☐	☒	SHELF ANGLES: Masonry veneer shall be supported by shelf angles or other elements at each floor 30 feet or more above ground for Life Safety and at each floor above the first floor for Immediate Occupancy. (Tier 2: Sec. 4.8.5.1)	
☐	☐	☒	TIES: Masonry veneer shall be connected to the back-up with corrosion-resistant ties. The ties shall have a spacing of equal to or less than 24” with a minimum of one tie for every 2-2/3 square feet. A spacing of up to 36” is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.5.2)	
☐	☐	☒	WEAKENED PLANES: Masonry veneer shall be anchored to the back-up adjacent to weakened planes such as at the locations of flashing. (Tier 2: Sec. 4.8.5.3)	
☐	☐	☒	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.5.4)	
			PARAPETS, CORNICES, ORNAMENTATION AND APPENDAGES	
☐	☐	☒	URM PARAPETS: There shall be no laterally unsupported unreinforced masonry parapets or cornices with height-to-thickness ratios greater than 1.5. A height-to-thickness ration of up to 2.5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.8.1)	
☐	☐	☒	CANOPIES: Canopies located at building exits shall be anchored at a spacing of 6 feet or less. An anchorage spacing of up to 10 feet 5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.8.2)	

Building ID: *37-A1-D* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 69 of 84

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-A and 37-A1-B), South Block (37-A1-E) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

Structural System

Structural drawings were not available for the Annex therefore the structural system is unknown. The architectural drawings are not complete but imply that the structural system is similar to the South Block.

The Annex has a long rectangular footprint and is divided in two segments by a seismic joint. The northern segment (37-A1-D) is adjacent only to the southern segment

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1962*	
Year/Design Code:	*Unknown*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls Assumed*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.02g* **S_{D1}:** *0.65g*
Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the unavailability of structural drawings, the seismic performance is unknown. Because the Annex appears to be similar to the original building, it will likely have similar deficiencies and performance.

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the above.

DSA Seismic Risk Level (Tier 1): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

RECOMMENDATION ☒ No Further Study, Assign Risk Level From Tier 1

Building ID: 37-A1-D By/Firm: DW, LD, Forell/Elsesser Date: 7/24/03
Bldg. Name: County Courthouse

☐ Perform Tier 2 Evaluation (Check applicable box below)
- ☐ Risk Level Can Be Refined
- ☐ Retrofit Concept Can be Refined
- ☐ Field Exploration Required
- ☐ Other (Explain) ______

Explanation of Tier 2 Objective:

Building ID: *37-A1-D* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 71 of 84

PRELIMINARY RETROFIT CONCEPT

Since there are no structural drawings, the same retrofit that applies to building 37-A1-E should be assumed.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

Mitigate surface fault rupture if future geotechnical investigation confirms the potential.

Building ID: *37-A1-D* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
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DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Deterioration	*Cladding connections were not visible therefore the condition could not be verified.*
Suspended Lath and Plaster	*Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified.*
Surface Fault Rupture	*An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*

Building ID: *37-A1-D* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse*

DOCUMENTATION

Architectural Drawings:	Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer, As-Built Drawings, Jan 10, 1962 *Sheets 10-14*
Structural Drawings:	*None*
Other Drawings	*None*
Reports:	*None*
Limitations of available documents:	*Partial set only (no floor plans, few details or sections)*

WALK-THROUGH SITE VISIT

Date of visit:	*July 16, 2003*
Limitation of walk-through:	*Courtrooms and holding cells were not accessible*

Building ID: 37-A1-D By/Firm: DW, LD, Forell/Elsesser Date: 7.24/03
Bldg. Name: County Courthouse Page: 74 of 84

DATA SUMMARY SHEET

BUILDING DATA

Year Built:	1962	Year(s) Remodeled:		Design Code:	Unknown
Area (sf):	24,200	Length (ft):	64	Width (ft):	63
No. Stories:	7+2B	Story Height:	15 ft	Total Height:	95 ft

SITE DATA Site Class C F_a 1.0 F_v 1.3 S_1 0.76 S_s 1.53 Level of Seismicity: High

CONSTRUCTION DATA

Gravity Load Structural System:	Steel		
Exterior Transverse Walls:	Concrete & PT Precast Panels Assumed	Opening(s)?	Yes
Exterior Longitudinal Walls:	Concrete & PT Precast Panels Assumed	Opening(s)?	Yes
Roof Materials/Framing:	NWC Fill on Corrugated Metal Deck/ Steel Framing		
Intermediate Floors/Framing:	NWC Fill on Corrugated Metal Deck/ Steel Framing		
Ground Floor:	Concrete below 1st Floor		
Columns:	Steel	Foundation:	Unknown
General Condition of Structure:	Good		
Evidence of Settling?	No		
Special Features and Comments:	Pre-cast panels at exterior		

LATERAL FORCE RESISTING SYSTEM

	Longitudinal	Transverse
ASCE 31-02 Building Type:	**S4 Assumed**	**S4 Assumed**
Diaphragms:	Concrete Fill & Deck	Concrete Fill & Deck
Vertical Elements:	Concrete shear walls, piers	Concrete shear walls, piers
Connections:		
Details:		
Building Period, T (sec):	0.6	0.6
Modification Factor, C:	1.0	1.0
Response Spectral Acceleration, S_a:	1.03g	1.03g
Seismic Base Shear, V (kips):	Unknown	Unknown
Component Modification Factor, m:	4	4

CHECKLIST REQUIRED FOR EVALUATION:

Level of Seismicity	Basic Structural (Sec. 3.7)	Supplemental Structural (Sec. 3.7)	Geologic Site Hazard and Foundation (Sec. 3.8)	Nonstructural
Moderate	☒	☐	☒	☒
High	☒	☒	☒	☒

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

This Basic Structural Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C3.7.6 Basic Structural Checklist for Building Type S4

These buildings consist of a frame assembly of steel beams and steel columns. The floors and roof diaphragms consist of cast-in-place concrete slabs or metal deck with or without concrete fill. Framing consists of steel beams, open web joists or steel trusses. Lateral forces are resisted by cast-in-place concrete shear walls. These walls are bearing walls where the steel frame does not provide a complete vertical support system. In older construction the steel frame is designed for vertical loads only. In modern dual systems, the steel moment frames are designed to work together with the concrete shear walls in proportion to their relative rigidity. In the case of a dual system, the walls shall be evaluated under this building type and the frames shall be evaluated under S1 or S1A, Steel Moment Frames. The steel frame may provide a secondary lateral-force-resisting system depending on the stiffness of the frame and the moment capacity of the beam-column connections.

C	NC	N/A		COMMENT
			BUILDING SYSTEM	
☒	☐	☐	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)	
☐	☐	☒	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)	
☐	☐	☐	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80% of the strength in an adjacent story, above or below, for Life-Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)	Unknown – Architectural drawings show concrete wall set back at Ground Floor. Thickness of walls unknown.
☐	☐	☐	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70% of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80% of the average lateral-force-resisting system stiffness off the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)	Unknown – Architectural drawings show concrete wall set back at Ground Floor. Thickness of walls unknown.
☐	☒	☐	GEOMETRY: There shall be no changes in	Architectural drawings show a 22' wide arcade at the

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			horizontal dimension of the lateral-force-resisting system of more than 30% in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)	ground floor. The length of the lateral system at the 1st Floor is 64 feet. 0.3 x 64 = 19.2 ft < 22' Opening. NG
☐	☐	☐	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)	Unknown – Structural drawings not available
☐	☐	☐	MASS: There shall be no change in effective mass more than 50% from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)	Unknown – Structural drawings not available
☐	☐	☐	TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20% of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)	Unknown – Structural drawings not available
☐	☐	☐	DETERIORATION OF STEEL: There shall be no visible rusting, corrosion, cracking or other deterioration in any of the steel elements or connections in the vertical- or lateral-force-resisting systems. (Tier 2: Sec. 4.3.3.3)	Unknown – Could not be verified at site
☒	☐	☐	DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)	
☒	☐	☐	CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8" for Life Safety and 1/16" for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)	
			LATERAL FORCE RESISTING SYSTEM	
☐	☐	☐	COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical load carrying system. (Tier 2: Sec. 4.4.1.6.1)	Unknown – Structural drawings not available
☐	☐	☐	REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)	Unknown – Structural drawings not available

Building ID: 37-A1-D By/Firm: DW, LD, Forell/Elsesser Date: 7/24/03
Bldg. Name: County Courthouse Page: 77 of 84

3.7.6 BASIC STRUCTURAL CHECKLIST FOR BUILDING TYPE S4: STEEL FRAMES WITH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
☐	☐	☐	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1)	Unknown – Structural drawings not available
☐	☐	☐	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18" for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)	Unknown – Structural drawings not available
☐	☐	☒	COLUMN SPLICES: Steel columns encased in shear wall boundary elements shall have splices that develop the tensile strength of the column. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.9)	

CONNECTIONS

C	NC	N/A		COMMENT
☐	☐	☐	TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)	Unknown – Structural drawings not available
☐	☐	☐	FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)	Unknown – Structural drawings not available
☐	☐	☐	SHEAR-WALL-BOUNDARY COLUMNS: The shear wall boundary columns shall be anchored to the building foundation for Life Safety and the anchorage shall be able to develop the tensile capacity of the column for Immediate Occupancy. (Tier 2: Sec. 4.6.3.6)	Unknown – Structural drawings not available

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

This Supplemental Structural Checklist shall be completed when required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

C	NC	N/A		COMMENT
			LATERAL FORCE RESISTING SYSTEM	
☐	☐	☐	COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than d/2 and shall be anchored into the confined core of the beam with hooks of 135º or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)	Unknown – Structural drawings not available
☐	☐	☒	OVERTURNING: All shear walls shall have aspect ratios less than 4 to 1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4)	
☐	☐	☒	CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2 to 1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5)	
☐	☐	☒	REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6)	
☐	☐	☒	WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4". This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7)	
☐	☐	☐	WALL CONNECTIONS: There shall be a positive connection between the shear walls and the steel beams and columns for Life Safety and the connection shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.8)	Unknown – Structural drawings not available

Building ID: 37-A1-D By/Firm: DW, LD, Forell/Elsesser Date: 7/24/03
Bldg. Name: County Courthouse Page: 79 of 84

3.7.6S SUPPLEMENTAL STRUCTURAL CHECKLIST FOR BUILDING TYPE S4 STEEL FRAMES WTH CONCRETE SHEAR WALLS

C	NC	N/A		COMMENT
			DIAPHRAGMS	
☐	☐	☐	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25% of the wall length for Life Safety and 15% of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)	Unknown – Structural drawings not available
☐	☐	☒	PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)	
☐	☐	☒	DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50% of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)	
			CONNECTIONS	
☐	☐	☐	UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)	Unknown – Structural drawings not available

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

This Geologic Site Hazards and Foundations Checklist shall be completed when required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked compliant (C), non-compliant (NC), or not applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 evaluation procedure; the section numbers in parentheses following each evaluation statement correspond to Tier 2 evaluation procedures.

C	NC	N/A		COMMENT
			GEOLOGIC SITE HAZARDS	

The following statements shall be completed for buildings in levels of high or moderate seismicity.

C	NC	N/A		COMMENT
☒	☐	☐	LIQUEFACTION: Liquefaction susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet. under the building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.1.1)	
☒	☐	☐	SLOPE FAILURE: The building site shall be sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or shall be capable of accommodating any predicted movements without failure. (Tier 2: Sec. 4.7.1.2)	
☐	☒	☐	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Tier 2: Sec. 4.7.1.3)	An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.

CONDITION OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

C	NC	N/A		COMMENT
☒	☐	☐	FOUNDATION PERFORMANCE: There shall be no evidence of excessive foundation movement such as settlement or heave that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.1)	

The following statement shall be completed for buildings in levels of high or moderate seismicity being evaluated to the Immediate Occupancy Performance Level.

C	NC	N/A		COMMENT
☐	☐	☒	DETERIORATION: There shall not be evidence that foundation elements have deteriorated due to corrosion, sulfate attack, material breakdown, or other reasons in a manner that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.2)	

3.8 GEOLOGIC SITE HAZARDS AND FOUNDATIONS CHECKLIST

CAPACITY OF FOUNDATIONS

The following statement shall be completed for all Tier 1 building evaluations.

☐	☐	☒	POLE FOUNDATIONS: Pole foundations shall have a minimum embedment depth of 4 ft. for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.3.1)	

The following statements shall be completed for buildings in levels of moderate seismicity being evaluated to the Immediate Occupancy Performance Level and for buildings in levels of high seismicity.

☐	☐	☐	OVERTURNING: The ratio of the effective horizontal dimension of the lateral-force-resisting system at the foundation level to the building height (base/height) shall be greater than 0.6Sa. (Tier 2: Sec. 4.7.3.2)	Unknown – Structural drawings not available
☐	☐	☒	TIES BETWEEN FOUNDATION ELEMENTS: The foundation shall have ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Class A, B, or C. (Tier 2: Sec. 4.7.3.3)	Site Class C
☐	☐	☒	DEEP FOUNDATIONS: Piles and piers shall be capable of transferring the lateral forces between the structure and the soil. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.4)	
☐	☐	☒	SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story in height. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.5)	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			URM PARTITIONS	
☐	☐	☐	UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions shall be adequately braced at a spacing of equal to or less than 10 ft in levels of low and moderate seismicity and 6 ft. in regions of high seismicity or shall be installed tight from floor to floor. Such walls shall not have a height to thickness ratio of greater than 15:1. (Tier 2: Sec. 4.8.1.1)	Unknown – Structural drawings not available
			CLADDING AND GLAZING	
☐	☐	☐	SUSPENDED LATH AND PLASTER: Ceilings over assembly areas for more than 50 occupants consisting of suspended lath and plaster or gypsum board shall be attached to resist seismic forces for every 12 square feet of area. (Tier 2: Sec. 4.8.2.4)	Unknown – Could not be verified at site
			CLADDING AND GLAZING	
☐	☐	☐	CLADDING ANCHORS: Cladding components weighing more than 10 psf shall be mechanically anchored to the exterior wall framing at a spacing equal to or less than 4 ft. A spacing of up to 6 ft is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.1)	Unknown – Structural drawings not available
☐	☐	☐	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.4.2)	Unknown – Could not be verified at site
☐	☐	☒	CLADDING ISOLATION: For moment frame buildings of steel or concrete, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.3)	
☐	☐	☐	MULTISTORY PANELS: For multistory panels attached at each floor level, panel connections shall be detailed to accommodate a drift ratio of 0.02. Panel connection detailing for a story drift ration of 0.01 is permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.4)	Unknown – Structural drawings not available
☐	☐	☐	BEARING CONNECTIONS: Where bearing connections are required, there shall be a minimum of two bearing connections for each wall panel. (Tier 2:	Unknown – Structural drawings not available

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

C	NC	N/A		COMMENT
			Sec. 4.8.4.5)	
☐	☐	☐	INSERTS: Where inserts are used in concrete connections, the inserts shall be anchored to reinforcing steel or other positive anchorage. (Tier 2: Sec. 4.8.4.6)	Unknown – Structural drawings not available
☐	☐	☐	PANEL CONNECTIONS: Exterior cladding panels shall be anchored out-of-plane with a minimum of 4 connections for each wall panel. Two connections per wall panel are permitted where only the Basic Nonstructural Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.7)	Unknown – Structural drawings not available
			MASONRY VENEER	
			Note: Masonry veneer components shall only be considered over points of egress or over outdoor public assembly areas.	
☐	☐	☒	SHELF ANGLES: Masonry veneer shall be supported by shelf angles or other elements at each floor 30 feet or more above ground for Life Safety and at each floor above the first floor for Immediate Occupancy. (Tier 2: Sec. 4.8.5.1)	
☐	☐	☒	TIES: Masonry veneer shall be connected to the back-up with corrosion-resistant ties. The ties shall have a spacing of equal to or less than 24" with a minimum of one tie for every 2-2/3 square feet. A spacing of up to 36" is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.5.2)	
☐	☐	☒	WEAKENED PLANES: Masonry veneer shall be anchored to the back-up adjacent to weakened planes such as at the locations of flashing. (Tier 2: Sec. 4.8.5.3)	
☐	☐	☒	DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.5.4)	
			PARAPETS, CORNICES, ORNAMENTATION AND APPENDAGES	
☐	☐	☒	URM PARAPETS: There shall be no laterally unsupported unreinforced masonry parapets or cornices with height-to-thickness ratios greater than 1.5. A height-to-thickness ration of up to 2.5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2:	

3.9 (Modified) NONSTRUCTURAL COMPONENT CHECKLIST

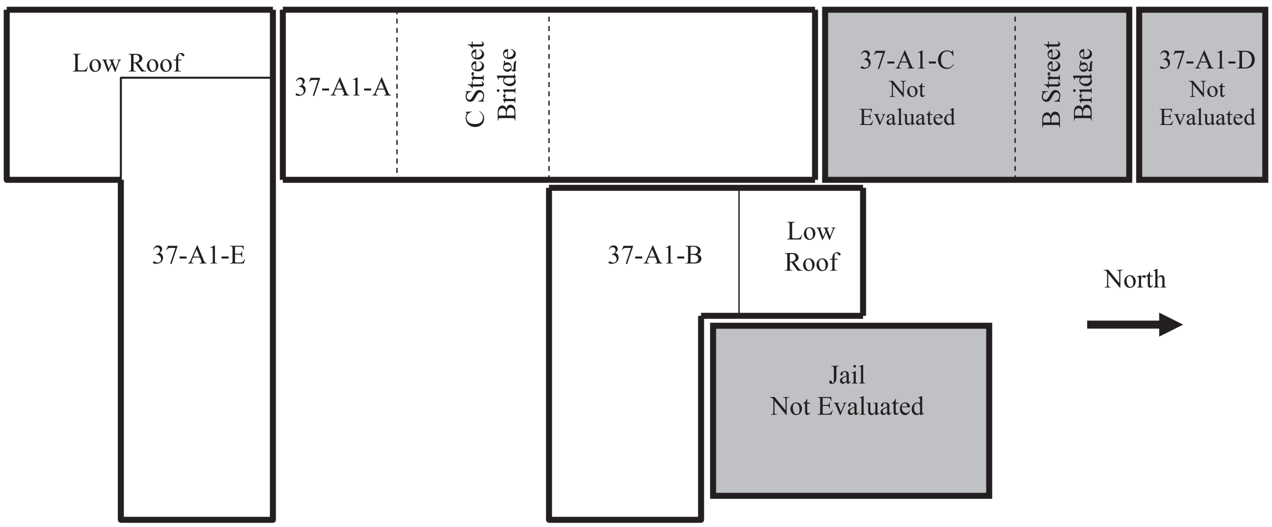
C	NC	N/A		COMMENT
			Sec. 4.8.8.1)	
☐	☐	☒	CANOPIES: Canopies located at building exits shall be anchored at a spacing of 6 feet or less. An anchorage spacing of up to 10 feet 5 is permitted where only the Basic Nonstructural Checklists is required by Table 3-2. (Tier 2: Sec. 4.8.8.2)	

California Court Building Seismic Assessment Program
Tier 2 Evaluation
Cover Sheet

Building ID: 37-A1 By/Firm: DW, ST, Forell/Elsesser Reviewed By: Mason Walters
Bldg. Name: County Courthouse Date:
Bldg. Address: 220 West Broadway, San Diego, CA 92101 Page: 1 of 22

Bldg. Ids Included in this report	**Document Availability (Drawings, reports, etc.)**
37-A1-E	Structural Drawings
37-A1-A	Structural Drawings
37-A1-B	Structural Drawings

KEY PLAN



BUILDING PHOTO(S)

West Elevation at C Street Bridge
(37-A1-E, 37-A1-A)

California Court Building Seismic Assessment Program
Tier 2 Evaluation
Cover Sheet

Building ID: *37-A1* By/Firm: *DW, ST, Forell/Elsesser* Reviewed By: *Mason Walters*
Bldg. Name: *County Courthouse* Date:
Bldg. Address: *220 West Broadway, San Diego, CA 92101* Page: 2 of 22

West Elevation at B Street Bridge
(37-A1-A, 37-A1-C, 37-A1-D)

Building ID:	*37-A1* By/Firm: *DW, ST, Forell/Elsesser*	Date:	
Bldg. Name:	*County Courthouse*	Page:	3 of 22

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Building ID: *37-A1-E* By/Firm: *DW, ST, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 4 of 22

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-B), South Block (37-A1-E and 37-A1-A) and an 8 story Jail. In 1962 an Annex (37-A1-C and 37-A1-D) was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. The Annex structure was not evaluated because the Tier 1 evaluation could not be completed due to a complete lack of documentation. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

The South Block has a long rectangular footprint with a small 4 story bump-out at the southern side. The South Block is the only portion of the building that contains a mezzanine level.

Structural System

The gravity system above the first floor consists of 4 ½" normal weight concrete slabs that were cast to the bottoms of beam top flanges. In some areas corrugated metal deck was used. Steel beams, girders, trusses and columns were fabricated from ASTM A7-55T material. Below the 1st Floor, concrete slabs, joists, girders and columns support gravity loads. The foundation includes concrete spread footings and wall strip footings.

The lateral system is solid/punched concrete shear walls, cantilever shear walls and shear yielding steel piers. Boundary reinforcement is light and ties are spaced typically at 12 inches or more. Some square columns contain spiral reinforcement with a 2" pitch. Steel connections are unknown because the drawings refer to specifications that are not available. Walls thicknesses vary between 8 and 10 inches and contain minimal reinforcement, typically #4 at 10" on center each way. Openings are typically trimmed with #4 horizontal bars and 2#7 vertical bars at the jambs.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1957*	
Year/Design Code:	*1955 UBC Assumed*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls*	

SITE DATA

Site Class: *C* S_{DS}: *1.02g* S_{D1}: *0.65g*

Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the shear stress check and wall connections, the expected seismic performance is poor with extensive cracking of core walls likely at the fourth floor. The shear inadequacies could lead to compromised vertical stability. The concrete cover on the perimeter steel columns could spall posing a life safety hazard from falling material.

Building ID: *37-A1-E* By/Firm: *DW, ST, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 5 of 22

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.

DSA SEISMIC RISK LEVEL (Tier 2): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

Further Study (Beyond Tier 2): ☒ No Further Study, Assign Risk Level From Tier 2

☐ Further Study Recommended (Explain below)

Building ID: *37-A1-E* By/Firm: *DW, LD, Forell/Elsesser* Date: *7/24/03*
Bldg. Name: *County Courthouse* Page: 6 of 22

PRELIMINARY RETROFIT CONCEPT

Add walls in the east-west direction at either end of the 8 story building segment to mitigate the building vertical stability hazard. New walls should reduce building drift and mitigate concrete cover spalling life safety issue.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived

A geotechnical engineer should investigate means to mitigate fault rupture damage.

DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Shear Stress Check	*Do not waive. The east-west shear walls are overstressed at the fourth floor where the building footprint increases. The expected seismic failure mode is shear yielding walls at the stair cores. The perimeter punched wall which has shear yielding steel piers lacks the stiffness to draw loads away from the cores. The shear DCR at the east stair tower is 1.64 and at the west tower is 1.73.*
Vertical Discontinuities	*Waive. Although discontinuities appear in multiple wall elements throughout the building, they are typically bounded by steel framing. Extensive cracking is expected at these locations but partial collapse is unlikely.*
Surface Fault Rupture	*Do not waive. An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*
Torsion	*Do not waive. The L-Shaped plan has a center of rigidity that is offset from the center of mass. Additional seismic shear applied to shear walls due to torsion results in overstress of the shear walls.*
Wall Connections	*Do not waive. Concrete cover on shear yielding columns (typical perimeter longitudinal elevations above the fifth floor) is susceptible to spalling when the building undergoes significant drift. This concrete is exterior and serves the purpose of building cladding. Concrete is attached to the columns with deformed bar anchors, however the concrete itself is poorly confined limiting the effectiveness of the anchorage. Large chunks of this cladding material could shed from the exterior of the building in an earthquake. These falling objects could pose a life safety hazard.*
Suspended Lath and Plaster	*Do not waive. Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified. This element is critical because lath and plaster construction is brittle and could become a falling hazard.*

Building ID: 37-A1-E By/Firm: DW, LD, Forell/Elsesser Date:
Bldg. Name: County Courthouse Page: 9 of 22

ANALYSIS METHODS

Linear static analysis was used in both directions do determine seismic demands. The center of mass and rigidity for the upper stories of this building are relatively coincident so direct shear only was considered. In the east-west direction, the likely failure mechanism is a weak plane above the fourth floor. The stair core stiffnesses were computed and compared with the perimeter line column yielding mechanism. The results show that a majority of the load is attracted to the webs of the core walls and they are significantly overstressed with a DCR of 1.64 and 1.73 respectively. In the north-south direction, cantilever wall were checked at the fourth floor. Relative rigidities were used to establish load distribution and no wall overstresses were found.

DOCUMENTATION

Architectural Drawings: *None*

Structural Drawings: *Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*

As-Built Drawings, Nov 29, 1957

Sheets S1-S14, S16, S17, S19-S52

Other Drawings *None*

Reports: *None*

Limitations of available documents: *Drawings reference specifications that are not available, "for structural steel connections not shown."*

Some portions of the drawings such as precast pre-tensioned panel connection details are illegible

WALK-THROUGH SITE VISIT

Date of visit: *July 16, 2003*

Limitation of walk-through: *Courtrooms and holding cells were not accessible*

California Court Building Seismic Assessment Program
Tier 2 Evaluation
Summary Sheet

Building ID: *37-A1-A* By/Firm: *DW, LD, Forell/Elsesser* Date: ________

Bldg. Name: *County Courthouse* Page: 11 of 22

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-B), South Block (37-A1-E and 37-A1-A) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

The North Block consists of two segments separated by a 4" seismic joint. The western segment (37-A1-A) has a long rectangular footprint and crosses "C" street. The upper two stories are continuous over the street passage.

Structural System

The gravity system above the 1st Floor consists of 4 ½" normal weight concrete slabs that were cast to the bottoms of beam top flanges. In some areas corrugated metal deck was used. Steel beams, girders, trusses and columns were fabricated from ASTM A7-55T material. Below the 1st Floor, concrete slabs, joists, girders, and columns support gravity loads. The foundation includes concrete spread footings and wall strip footings.

The lateral system is punched and cantilever concrete shear walls. Boundary reinforcement is light, typically (4) #4 bars and ties are non-conforming #3 bars typically spaced at 12" or more. Some square columns contain spiral reinforcement with a 3" pitch. Steel connections are unknown because the drawings refer to specifications that are not available. Wall thicknesses vary between 8 and 12 inches and contain minimal reinforcement. 8" walls are typically reinforced with #4 bars at 10" on center each way. 12" walls are typically reinforced with two curtains of #4 bars at 12" on center each way. Openings are typically trimmed with #4 horizontal bars and (2) #7 jamb bars.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1957*	
Year/Design Code:	*1955 UBC Assumed*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.02g* **S_{D1}:** *0.65g*

Geologic Hazard(s): Fault Rupture: *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the SHEAR STRESS CHECK and WALL CONNECTIONS, the expected seismic performance is poor with extensive cracking of line A piers and transverse boundary elements likely. The extent of shear walls drop off significantly above the second floor and damage is expected to be concentrated at this level. Precast pre-stressed panel details were difficult to read. It is clear however that the panels have inadequate deformation compatibility capacity. Rigid panel connections would result in extensive damage by attracting load. Failure mechanism of the panel is likely shear failure of the shallow anchor assemblies which could initiate panel delamination from the building.

Building ID: *37-A1-A* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 12 of 22

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.

DSA SEISMIC RISK LEVEL (Tier 2): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

Further Study (Beyond Tier 2): ☒ No Further Study, Assign Risk Level From Tier 2

☐ Further Study Recommended (Explain below)

Building ID: *37-A1-A* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 13 of 22

PRELIMINARY RETROFIT CONCEPT

Add walls to reduce shear stress. These walls would be most effective in the longitudinal direction along line E and in the transverse direction infilling panels at lines 8,13 and 17. Provide or repair connections if field exploration determines their seismic detailing is poor or the connections are in poor condition.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Buildings of this vintage typically lack adequate bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

A geotechnical engineer should investigate means to mitigate fault rupture damage

Building ID: *37-A1-A* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 14 of 22

DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Shear Stress Check	*Do not waive. The walls are minimally reinforced and the Quick Shear Stress Check indicates that the walls would be overstressed by 40%. The Tier 2 evaluation confirmed that the longitudinal and transverse shear walls are overstressed by 40% and 60% respectively. The shear walls transition to shorter lengths above the second floor. The failure mode in the longitudinal direction is a shear mode through the poorly reinforced pier segments of lineA. The failure mode in the transverse direction is flexural yielding and concrete crushing of the cantilever walls along lines 8 and 13. Non-linear analysis would likely indicate significant additional torsional deformation at the ends of the building. The resulting degradation of the building's lateral stiffness would likely result in significant structural and nonstructural damage which could lead to extensive building damage or instability.*
Surface Fault Rupture	*An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*
Deterioration	*Do not waive. Cladding connections were not visible therefore the condition could not be verified. Seismic adequacy of the cladding connections could not be ascertained from the drawings, but are likely grossly inadequate. If wall anchors are deteriorated, they would have less capacity to resist seismic loads and would be more likely to fail. Failure of the wall connections would result in a life safety hazard as described above.*
Wall Connections	*Waive. All perimter wall panels are dowelled to the roof slab and floor slab at openings as a minimum. It is unlikely that complete wall panel segments would fall away from the building.*
Suspended Lath and Plaster	*Do not waive. Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified. This element is critical because lath and plaster construction is brittle and could become a falling hazard.*
Vertical Discontinuities	*Waive. Anaylisis indicates that the three piers above the bridge resist 100 kips of shear a piece. Pier shear and moments react against a significant steel girder and concrete spandrel assembly. Load redistribution is not significant concern as there are 15 spandrels and a 38 foot wall segment along this line.*

ANALYSIS METHODS

Linear static analysis was used in both directions. In the transverse direction, elastic torsional moments were distributed based on a rigid diaphragm assumption. Relative rigidity analysis was used to distribute wall shear loads above the second floor. XTRACT was used to compute wall nominal flexural capacities when required.

Building ID: *37-A1-A* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 16 of 22

DOCUMENTATION

Architectural Drawings: *None*

Structural Drawings: *Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*

As-Built Drawings, Nov 29, 1957

Sheets S1-S14, S16, S17, S19-S52

Other Drawings *None*

Reports: *None*

Limitations of available documents: *Drawings reference specifications that are not available, "for structural steel connections not shown."*

Some portions of the drawings such as precast pre-tensioned panel connection details are illegible

WALK-THROUGH SITE VISIT

Date of visit: *July 16, 2003*

Limitation of walk-through: *Courtrooms and holding cells were not accessible*

Building ID: *37-A1-B* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 17 of 22

BUILDING DESCRIPTION

Site and Building Configuration

The courthouse building, built in 1957, included a North Block (37-A1-B), South Block (37-A1-E and 37-A1-A) and an 8 story Jail. In 1962 an Annex was constructed adjacent to the North Block. The jail structure was not evaluated because it is separated from the courthouse building by a 4 inch seismic joint and the jail does not contain any courthouse functions. Each of the blocks is separated by a 4 inch seismic joint and the Annex is separated by a 6 inch seismic joint. The site is flat with a slight slope along the north-south axis of the building. The South Block has 8 stories (including a Mezzanine) plus 1basement level, the North Block has 4 stories plus one basement level, and the Annex has 7 stories and one basement level. The top floor of the Annex is used for mechanical equipment. The North Block contains a 2 story bridge over C Street and the Annex contains a 4 story bridge over B Street. Floor heights vary between 10 and 15 feet.

The eastern portion of the North Block is an "L" shaped building.

Structural System

The gravity system consists of 4 ½" normal weight concrete slabs that were cast to the bottoms of beam top flanges. In some areas corrugated metal deck was used. Steel beams, girders, trusses and columns were fabricated from ASTM A7-55T material. The foundation includes concrete spread footings and wall strip footings.

The lateral system is punched and cantilever concrete shear walls. Boundary reinforcement is light typically (4) #4 bars and ties are non-conforming #3 bars spaced typically at 12 inches or more. Some square columns contain spiral reinforcement with a 2" pitch. Steel connections are unknown because the drawings refer to specifications that are not available. Wall thicknesses vary between 8 and 12 inches and contain minimal reinforcement. 8" walls are typically reinforced with #4 bars at 10" on center each way. Openings are typically trimmed with #4 horizontal bars and (2) #7 jamb bars.

	Original	Addition(s)
Building Condition:	*Good*	
Date of Construction:	*1957*	
Year/Design Code:	*1955 UBC Assumed*	
ASCE 31 Bldg. Type:	*S4: Steel Frames w/ Conc. Shear Walls*	

SITE DATA

Site Class: *C* **S_{DS}:** *1.03g* **S_{D1}:** *0.65g*
Geologic Hazard(s): **Fault Rupture:** *Yes* **Liquefaction:** *No* **Landslide:** *No*

OVERALL SEISMIC DEFICIENCIES & EXPECTED SEISMIC PERFORMANCE

Due to the TORSION and SHEAR STRESS CHECK, the expected seismic performance is poor with extensive cracking of second floor walls at lines 17,17.5,21.3 and F. The wall dimensions drop off significantly above the second floor and damage is expected at this location. The shear wall inadequacies would likely initiate a global vertical instability of the structure. Precast pre-tensioned panel details were difficult to read. It is clear however that the panels have inadequate deformation compatibility capacity. Poor seismic detailing of the panel connections would result in extensive damage as the rigid connections would attract load. Failure mechanism of the panel is likely shear failure of the shallow anchor attachment assemblies.

California Court Building Seismic Assessment Program
Tier 2 Evaluation
Summary Sheet

Building ID: *37-A1-B* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 18 of 22

An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site. If this occurs, the foundation of the building would be subjected to large differential movements that may induce large forces in the building superstructure. This could result in a significant Life Safety risk. However, even if a more detailed geotechnical investigation finds that the risk of surface fault rupture is minimal, the building would still be rated as a V because of the expected performance described above.

DSA SEISMIC RISK LEVEL (Tier 2): ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☒ **V** ☐ **VI** ☐ **VII**

Further Study (Beyond Tier 2): ☒ No Further Study, Assign Risk Level From Tier 2

☐ Further Study Recommended (Explain below)

California Court Building Seismic Assessment Program
Tier 2 Evaluation
Retrofit Concept Sheet

Building ID: *37-A1-B* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 19 of 22

PRELIMINARY RETROFIT CONCEPT

Add walls to reduce shear stress. These walls would be most effective at line E.5 and 17.5. Provide or repair connections if field exploration determines their seismic detailing is poor or the connections are in poor condition.

Provide lateral bracing for suspended lath and plaster ceiling in areas of public assembly for more than 50 occupants. Please note that the space above the ceiling was not accessible to verify the method of attachment of the lath and plaster ceiling. Most likely, buildings of this vintage will lack the required bracing for lateral forces. Should future destructive exploration demonstrate the presence of adequate lateral bracing, the above retrofit requirements can be waived.

A geotechnical engineer should investigate means to mitigate fault rupture damage

Building ID: *37-A1-B* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 20 of 22

DEFICIENCY LIST (Listed in order of importance)

Non-Conforming Checklist Item	Justification to Waive Non-Compliance
Shear Stress Check	*Do not waive. The walls are minimally reinforced and the Quick Shear Stress Check indicates that the walls would be overstressed. The Tier 2 evaluation confirmed that shear walls would be overstressed by up to 3 times and therefore would experience a significant amount of cracking and damage during a seismic event. The shear walls above the second floor of this building transition quickly to much narrower walls. As such, the section just above the second floor will see the greatest damage. The walls at line 17 (DCR=1.1), line 17.5 (DCR=1.16), Line f (DCR=2.54) and Line 21.3 (DCR=3.32) are overstressed. The wall at line 21.3 is particularly vulnerable because the wall section narrows significantly below the second floor. The resulting degradation of the building's lateral stiffness would likely result in significant structural and nonstructural damage which could lead to a partial or total collapse of the building.*
Torsion	*Do not waive. The L-Shaped plan has a center of rigidity that is offset from the center of mass. Additional seismic shear applied to shear walls due to torsion results in overstress of the shear walls.*
Surface Fault Rupture	*Do not waive. An initial geotechnical investigation suggests that surface fault rupture and surface displacement may occur at the building site.*
Deterioration	*Do not waive. Cladding connections were not visible therefore the condition could not be verified. Seismic adequacy of the cladding connections could not be ascertained from the drawings but they are likely grossly inadequate. If wall anchors are deteriorated, they would have less capacity to resist seismic loads and would be more likely to fail. Failure of the wall connections would result in a life safety hazard as described above.*
Suspended Lath and Plaster	*Do not waive. Courtrooms were not accessible. Neither the presence of lath and plaster ceilings nor the anchorage could be verified. This element is critical because lath and plaster construction is brittle and could become a falling hazard.*
Vertical Discontinuities	*Waive. Although discontinuities appear in walls along line 21.3, 17.5 and E.5, they are typically supported by steel framing. Extensive cracking is expected at these locations, but partial collapse is an unlikely result.*

Building ID: *37-A1-B* By/Firm: *DW, LD, Forell/Elsesser* Date:
Bldg. Name: *County Courthouse* Page: 21 of 22

ANALYSIS METHODS

Linear static analysis was used in both directions. Torsion was distributed based on wall stiffness and distance from center of rigidity. Rigid diaphragms were assumed. Wall stiffnesses were determined based on relative rigidity table and were scaled to 8" concrete walls with 3,000 psi concrete. Flexural wall capacities were determined with the EXTRACT program.

Building ID: 37-A1-B By/Firm: DW, LD, Forell/Elsesser Date:
Bldg. Name: County Courthouse Page: 22 of 22

DOCUMENTATION

Architectural Drawings: *None*

Structural Drawings: *Hamill, Hope, Lykos, Wheeler, Freeland - Associated Architects and Engineer,*

As-Built Drawings, Nov 29, 1957

Sheets S1-S14, S16, S17, S19-S52

Other Drawings *None*

Reports: *None*

Limitations of available documents: *Drawings reference specifications that are not available, "for structural steel connections not shown."*

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WALK-THROUGH SITE VISIT

Date of visit: *July 16, 2003*

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